EAST ANGLIAN ARCHAEOLOGY
Frontispiece
Reconstruction of church 7098 as it might have looked when first built in the early to mid 8th century. Drawn by Donna Wreathall after an outline by Andrew Tester
Staunch Meadow, Brandon, Suffolk: a high status Middle Saxon settlement on the fen edge

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## Contents

| List of Plates | vi |
| List of Figures | vii |
| List of Tables | ix |
| Contributors | x |
| Acknowledgements | xi |
| Summary | xii |

### Chapter 1. Introduction
- I. Topography and setting
- II. Surrounding sites
- III. Background to the project
- IV. The excavations
- V. Post-excavation
- VI. Historical background, by R.D. Carr, A. Holten-Krayenbuhl and A.M. Breen
- VII. Terminology

### Chapter 2. Phasing and Dating
- I. Introduction
- II. Dating, with contributions by I. Tyers, P. Marshall and A. Bayliss
- III. Middle and Late Saxon phasing

### Chapter 3. Pre-Saxon Activity
- I. Introduction
- II. Period I: Mesolithic, with a contribution by E. Martin
- III. Neolithic and Bronze Age evidence, with a contribution by S. Percival
- IV. Period II: Iron Age, with contributions by S. Anderson, V. Fryer, P. Murphy, S. Percival and J. Plouviez
- V. Roman evidence, with contributions by J. Plouviez and C. Tester

### Chapter 4. Period III: the Middle Saxon Settlement, by Andrew Tester
- I. Introduction
- II. Phase 1.1
- III. Phase 1.2
- IV. Phase 2.1
- V. Sub-phase 2.1.1
- VI. Phase 2.2
- VII. Phase 2.3
- VIII. Phase 2.4

### Chapter 5. Building Materials
- I. Introduction
- II. Timber, by Richard Darrah
- III. Window glass, by Rosemary Cramp
- IV. Ceramic building material, by Sue Anderson
- V. Fired clay, by Sue Anderson
- VI. Iron structural fittings, by Nicola Rogers
- VII. Stone

### Chapter 6. Household Objects
- I. Introduction
- II. Pottery, by Paul Blinkhorn
- III. Iron vessels, by Nicola Rogers
- IV. Copper alloy vessels and fittings, by Ian Riddler
- V. Wooden vessels, by Carole A. Morris and Nicola Rogers
- VI. Glass vessels, by Vera Evison
- VII. Stone lamps, by Sue Anderson
- VIII. Utensils, by Ian Riddler, Carole A. Morris and Nicola Rogers
- IX. Keys and locks, by Nicola Rogers and Ian Riddler
- X. Box, chest or furniture fittings, by Nicola Rogers and Ian Riddler

### Chapter 7. Cemeteries and People, by Sue Anderson
- I. Introduction
- II. Cemetery 1
- III. Cemetery 1 human remains
- IV. Cemetery 2
- V. Cemetery 2 human remains
- VI. Disarticulated remains from other parts of the site

### Chapter 8. Personal items
- I. Introduction
- II. Dress accessories, by Ian Riddler, with Vera Evison and Nicola Rogers
- III. Toilet implements, by Ian Riddler with a contribution by Nicola Rogers
- IV. Literacy and communication, by Ian Riddler, Vera Evison and Ray Page
- V. Miscellaneous objects, by Ian Riddler
- VI. Weaponry, by Nicola Rogers with Patrick Ottaway
- VII. Knives and hones, by Nicola Rogers and David Williams

### Chapter 9. Trade, Agriculture and Manufacturing
- I. Introduction
- II. Saxon coins, by Michael Metcalf
- III. Weights, by Jane Cowgill
- IV. Objects related to animal husbandry, by Nicola Rogers and Ian Riddler
- V. Objects related to crop processing, by Cathy Tester, with David Williams and Sue Anderson
- VI. Metalworking, by Nicola Rogers, Lynne Keys, Jane Cowgill, David Williams and Ian Riddler
- VII. Woodworking, by Nicola Rogers
- VIII. Leatherworking, by Nicola Rogers, Ian Riddler and Jane Cowgill
- IX. Textile production and treatment, by Penelope Walton Rogers
- X. Antler and bone working, by Ian Riddler
XI. Non-specific or unidentified tools, by Nicola Rogers and Ian Riddler 294

Chapter 10. Environment and Economy
I. Introduction 296
II. Animal bone, by Pam Crabtree and Douglas Campana 296
III. Fish bone, by Alice Humphrey and Andrew K.G. Jones 312
IV. Coprolites, by Andrew K.G. Jones and Alice Humphrey 313
V. Valley sediments and plant macrofossils, by Peter Murphy and Val Fryer 313
VI. Palynology, by Patricia Wiltshire 330

Chapter 11. Period IV: the End of the Settlement
I. Introduction 337
II. Post-Saxon evidence at Staunch Meadow 337
III. Excavations at Brandon Leisure Centre (BRD 071) 341
IV. The Middle and Late Saxon sequence, by Ian Riddler 353
V. Medieval Brandon 355

Chapter 12. Discussion
I. Early activity 356
II. Site formation 356
III. The buildings and structures 357
IV. The people and daily life 369
V. Economy, tribute, manufacture and trade 372
VI. Religious and funerary aspects 377
VII. The nature and changing character of the settlement 383
VIII. Brandon in its regional setting 392
IX. Brandon in its ideological landscape 392
X. The end of the settlement 393
XI. Conclusion 393

Appendices
Appendix 1: List of major groups and features and plan showing grid square contexts 394
Appendix 2: The burials 397
Appendix 3: Chemical analysis of copper alloy objects 400
Bibliography 407
Index, by Sue Vaughan 430

List of Plates

Plate 1.1 Brandon; aerial photograph from 1946 looking north 2
Plate 1.2 Earthworks can be seen in the winter sunlight 3
Plate 1.3 Contour survey at 0.25m intervals of the site during winter flooding 3
Plate 1.4 Evaluation trenches excavated in 1979 6
Plate 1.5 The excavation team in 1981 8
Plate 4.1 The Brandon 'churches' from the north 48
Plate 4.2 Church 7098 from the west 51
Plate 4.3 Church 7098, cleaning the surface before excavation 52
Plate 4.4 Church 7098, south-west corner of the western extension 52
Plate 4.5 The medieval enclosure ditch and adjacent buildings 53
Plate 4.6 Building 1096 in the foreground with 1095 behind 59
Plate 4.7 Building 7500 looking south through the north entrance 68
Plate 4.8 Building 0734 70
Plate 4.9 Building 0734, plank remains in the south-west corner 71
Plate 4.10 Building 0734, timber stains in trench 71
Plate 4.11 Building 4531 during excavation 75
Plate 4.12 Buildings 4670 and 6864 76
Plate 4.13 Peninsula 6893, the remains of wattles and other organic debris on the surface of the peat 86
Plate 4.14 Structure 5390 with the centrally placed quern stone 89
Plate 4.15 Building 1391, the ground is sloping away towards the camera 97
Plate 4.16 The section around the telegraph pole (shown in 4.15) was cut back to show the entrance to the building in section from the surface 97
Plate 4.17 Buildings 6864 and 4670 (Phase 2.3) 105
Plate 5.1 Selected examples of window glass 141
Plate 6.1 Decorative disc sf2162, from a bowl 166
Plate 6.2 Globular beakers: monochrome and polychrome 172
Plate 6.3 Globular beakers: reticella 173
Plate 6.4 Miscellaneous glass vessels: bowls, claw beakers and other forms 174
Plate 6.5 Copper alloy key sf0602 182
Plate 7.1 Sk. 3116/3126 enlargement of tibia shafts, anterior 204
Plate 7.2 Sk. 3095 loss of left femoral head and narrowing of shaft 205
Plate 7.3 Sk. 3095 shortening of right side of mandible and distortion of the right temporo-mandibular joint 206
Plate 7.4 Sk. 1917 crush fracture of thoracic vertebrae 207
Plate 7.5 Sk. 4019 depressed fracture of left frontal bone 207
Plate 7.6 Sk. 4038 cut on right humerus 208
Plate 7.7 Sk. 4038 cut on femur with fragment of detached bone 208
Plate 7.8 Sk. 4038 cut at lambda 208
List of Figures

Frontispiece  Brandon church
Fig. 1.1 Location map: East Anglia  xiv
Fig. 1.2 Location map showing other sites in and around Brandon  4
Fig. 1.3 Staunch Meadow and surrounding sites  5
Fig. 1.4 The excavation sequence  7
Fig. 2.1 Component plan  14
Fig. 2.2 Phase diagrams showing the major components in each phase of the Saxon period  23
Fig. 3.1 Prehistoric features  27
Fig. 3.2 Iron Age and Roman small finds  29
Fig. 4.1 Excavation plan showing all post-prehistoric features  32
Fig. 4.2 Key to sections  34
Fig. 4.3 Master plan of sections  35
Fig. 4.4 Phase 1.1 plan  36
Fig. 4.5 Phase 1.1 sections  37
Fig. 4.6 Building 8125  38
Fig. 4.7 Building 8127  39
Fig. 4.8 Building 8137  40
Fig. 4.9 Causeway sections  42
Fig. 4.10 Building 2901-2902-8184  43
Fig. 4.11 Phase 1.2 plan  45
Fig. 4.12 Phase 1.2 sections  46
Fig. 4.13 Phase 2.1 plan  49
Fig. 4.14 Building 7098 with inset showing surrounding features  50
Fig. 4.15 Building 8832  53
Fig. 4.16 Building 9289  54
Fig. 4.17 Phase 2.1 section  55
Fig. 4.18 Building 2925  56
Fig. 4.19 Building 2926  57
Fig. 4.20 Building 1094  58
Fig. 4.21 Building 1096  60
Fig. 4.22 Building 8139  62
Fig. 4.23 Phase 2.2 plan  64
Fig. 4.24 Building 8851  65
Fig. 4.25 Details of the entrance to enclosure 8133  66
Fig. 4.26 Building 7500  67
Fig. 4.27 Building 8892  69
Fig. 4.28 Building 0734  70
Fig. 4.29 Building 4491  73
Fig. 4.30 Building 2920  74
Fig. 4.31 Building 4531  75
Fig. 4.32 Building 4670  76
Fig. 4.33 Building 8138  78
Fig. 4.34 Building 8131  79
Fig. 4.35 Phase 2.2 northern detail showing fence lines  80
Fig. 4.36 Building 4886  82
Fig. 4.37 Phase 2.3 northern detail  82
Fig. 4.38 Waterfront peninsula 6892  84
Fig. 4.39 Waterfront peninsula 6893  85
Fig. 4.40 Waterfront peninsula 8116  88
Fig. 4.41 Waterfront peninsula 8117  90
Fig. 4.42 Area west of building 8131  91
Fig. 4.43 Building 2923  92
Fig. 4.44 Building 1095  93
Fig. 4.45 Phase 2.2 eastern area detail  95
Fig. 4.46 Building 1391  96
Fig. 4.47 Building 8122  98
Fig. 4.48 Building 9012  98
Fig. 4.49 Building 9031  99
Fig. 4.50 Phase 2.3 plan  101
Fig. 4.51 Building 8927  102
Fig. 4.52 Building 8893  103
Fig. 4.53 Phase 2.3 sections  103
Fig. 4.54 Building 6864  104
Plate 7.9  Sk. 4038 cut across parietals from above 208
Plate 7.10  Sk. 4055/4062 cuts on skull 209
Plate 7.11  Sk. 3079 healed cut on frontal bone 209
Plate 7.12  Sk. 1882 atrophied right tibia and femur with normal left bones 210
Plate 7.13  Sk. 4003 three lesions on the frontal bone 211
Plate 7.14  Clay pad structure 4669 214
Plate 7.15  Sk. 4946 porotic hyperostosis of parietals and cribra orbitalia of right orbit 218
Plate 8.1  Beads 223
Plate 8.2  Strap ends sf2342 and sf3638, and hooked tag sf2164 226
Plate 8.3  Pins with spherical heads: sf2166, sf2299 and sf2300 230
Plate 8.4  Spiral-headed pin sf2298 236
Plate 8.5  Linked pins with disc-shaped heads sf2343 and sf8679 237
Plate 8.6  Figurative-headed pins sf2161 and sf2163 239
Plate 8.7  Styli 258
Plate 8.8  Glass inkwells 258
Plate 8.9  sf8679 runic inscription on reverse of disc pin head 261
Plate 8.10  sf0836 runic tweezers 262
Plate 8.11  X-ray of sword hilt sf2827 266
Plate 9.1  Saxon coins 272
Plate 9.2  Glass linen-smoother 293
Plate 9.3  Frore deer bones 297
Plate 9.4  Otter mandible 297
Plate 9.5  Grey seal humerus 297
Plate 9.6  Vertebr of a small whale 297
Plate 9.7  Hare remains from Brandon 298
Plate 9.8  Example of sheep horn cores showing ‘fingertip’ depressions that may be signs of inadequate diet 301
Plate 9.9  Skull of a male red deer. One antler removed by chopping; the other by sawing 307
Plate 9.10  Examples of split cattle long bones 309
Plate 9.11  Skeleton of a peregrine falcon 311
Plate 10.1  Elderberry seeds 323
Plate 10.2  Scutching waste 325
List of Tables

Table 2.1 Summary of tree-ring dates from building 0734 15
Table 2.2 New samples providing dendrochronological dating 15
Table 2.3 Radiocarbon results 17
Table 2.4 Typological small finds dating evidence 20
Table 3.1 Roman coins 31
Table 5.1 Growth rate and character of timber used in oak piles from structure 8184 and from the bridge, and a modern standard oak tree growing in 'coppice with standards management' in Bradfield Woods, Suffolk 133
Table 5.2 Tool marks and details of shaping on the piles 134
Table 5.3 Building 0734: the cross-sections, dimensions, growth rate, and conversion with an estimate of the trunk size from which they were made 136
Table 5.4 Building 1094: the cross-sections, dimensions, growth rate, and conversion with an estimate of original trunk size 136
Table 5.5 Growth rates of unstratified timbers 137
Table 5.6 Size of peg-holes and auger sizes used 138
Table 5.7 Quantities (count) of Roman CBM by fabric and form 143
Table 5.8 Thicknesses of RBT and possible types 144
Table 5.9 CBM from layers (count) 146
Table 6.1 Saxon pottery quantification by fabric 150
Table 6.2 Ipswich Ware jars by rim form type 155
Table 6.3 Ipswich Ware pitchers by rim form type 155
Table 6.4 Ipswich Ware vessel consumption, by phase, % of EVE 157
Table 6.5 Pottery occurrence per stratigraphic phase (% weight), as a percentage of the phase assemblage 160
Table 6.6 Ipswich Ware occurrence, small jar rim forms, Group 1 fabrics, in EVE 160
Table 6.7 Comparisons of pottery quantities by fabric in stratigraphically-related components 161
Table 6.8 Distribution of forms and fabrics by area 163
Table 6.9 Cross-fits of distinctive vessels 164
Table 6.10 Glass vessel types and colours 172
Table 7.1 Coffin burials by sex and phase 192
Table 7.2 Distribution of sex by phase 195
Table 7.3 Distribution of age groups by phase 195
Table 7.4 Life table for articulated skeletons from cemetery 1 195
Table 7.5 Mean stature by phase 197
Table 7.6 Comparison sites for cemetery 1 198
Table 7.7 Adult age and sex distribution 199
Table 7.8 Age distribution of children 199
Table 7.9 Stature means and ranges 199
Table 7.10 Results of MMD comparison of Brandon with sites in Suffolk, Norfolk and York 200
Table 7.11 Dental remains quantification 200
Table 7.12 Osteophytosis and osteoarthritis by general joint area 202
Table 7.13 Osteochondritis dissecans 204
Table 7.14 Age distribution of children in cemetery 2 216
Table 7.15 Dental remains quantification 217
Table 8.1 Copper alloy and silver pins from stratified deposits 242
Table 8.2 Bone or antler pins 243
Table 8.3 Single-sided composite combs 247
Table 8.4 Handled combs 252
Table 9.1 Statistics for smithing hearth bottoms 279
Table 9.2 Weight of slag and number of smithing hearth bottoms (SHBs) by grid square 280
Table 9.3 Statistics for smithing hearth bottoms associated with the forge area 280
Table 10.1 Total mammal bones 296
Table 10.2 Species ratios based on MNI and NISP 298
Table 10.3 Phased species ratios 299
Table 10.4 Body part distribution for cattle, sheep/goat, pig, and horse remains 300
Table 10.5 Portions of major long bones identified for cattle, pigs and sheep/goat 300
Table 10.6 Sheep bone measurements 301
Table 10.7 Distribution of withers heights calculated for Brandon sheep 301
Table 10.8 Measurements of cattle bones 303
Table 10.9 Distribution of withers heights estimates for domestic cattle 303
Table 10.10 Measurements of pig bones 305
Table 10.11 Withers height estimates for pigs 305
Table 10.12 Measurements of horse bones 306
Table 10.13 Withers height estimations for horses 306
Table 10.14 Measurements of dog bones 307
Table 10.15 Withers heights calculated for complete dog limb bones 307
Table 10.16 Proportions of deer bones recovered from Brandon and West Stow 307
Table 10.17 Body part distribution for red and roe deer 307
Table 10.18 Measurements of red deer bones 308
Table 10.19 Measurements of roe deer 308
Table 10.20 Summary of butchery evidence 309
Table 10.21 Bird bones 309
Table 10.22 Plant remains from Section 1 315
Table 10.23 Plant remains from Section 2 316
Table 10.24 Plant remains from Section 3 316
Table 10.25 Plant remains from Section 4 318
Table 10.26 Summary of peat stratigraphy, macrofossil data and dating 320
Table 10.27 Charred plant macrofossils from concentrations of charred material in the waterfront area 322
Table 10.28 Plant remains from organic deposits in the waterfront area 324
Table 10.29 Charred plant remains from some Middle Saxon cut features 326
Table 10.30 Plant macrofossils preserved by waterlogging in pit 0045 327
Table 10.31 Dimensions of Prunus fruitstones 328
Table 11.1 Medieval and later pottery at Staunch Meadow 341
Table 11.2 Pottery at BRD 071 344
Table 11.3 Fabrics and quantities of fired clay 345
Table 11.4 Animal bones identified at BRD071 350
Table 11.5 Species ratios for the large domestic mammals based on NISP and MNI 351
Table 11.6 Body part distribution for the main domestic mammals 351
Table 11.7 Withers' height estimates (in cm) based on complete horse long bones 351
Table 11.8 Withers' height estimates for cattle 352
Table 11.9 Withers' height estimates for sheep 352
Table 12.1 Buildings: summary of features and interpretations 358
Table 12.2 Middle Saxon Styli from excavated contexts 381
Table 12.3 Middle Saxon object categories indicative of monastic activity 382
Table A3.1 Smaller groups of small finds within the dense cluster 403

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The Brandon excavations were begun in 1979 with a trial excavation funded by the Ancient Monuments Commission in advance of a proposed site levelling for football pitches. Subsequently excavation was undertaken by a labour force from the Youth Opportunities Programme (YOP), which was recruited in Ipswich, supplemented with a grant to provide trained archaeological supervisors provided by English Heritage. Robert Carr, acting for the County Council, initiated the project with the help and co-operation of the landowners, Brandon Remembrance Playing Fields Committee; successive Committee Chairmen were of great help — Bill Bishop and ‘Kenny’ were conspicuous in their support in the early stages by allowing access and ensuring space in the development timetable. Encouragement from the local community came via the Revd Canon Munday, the prominent local historian, and most particularly from David Pocock, the local archaeologist and schoolmaster. The all-important excavators for all the subsequent seasons were entirely drawn from government employment programmes, firstly the Youth Opportunities Programmes and, from 1983, adults from the Manpower Services Commission schemes; all came to the site without archaeological knowledge and left (mostly fulfilled and encouraged) one year later; a remarkable number have progressed into full-time archaeological jobs. Invaluable funding was also supplied by English Heritage to supervise the excavations and carry out post-excavation work. The excavators are too numerous to mention but those of us who have remained look back with fond memories on the camaraderie generated by excavating latrines and sharing the burden of excavation in all kinds of weather, summer and winter. Whether the schemes were meant to massage unemployment figures or not there is no doubt that the majority of the participants benefited from the experience.

Brandon has been a long-running project and many people have been involved over the years. While Robert Carr oversaw the excavations, the list of supervisors running the site included Tom Loader, Andrew Tester, Cathy Tester, William Filmer-Sankey, David Gill, Isobel Perry and Joanna Caruth. The basics of a good excavation have changed little since the early eighties but Brandon saw the introduction of computers as an invaluable tool in post-excavation. William Filmer-Sankey should be credited with wrestling with the ‘green screen’, creating our first digital database and analysing the bronze pins which were the classic find type of the site. He also carried out the first experiments with the gridted recovery of the finds from the excavation layer which has, with the advent of new technology, produced the spectacular finds distribution plots that appear in Chapter 4. The Suffolk Archaeological Unit has owned and used metal detectors from the early eighties, but without the experience of Alan Smith the finds recovery from this and many other sites would have been all the poorer.

Post-excavation work on the site was carried out during the eighties and a number of reports were started and many completed during the 1990s, but it is fair to say that the overwhelming scale of the excavations was not properly addressed as a whole until the new project for publication was begun in 2004 with new funding agreed from English Heritage following a MAP2 assessment and project design which this publication is the result. Significant help and corrective guidance has been supplied by Barney Sloane, Kath Buxton and Tom Cromwell at English Heritage.

Within Suffolk County Council patient support for the project has come from Dr Stanley West and particularity Keith Wade and Richenda Goffin; alongside their excavation work, David Gill and Joanna Caruth have contributed both to the interpretation of the site records and to the publication. In this later phase, alongside her specialist work, Rosemary Cramp has offered encouragement throughout. Thanks should also go to those indirectly linked to the project who have offered opinions by attending the site seminars and those who have been canvassed from outside the project; included in these groups are (in no particular order) Jess Tipper, Catherine Hills, Andrew Rogerson, Tim Pestell, Richard Hoggett, John Blair, Mark Gardiner and Chris Scull. Pam Crabtree would like to acknowledge a grant from the US National Endowment for the Humanities, which helped to fund her work on the faunal remains.
Between 1980 and 1988 excavations took place on the Middle Saxon settlement at Brandon, which is located on the edge of the fenland in the county of Suffolk. The site occupies a raised ‘island’ of windblown sand within the floodplain of the Little Ouse and approximately 11,750 sq. metres were excavated to make way for sports fields. Prior to excavation the field was a meadow that was characterised by a series of earthworks, which included a raised enclosure tentatively identified as the site of a medieval chapel, a causeway that linked the island to the floodplain, and a series of linear features. It is a normal archaeological coincidence that the significance of the earthworks and Middle-Saxon dating of the pottery in mole hills was first recognised by archaeologists in the mid 1970s at the same time as the independent discovery by a metal detectorist of a gold plaque with an image of St John the Evangelist, possibly from the corner of an Anglo-Saxon Bible, confirmed that this was likely to be a site of particular importance.

The excavations uncovered approximately one third of the ‘island’ and exposed the evidence of a settlement which lasted from the mid 7th to the late 9th centuries. The remains of at least thirty five buildings were excavated, which included timber in many of the post-holes. Other structural features were: a raised causeway, a wooden bridge, two cemeteries and two churches. An area along the waterfront was given over to textile processing with structures linked to dyeing and bleaching, and a smithy and a possible bakery were also identified. Bulk finds from the site included 157,000 fragments of animal bone, 24,000 sherds of pottery and 416kg of slag. Smaller objects included twenty Anglo-Saxon coins, bronze pins, fragments of window and vessel glass and over 100 bone objects. Several items of personal dress were manufactured in silver or gold. There was compelling evidence for literacy with a number of objects bearing runic inscriptions, including a knife handle, silver tweezers and a gilded silver pin as well as fragments of eight glass inkwells. By carefully plotting the finds, either individually or by grid, from the buried occupation surface it has been possible to demonstrate both the casual loss of objects and the accumulation of rubbish in heaps across the site.

Following the rapid decline of the site late in the 9th century, settlement moved from the ‘island’ to the edge of the floodplain but a medieval causeway leading to an enclosure remained. The enclosure awaits excavation but trial trenches across it suggest that it contained a medieval religious building, which may have been the chapel of St Andrew that disappears from historical records for Brandon in the 13th century.
Zusammenfassung


(Übersetzung: Gerlinde Krug)
Figure 1.1 Location map: East Anglia
Chapter 1. Introduction

1. Topography and setting
Figs 1.1; Pl. 1.1–1.3

The town of Brandon is situated c.25m inland of the Wash beside a 1km-wide branch of the fens, which follows the valley of the Little Ouse river c.6km inland from Hockwold Fen in Norfolk (Fig. 1.1). The county boundary between Norfolk and Suffolk is drawn along the line of the river. The lowest crossing point of the Little Ouse until recent times was probably at Brandon and the ground rises as it approaches the town from the west. The valley floor lies close to the boundary between Raw peat soils and Typical gley soils towards Brandon bridge with Typical brown earths (non-calcerous sands) towards the edge of the floodplain (Soil Survey of England and Wales 1983).

Staunch Meadow lies to the west of the town, south of the river and just within Suffolk (Pl. 1.1). The site occupies a gentle rise formed of wind-blown glacial sand within the floodplain of the river (NGR: TL 7790 8656). A maximum height of 5.4m OD was sufficient to leave the site dry in time of flood, forming an ‘island’ surrounded by peat. The river is some 50m north of the ‘island’ while the southern margin of the peat deposits (i.e. the edge of the floodplain) is c.80m to the south. The ‘island’ is c.350m east–west by 150m north–south at its widest point with an area of some 4.75ha. Of this c.1.5ha at the west end appears to have been occupied and a further c.1.25ha at the east end of the island has been scheduled as an Ancient Monument; the remaining 2ha in the centre of the ‘island’ formed the focus of the excavations reported here. Before the excavations two earthworks were visible: a ditched enclosure measuring 40m x 70m close to the river and a causeway leading from the island to the south (Pl. 1.2–1.3).

The nearest recorded Middle Saxon settlement was at Thetford, only 5.5 miles to the south-east (8 miles by river). The nearest substantial settlements were Bury St Edmunds, which was 14.5 miles to the south by land and Ely, 16 miles to the west, but toward the centre of the fens and much further by water.

Environmental setting
by Patricia Wiltshire

The excavations at Staunch Meadow provided an opportunity to recover evidence relating to the changing environment of the area from the late Iron Age to Saxon periods. The methodology and detailed results of the palaeo-botanical and palynological analyses at Brandon are fully discussed in Chapter 10 but are presented here as a summary to provide an environmental setting for the site.

Archaeological and biological evidence suggests a long history of human exploitation. The record of the true local vegetation might have been obscured to some degree by plant debris which had been accidentally or purposely dumped onto the site. However, vegetation changes were demonstrated by the palynological analysis.

In the late Iron Age, changes in local hydrology resulted in peat formation over ploughed, basal sands, and the rise in water table (which seems to have led quickly to the development of local swampy soils) might have been caused by woodland clearance by Iron Age peoples. Woodland fluctuated throughout the history of the meadow but it was never abundant at any time for the period under consideration.

The environs of Brandon seem to have been much more open than other areas further east in East Anglia. The riverine site at Scole, for example, indicated that there was extensive clearance of woodland in that area in the late Iron Age (Ashwin and Tester forthcoming). Since riverine deposits will contain pollen from the river catchment and, thus, a wider area, it can be said with some confidence that the areas around both Brandon and Scole had been extensively cleared of woodland by the late Iron Age although there were more trees at Scole than at Brandon.

The Staunch Meadow site was set in a very open landscape with few trees or shrubs. The land bordering the river was dominated by herb-rich reed swamp for the whole of the period represented by the peat sequence. The site seems to have had a mixed arable and pastoral economy from the late Iron Age through to Roman times. There were several episodes when arable agriculture appears either to have been given more emphasis, or at least carried out nearer to the site.

There was no clear evidence for a lack of management in the early post-Roman phase. Rye and hemp were grown, and possibly processed, some distance away from the settlement, presumably on more suitable soils. The relatively low level of weeds during this period indicates that the fields were well-tended and the drop in grasses and plants of the tall-herb community shows that the meadow was probably being extensively exploited. The reeds and other tall plants might also have been a useful resource for the settlement.

The pollen evidence indicates that flax joined hemp as an important textile plant. The relative abundance of plants which could have been used as textile dye throughout the period of Saxon settlement strengthens the view that textile processing could have been carried out at the site. Retting pits were not found but the pollen and plant residues from both hemp and flax confirm that these plants were being brought onto the site. It is possible that retting could have been carried out in the river but, if this were the case, it would have been likely to be downstream of the settlement.

Later in the Saxon period, some intense and catastrophic event resulted in a rapid influx of sand into the peat. Arable agriculture continued to be important but the nature of the vegetation changed. The reed swamp vegetation recovered and the weed flora became more diverse. This strengthens the archaeological evidence of occupation of the site being abandoned, and the focus of settlement moving to the adjacent river bank some 500m to the east.
II. Surrounding sites
Figs 1.2–1.3

The Staunch Meadow site has the Suffolk Historic Environment Record (HER) code BRD018. Seventeen other Saxon and medieval sites and findspots are recorded by the HER within a kilometre of Staunch Meadow (Figs 1.3–1.4). The data recorded in the HER is not a systematic collection of information; the established evidence is now being balanced by an ever-increasing amount of metal detected finds reporting. Inevitably this provides little evidence from within the centre of the present town. It does show Late Saxon and early medieval finds along the edge of the floodplain where arable fields have been metal detected.

Three smaller sites are related to the main area, these being the Rectory garden (BRD045, Late Saxon pottery finds), Church Road (BRD048, small excavation revealed possible Late Saxon buildings), the Leisure Centre (BRD071, excavation of Late Saxon and early medieval settlement). Late Saxon stray finds are recorded as sites BRD025 (penny of Burghred, king of Mercia 852–74), BRD047 (sceatta) and BRD075 (strap-end). Limited fieldwork at other sites in the area has produced Late Saxon and medieval pottery and features (BRD024, 068, 083/089, 156, 164) and at BRD165 a small possible execution cemetery of Late Saxon date was partially excavated (Tester 2004). Medieval structures are located at four sites, although two of these are speculative: Brandon bridge (BRD014), Church of St Peter and St Paul (BRD049), a possible medieval chapel (BRD094), and the possible site of the medieval West Bridge and chapel of the Virgin and St Etheldreda (BRD112).

For the earlier Anglo-Saxon period the Suffolk HER has been augmented by the results of excavations and, particularly, metal detected finds since excavations ceased in 1988, with over 300 entries within 20 miles of the site in Suffolk alone. Most significant are the excavations at RAF Lakenheath, which have revealed Early Anglo-Saxon settlement and cemeteries containing the burials of at least 450 individuals dating between the 5th to 7th centuries. While the evidence base has improved since 1988, the pattern of settlement spread along the river valleys has not changed (J. Caruth, pers. comm.). On the Norfolk side, Early Anglo-Saxon settlement has been identified at Two Mile Bottom and on the southern part of the Thetford bypass.
Plate 1.2 Earthworks can be seen in the winter sunlight. A: medieval enclosure; B: causeway; C: bank and ditch forming the western edge of the site; D: waterfront peninsulas; E: 19th-century excavations

Plate 1.3 Contour survey at 0.25m intervals of the site during winter flooding
Figure 1.2 Location map showing other sites in and around Brandon
III. Background to the project

In 1979, the Remembrance Playing Fields Committee, a charitable trust controlling Staunch Meadow, initiated a project to convert parts of the site into football pitches and a fishing lake. There was sufficient evidence available at this time to merit archaeological interest and Robert Carr carried out an evaluation of the site in July 1979. This consisted of eight trial trenches (Pl. 1.4), seven of which were randomly placed, and one was positioned to cross the large medieval enclosure in the north-east of the ‘island’. The evaluation located a range of features and finds dating from the Middle Saxon period. Within the targeted trench in the ditched enclosure, disturbed sand was uncovered and it contained large amounts of human bone together with two broad, thick spreads of flint, mortar and worked clunch. This was interpreted as the remains of two walls forming a structure c.6.5m wide externally, and some 21 x 8m in extent, and representing a medieval religious building which may have been the successor to an earlier structure (Martin 1980, 293–4).
The resulting excavations were initiated on a ‘rescue’ footing (predating both PPG16 and MAP2 by some considerable time). The aim was the recording of archaeological remains in the area earmarked for development. Discussions took place between Robert Carr of Suffolk County Council and the Remembrance Playing Fields Committee and a scheme was adopted allowing excavation to precede development.

The excavations continued in five long seasons before coming to a halt in 1988. During this time c.1.2ha, perhaps a third of the potential settlement site, was excavated. From the start, the excavations produced remarkable evidence of settlement remains with heaps of animal bone and pottery, and the outlines of post-holes with surviving timbers.

The need to excavate ahead of development coincided with high levels of youth unemployment and various schemes provided the workforce which enabled a hugely labour-intensive ‘digging’ programme to be carried out. Undoubtedly one of the successes of the project was the intensive excavation of the occupation soil, the rural ‘dark earth’, combined with the early use of metal detectors as a site tool. A consequence of this was a substantial finds archive of a type rarely seen on rural sites, particularly those from Anglo-Saxon times. The weight of evidence impacted on the post-excavation programme and bringing this project to publication has been a long process. Much of the early post-excavation work was carried out by William Filmer-Sankey who also introduced computers to the project. Contour plots of finds distributions were laboriously hand drawn and, more recently, these have been replicated and considerably enhanced with the aid of computers. The project stalled in the early 1990s and was moth-balled during the early period of developer-funded archaeology, being resurrected again during 2003 with a fresh grant from English Heritage for analysis and publication that began in 2004.

This report is the result of a long drawn-out process, and some of the specialist contributions which were commissioned early on in the life of the post-excavation project have not been revised — some of the analysis is therefore a product of its time.

IV. The excavations
Fig. 1.4; Pl. 1.5

The excavations between 1980–83 were largely staffed by school leavers on the Youth Opportunities Programme (YOP) with a skeletal team of professionals directed by Robert Carr for Suffolk Archaeological Unit, and supervised by Tom Loader, Andrew Tester and William Filmer-Sankey (Pl. 1.5). Only limited excavation of upstanding features took place, although a contour survey was carried out prior to excavation (Pl. 1.3). The majority of the site was stripped using a JCB excavator to the top of the natural subsoil (Fig. 1.4). Following the 1980 summer season excavations began again in the following May, running continuously through the winter and spring of 1982. It included the largest area to be open during a single season. The third season of excavation was under less pressure from development and YOP was replaced in 1983 by the ‘Community Programme’ scheme, thereby increasing the age of the workforce.

An excavation strategy was developed over the seasons to deal with the ground conditions. This sand site had an ‘occupation horizon’ surviving almost everywhere that contrasted between a thin brown soil (0.1–0.2m) and a thickened almost black soil, the latter with visible concentrations of finds (up to 0.25m deep). The site was heavily disturbed by moles, and excavators needed to ‘get
their eye in' to follow the features, although the edges were usually clear against the natural sand. Excavation took place at all times of year in all weather conditions and, while sand-blows occasionally obscured features, early surface planning and re-cleaning prevented any significant loss of evidence. During the first season (1980A), aside from limited hand excavation around upstanding features such as ovens or chalk spreads, the occupation horizon was removed by machine, the site was cleaned with shovels and features were excavated from subsoil level. Below this level was a layer of grey sand in which features were hard to see unless they had a distinct fill of clay or dark soil, for example. This layer contained occasional finds from features and animal burrows. Further cleaning usually revealed grey sand features clearly outlined against yellow sand. The most southerly area of the 1980 excavations (Fig. 1.4, 1980B) was mechanically stripped to the yellow sand and the

Figure 1.4 The excavation sequence
The occupation surface was removed (this layer was not very distinct and no large middens, for example, were removed by machine).

During the second season (1981–2) an experimental area of 10m squares was de-turfed, and then excavated in 1m squares until the surviving occupation horizon was removed. The area was then cleaned, planned and individual features excavated. This trial was initiated to establish a context for the large number of finds removed by machine, particularly from the waterfront area, onto the spoilheaps or simply sectioned in ill-defined upstanding concentrations of darker soil containing finds. The system was felt to be a success but the 1m squares awkward to dig and unnecessarily small, so the scheme was modified to a grid of 2.5m squares and applied to the removal of the soil beneath the turf from 1983 onward. The change in excavation technique made a big difference to the bulk finds recovery. However, apart from two areas of heaping excavated in 1980, the areas excavated from 1983 onwards contained the thickest and darkest of the dark earth deposits.

Although metal detecting was carried out as part of the fieldwork from 1980 onwards there is no doubt that the site was illicitly looted at night; footprints in the sand and small holes were clear evidence of this but from 1983 onwards, and in the most central area of the site, the project-run metal detecting was thorough. By comparing this area with those that had been more exposed we can suggest that the coinage lost is unlikely to have been more than ten coins, but this is conjecture. We became better at metal detecting after 1983 with small finds plotted with tapes and grid references calculated during post-excavation. In this respect establishing the site grid on the National Grid was most useful. It cannot be emphasised enough that the presence of a skilled metal detectorist during most of the excavation was vital for recovering the metal small finds; many of these would have been lost or stolen if they had waited for hand excavation.

General plans were drawn at a scale of 1:50 between 1980–2 and thereafter at 1:20, which was also the scale for most of the sections, the exception was the waterfront where drawings were at 1:10. A single context recording system was used for all small finds. During the first season discrete features were half-sectioned and ditches sampled (very much as they are today), but from 1982 excavation was almost total with most of the ditch fills emptied; this was one benefit of using YOP and later employment schemes which provided most of the workforce.

From the first season specialist help was sought in scientific sampling, particularly from Peter Murphy, and later from Richard Macphail and Patricia Wiltshire. From 1983, as part of the occupation soil excavation, a 5kg sample was taken from each 2.5m square for flotation; only a sample of these was processed, however, the majority being discarded as was more normal practice at the time.

V. Post-excavation

Post-excavation analysis was funded by English Heritage and began in 1982 with the aim of producing a level III archive. It alternated with fieldwork and various specialist reports were started in the late 1980s and early 1990s. Individual articles appeared including a summary in Antiquity (Carr et al. 1988) and many of the finds appeared in the British Museum 'Making of England' exhibition (Webster and Backhouse 1991). Several of these older reports stand but a range of others have been commissioned within the new project which began with a MAP2 assessment (completed in 2004), and the approval of a new project design by English Heritage. This included the digitising of site plans, further finds analysis distribution
work and an enhanced radiocarbon dating programme. Research aims and objectives were formulated to focus the post-excavation analysis (Tester and Anderson 2004). The site archive and finds are housed in the stores of Suffolk County Council Archaeological Service.

VI. Historical background

Introduction
by R.D. Carr

At the completion of the excavation phase it became clear that the interpretation of the combined buildings, burials and high quality metalwork would lead to questions about the status and function of the settlement. The excavated indicators of both high status and religious functions made it necessary to search for early sources which might assist in the interpretation of the archaeological results, and the potential for such sources was increased if the initial interpretation was correct. Indeed assessment of the documentary sources showed that there had been links between the parish of Brandon and the abbey of Ely. In the first instance a documentary historian familiar with local records (A.M. Breen) researched primary and secondary sources, working backwards from the 19th century, in order to identify and link property names and tenants and owners of land, and trace records back to the medieval period. The intention was to provide a picture of the medieval landscape which might then allow associations with the much diminished documentary material from the Late Saxon and earliest medieval periods. These results were made available to a historian familiar with the early sources for the region, but with special knowledge of Ely, Anne Holton-Krayenbuhl.

In the final analysis, the brutal fact is that study of the documentary evidence has not greatly assisted with the "one-liner" interpretation of the settlement as being either high-status or monastic in origin. In simple terms sufficient documentary evidence for the site in either Saxon or early medieval times does not exist. However, this absence can neither be confidently interpreted as solely a product of the poor survival of sources, nor does it definitively indicate that the site had insufficient status to have appeared in records.

The two specialist reports are presented here in summary; they include a valuable outline to the historical context for the excavated settlement in the Saxon period, a précis of the current published opinion on the nature of early religious life, which may inform interpretation, a picture of the medieval landscape in the area and assessment of the evidence for a medieval chapel in the parish which may relate to excavated discoveries and early religious activity on the site.

Early period
by Anne Holton-Krayenbuhl

Historical background and documentary evidence

There are few surviving documents for the kingdom of the East Angles in the period preceding the Danish settlement of the later 9th century, but there are some traces of events from this early period in Liber Eliensis (Blake 1962, liv). Documents surviving in the archives of other kingdoms, such as law codes, reports of church synods and correspondence, complement this evidence. Documentary evidence for East Anglia becomes more plentiful from the 10th century.

Liber Eliensis records the history of monasticism at Ely from the foundation by Aethelthryth (c.672) to the later 12th century. Book II records the acquisition of lands by Bishop Aethelwold, on behalf of the monks following the refoundation of Ely Abbey in c.970, the quarrels arising therefrom, and the history of the abbey until the creation of the See of Ely in 1109; the references to Brandon occur in this book.

The Domesday Book records Brandon as a Manor of St Aethelthryth (Rumble 1986, vol 2, 215, 282); there is a similar entry in Inquisitio Comitatus Cantabrigiensis (Hamilton 1876, 142, 154). Brandon, together with certain other manors of Ely Abbey, was awarded to the bishop following the establishment of the See of Ely in 1109, and later records are included in the archive of the bishopric. This includes the two 13th-century custumals of the bishops of Ely. That of 1222 (BL Cott Tib BII) exists in one copy and is incomplete; the custumal of 1251 exists in three copies: CUL EDR G3/27; BL Cott Claud C XI; Caius College Cambridge MS 485/489 (Miller 1969, 5). These manorial surveys, listing the tenants and their customary obligations, provide a picture of the medieval manor and complement the summary information recorded in the Domesday Book.

Geographical setting

Middle Saxon Brandon lay in the kingdom of the East Angles, on the edge of the fenland basin at the lowest crossing-point over the River Little Ouse. The topography has been considerably altered by 17th-century drainage of the fens, and pre-drainage maps such as Dugdale’s (1662, 375) provide some idea of the landscape within which the settlement at Staunch Meadow developed.

The fenland rivers formed the main link between the Wash and the surrounding uplands, the fens serving as a buffer zone between the kingdom of East Anglia and that of Mercia whose territory covered the Midlands. The fluctuating boundary between these kingdoms possibly cut across the Isle of Ely in the 7th and 8th centuries (Miller 1969, 14). A settlement near Ely had been devastated by Penda’s army in the mid 7th century (Blake 1662, 4), but the foundation in c.672 of a monastery at Ely by Aethelthryth, daughter of King Anna of the East Angles, suggests that any Mercian domination had been short-lived. The Isle of Ely formed part of the kingdom of the East Angles in Bede’s time (Sherley-Price 1968, 241). Thus Brandon lay in an important position within the political–geographical context of Middle Saxon England, near the western boundary of the kingdom of the East Angles, and on the river route leading both to the Midlands, and to the Wash and north-west Europe beyond. Brandon was more closely connected with the Isle of Ely, some 23 miles (37km) distant, than the heart of the kingdom on the Suffolk coast.

Following the 10th-century absorption of the kingdom of East Anglia into Wessex, then England, and the creation of new boundaries, Brandon found itself in a peripheral location. Within the Hundredal organisation, probably established around the mid 10th century, Brandon lay at the north-west corner of Lackford Hundred (Meaney 1993, 67, 71). Brandon lies just within the boundary of Suffolk, probably established c.1066 (Warner 1996, 147), while in the context of the diocesan boundaries, as existing c.1291,
Monasticism and the Church in the Kingdom of East Angles

Liber Eliensis records an early 7th-century monastery near Ely that was destroyed by Penda (Blake 1962, 4). Other documented monasteries of the first half of the 7th century include those of Fursey and of Seigebert. The second half of the 7th century saw the foundation of monasteries at Icanhoh and Ely. In 653 Botwulf founded that at Icanhoh, probably Iken on the east coast of Suffolk; this soon became a centre of learning judged by the fact that the future abbot Ceolfrith of Monkwearmouth and Jarrow went there to be educated under Botwulf. Aethelthryth founded her monastery at Ely in c.672; this was a double house for monks and nuns. There were other monasteries in the kingdom. A late 10th-century Life states that Witburb, a supposed sister of Aethelthryth, headed a monastery at Dereham (Love 2004, xvii). The monastery as pastoral centre and the lack of standardised observance in the Middle Saxon church, a community of priests responsible for preaching to the laity, without any occupational connotations (Foot 1992, 217). The term ‘minster’ is often used to denote a centre of ecclesiastical administration and pastoral care served by a monastery or a community of priests, such establishments originating in the early decades of conversion; the parochial formed the territory served by these ‘minsters’, many of which evolved into the mother-churches with wide parochial authority of the 11th and 12th centuries (Blair 1988, 1–2). Cambridge and Rollason (1995, 94) suggest that a monastery’s prime function was to pray for the safety of the king and the souls of the founder and his kin, and only catering for the religious needs of the inhabitants on the estate.

The bishop stood at the apex of church hierarchy and was ultimately responsible for pastoral care in the diocese, assisted by priests (Thacker 1992, 137–8); within this framework, the monasteries were probably responsible for a specific territory (Thacker 1992, 147). The East Anglian bishopric had been established in the 630s, with its seat at Domnoc, possibly Dunwich. In the 670s it was subdivided, the second episcopal seat being at Elmham; neither the location of the episcopal seats nor the boundaries of the sees are clear (Campbell 1996, 3–8). The names of bishops until c.780 are, however, known and are listed by Whitelock (1972, 20–22).

Lack of documentary evidence for Middle Saxon Brandon makes it impossible to define the nature of the settlement with certainty. The island location, and proximity to a navigable watercourse at the junction between upland and floodplain is compatible with an interpretation of the site as a monastery. The evidence for a textile industry might point to a nunnery or double house, the latter being a common type of foundation in the 7th century. The mixed occupants of the cemetery may well represent estate workers for whom the house would have had responsibility. The 9th-century abandonment of the settlement is compatible with the fate of double houses in England.
Sheep-rearing was important, as it had been in 1086 when heather was one of the resources from this land. The regulations concerning the use of common land in 1251 was suited to the nature of the terrain and its location, and the bridge, these may have been recorded on the missing incomplete, in 1251 there were about forty; in addition, figures for unfree tenants in 1222 are recorded as twenty-six holdings of free tenants, and that of population had greatly increased. The 1222 custumal of Brandon in 1086 (Rumble 1986, 2.21–2). In 1251, a church and a chapel of St Andrew are recorded as being in the gift of the bishop of Ely (CUL EDR G3/27, fo 189v). The chapel does not appear to have been involved in promoting the interests of Ely in the years preceding the Abbey’s refoundation and who represented King Edgar in 964 (Keynes 2003, 17, 19).

The first reference to a church in Brandon also occurs in the context of the endowment of Ely Abbey. Leofric and Aethelflaed had asked Bishop Aethelwold to consecrate a church at Brandon; the bishop had agreed on condition that Leofric might persuade his sisters to sell him their land at Stretham (Blake 1962, 82–3). The church may well be that recorded in Domesday Book as being part of the Manor of Brandon held by Ely Abbey (Rumble 1986, 2:21). In 1251, a church and a chapel of St Andrew are recorded as being in the gift of the bishop of Ely (CUL EDR G3/27, fo 189v).

The 1222 custumal records twenty-six holdings of free tenants, and that of 1251 had thirty-nine; figures for unfree tenants in 1222 are incomplete, in 1251 there were about forty; in addition, there were fifteen briggenmen responsible for the upkeep of the bridge, these may have been recorded on the missing folio of the custumal of 1222. The economy of the manor was suited to the nature of the terrain and its location, and regulations concerning the use of common land in 1251 show that heather was one of the resources from this land. Sheep-rearing was important, as it had been in 1086 when recorded livestock included 200 sheep. In 1251, there was a full-time shepherd, and unfree tenants had to provide hurdles and stakes for the sheep-fold annually.

**The later medieval and post-medieval landscape**

by A.M. Breen

This is an attempt to recreate the historical landscape from cartographic and manuscript sources. The early medieval landscape of Brandon is described in the two surveys of the bishops of Ely demesne lands made in 1222 and 1251. Many of the names of fields, pasture and meadow found in these surveys can also be found in later documents and by linking various sources it is possible to recreate the earlier landscape. The main sources are the manorial account and court rolls, the field book of 1566, the glebe terriers, numerous legal disputes of land rights and the large collections of post-medieval deeds. It has not been the intention of this research to study medieval sources in depth, and they have been used selectively to recreate the earlier landscape and to relate this to the map evidence.

There are no early maps or complete manorial surveys for Brandon, but such exist for other manors. Instead the fields were described in detail in 1566 and an index of the court rolls covering the years 1377 to 1557 was made about the same time (CUL Microfilm J592/2). The survival of field names from this period strongly suggests that the field boundaries shown on the 19th-century maps date from at least the late medieval period.

In the broadest terms the parish was divided into four ‘infields’, six ‘outfields’ and by the 13th century a warren is recorded; there were extensive pasture and meadow lands. There were three fish weirs on the river; the earliest, Hallewere, dates from at least the 11th century. The revenue from Hallewere was in the hands of the bridge men and helped to pay for the upkeep of the bridge. This arrangement may have dated from the early 13th century only. According to Lingwood’s Brandon Notes, ‘In 1200 the charter rolls show that King John confirmed the right of ferry at Brandon granted by Eustace, bishop of Ely to Winaro or Wyman of Brandon’ (Lingwood 1978). By 1331, it was noted that this weir was ‘eight years since decayed’ and in the following year the bridge was repaired.

The area of the excavation at Staunch Meadow was divided into smaller parcels of land during the 15th century and the evidence of the Court Rolls further suggests that the site was known at the end of that century as Red House Borough or variants of that name. In the 13th and 14th centuries this meadowland was known as the Borough and had been held as part of the demesne land.

Apart from the parish church of St Peter (the earliest surviving fabric is 13th century) there are documentary references for two chapels in the manor: St Mary, associated with a hermitage on the bridge of Brandon, not mentioned in documents before the beginning of the 15th century; and St Andrew, referred to in surveys of the bishop’s demesne manors of 1222 and 1251. However, the standard sources (the Taxation of Norwich 1254, the Tax of Pope Nicholas 1291 and the Inquisition of the Ninths 1322) do not contain any reference to either the chapel of St Mary or the chapel of St Andrew (Clark 1907). This might suggest that the chapel of St Mary had not been built and the chapel of St Andrew had decayed, but it should be remembered that these returns were for the purpose of
raising tax on the revenue of the church and it is possible that the chapels did not enjoy a separate endowment.

Although the location of the chapel of St Andrew is not defined by the medieval documentation, the parish copy of the 1809 Enclosure map has a later annotation written in pencil over the Staunch Meadow site, indicating the site of 'St Andrews Chapel'; the source for this assertion, and who made it, is unknown.

VII. Terminology

A site as large and complex as Brandon is difficult to describe using only the context and feature numbers originally attributed during the excavation. Where possible, 'component' numbers have been ascribed to groups of features (e.g. the post-holes making up a single structure, and linear features which were originally numbered by section; see Appendix 1).

Descriptive terms have also been used for a number of areas of the site. Some of these may be considered interpretative, but it has been necessary to introduce them early on in the document simply as a way of separating out the mass of structures and other features in the text. The reasons why these buildings and other features have been given particular names are explained at appropriate points in the descriptive and interpretative texts (mainly Chapters 4 and 12). The following terms are used frequently throughout the report:

- Waterfront: the area making up the northernmost extent of the site, and the manufacturing area close by.
- Medieval enclosure: the area on a slight mound to the north-east of the site, defined by a large ditch and containing a putative chapel building.
- Halls area: the central part of the site, where several phases of well-constructed buildings were identified.
- Churches: two phases of building at the centre of the site (7098 and 8851).
- Cemetery 1: the area of burials to the south of the churches.
- Cemetery 2: the area of burials to the western side of the medieval mound.
- Smithy: an area of ironworking debris at the centre of the site.
- Stable: an aisled and probably stalled structure (1391) located in the south-west of the site.
- Causeway: a linear earthwork forming the southern entrance to the island.
Chapter 2. Phasing and Dating

I. Introduction

The detailed phasing of rural sites with horizontal stratigraphy and discrete features is notoriously difficult but it became clear during the preparation of the site narrative that Brandon offered considerable scope for presentation by phase. The structure chosen will hopefully provide a clearer picture of the site morphology. Several key stratigraphic relationships provide a common thread to the main areas of the site. However, the limitations of the evidence are freely admitted.

Evidence recovered from the site has shown that there were two main prehistoric phases of activity. Period I refers to the Mesolithic use of the site, and Period II to the Iron Age. These periods were included at the assessment stage of the project, but were not taken further due to the prioritisation of resources on the period with the most potential. Summaries of the findings for these early periods are presented in Chapter 3.

No features of Roman date were identified on the site, but artefacts of Roman date were relatively common. It is presumed that the majority of Roman ceramic building material was brought to the site in the Middle Saxon period for use in fire-related features (see Chapter 5.IV). The Roman phase has therefore not been given a separate period designation, but some of the finds of this date are summarised in Chapter 3.

Period III refers to the Middle to Late Saxon occupation of the site (Chapter 4) and is summarised in Section III below. This period is subdivided into Phases 1 and 2 and various sub-phases. Period IV covers the medieval and later use of the site (Chapter 11).

II. Dating

Introduction

The detailed stratigraphic phasing of the site has been more firmly tied down with radiocarbon, dendrochronological and artefactual evidence. The dendrochronological and radiocarbon dating are presented in full below; the latter includes a table of the results using a Bayesian statistical model.

Coins have proved to be of only limited value for dating as they were largely unstratified and confined to a very narrow date range that was clearly not representative of the site as a whole. They do, however, provide a valuable terminus post quem for the waterfront textile working area with two recovered from the underlying destruction layer from Phase 2.1.1. Typological dating, provided by the small finds recovered after casual loss and scattered across the site, reveals a pattern of occupation extending across the Middle Saxon period but centred on the later part of that period.

The most widely used tool in typological dating is pottery and, by the standards of the period and of rural sites in general, this was plentiful at Brandon. Unfortunately the overwhelming majority was Ipswich Ware; the sub-division of this ‘monoculture’ for dating purposes has proved difficult (Chapter 6.II). Furthermore there is some uncertainty over the significance of both the hand-made Anglo-Saxon wares and the later Thetford Ware that is discussed below and in Chapter 6.

The dating of individual phases has been more difficult; this is not simply due to the lack of well sealed contexts but also to the overlap implied by the broad scheme that has been used. The problem of phasing huge quantities of bulk and small finds which were recovered from the tops of open ditches and across the surface of the site is discussed with the ‘dark soil’ and observations about the possible phasing of surface deposits are also discussed (Chapter 4.VII). Aspects of dating are discussed where relevant in Section III below. At the end of this section a dating framework has been applied to the phasing, but this is to be seen as a guide given the qualifications outlined above.

Summary of key stratigraphic relationships

In this section it is intended to summarise the key relationships that underpin the site sequence; to point out the assumptions that have been made based on spatial patterning, and to draw attention to the particular speculative jumps that are required.

Principal relationships

In the northern third of the site, ditch 6848 closely aligned with 6846 to create an enclosure with an entrance to the south. Ditch 6848 was cut by ditch 6849, which created a new entrance with ditch 6854 along the waterfront (the northernmost edge of the site). From their position it is suggested that buildings 8125 and 8127 were associated with the first enclosure (8127 and 6846 were both cut by ditch 6847). Building 8137 was at the bottom of a sequence of three buildings that are on separate alignments. Ditch 6848 was cut by post-holes and ditches and these were in turn cut by ditch 4450. Ditch 4450 was a palisade-type ditch that was joined at right angles by ditch 6914. The next connection here is spatial. Ditch 6914 was parallel to ditch 0681, running either side of a depression, and palisade ditch 4450 aligned with palisade ditch 8143 which bisected the southern part of the site to the south of the island. Palisade ditch 8143 enclosed two groups of buildings to the west, and there was a secondary curvilinear enclosure ditch 6856 within this area, but it was not stratigraphically connected.

A sequence of east–west ditches cut ditch 8143 in the centre of the site. These began with ditch 8135/0644, which aligned with ditch 8861 to the east, leaving a gap which formed a north–south entrance to the northern enclosure. The sequence continued with ditch 8134/0644, which aligned with ditch 8919 to the east, which expanded this enclosure slightly to the south. The encroachment in stages of the new enclosure entrance over building 8851...
shows clearly that ditch 8919 was at first contemporary with building 8851 and then post-dated it.

Ditch 8134 was cut by narrow ditch 8175, as was the latest of the buildings to the north, 8927. Ditch 8175 terminated beneath the network of ditches that make up the extant medieval enclosure. It is speculation that a version of the mound enclosure may have existed at this time.

Of the halls in the central area; building 8832 was below building 7500 which was cut by building 8893. To the east, building 9289 was sealed by building 8927, which also cut building 8892. A clear pathway was visible linking the entrances of buildings 7500 and 8892. Building 0734 at the western edge of the site was cut by post-medieval ditch 8150. These relationships indicate a sequence of three building phases on the site of the halls.

There is a clear stratigraphic sequence at the waterfront that shows dumped sand over ditch 6854 and burnt layer 8155 over the dumped sand. The burning layer was sealed by the various structures over the peat which had formed in this area. These features were sealed by a layer of black silt, which was sealed by rubbish deposits.
Of the buildings in this area, 4886 overlay the dumped sand at the waterfront and ditch 6854; buildings 2920, 6864 and 4531 all cut ditches connected to ditches 6854 and 6848; building 6864 cut building 4670; burials from cemetery 2 cut building 4531 and these in turn were cut by the central mound enclosure ditch.

The north–south ditches that marked the western limit to the site (6859) were a visible earthwork before the excavations began; an early version of this feature cut off building 2926 from the rest of the site. In the northern part of the site they were buried by a dark soil layer.

Within the western enclosure defined by ditch 8143, but not stratigraphically linked, there were two groups of four buildings. The group to the south were well stratified in the sequence 1094, 1096 (which may have been contemporary), 1095 and 2921. The second group could not be sequenced with confidence.

The stratigraphy at the entrance to the island presented a clear sequence with the stake fence, ditched trackway (1582, 1583, 1603), bridge (2909) and the medieval causeway earthwork. The bridge is likely to be either Late Saxon or early medieval, based on the results of the radiocarbon dating (see below).

It is difficult to phase the rubbish deposits but the distribution (Chapter 4. VII) makes it clear that there were heaps in the central area of site that were late in the site sequence. These include the rubbish over a smithy and the heaps that occurred in front of, and between, the last two halls (8893, 8927) and also the waterfront. It is expected that at least a proportion of the finds would be residual.

Areas of uncertainty

Important areas where phasing has been less clear include cemetery 1 (9368). It was not physically linked to any Saxon features; the evidence for the phasing of the cemetery is discussed in Chapter 7. It appears to have been eroded on the south side, possibly by traffic heading to and from stable building 1391 immediately to the east. Within the cemetery itself there were stratigraphically late coffin burials, which may be compared with cemetery 2. It is suggested that from the quantity of burials and the evidence for the longevity of settlement on the island, burials must have occurred here over a considerable period spanning several phases of occupation. From the location of the cemetery, below the highest ground and to the east, it is suggested that it came after the putative church 7098, or was contemporary with it, because it holds a central position.

Building group 2902, 2901 and 8173 was isolated alongside the causeway to the south of the site. As hand-made pottery was found in this area it is suggested that the structures may predate the introduction of Ipswich Ware, but this is uncertain. The narrowness of the ditched compound invites the suggestion that there was pressure on space when these buildings were occupied, which may indicate they were slightly later.

Sequences of three

A feature of the site is the appearance in several locations of three successive buildings on the same plot. This occurs in the central halls area, in each of the two building groups to the west of the site and in the building sequence on the waterfront. From this it is suggested that some of these changes were in parallel, but this was not always the case and individual buildings will have straddled the phasing. A similar suggestion is made for church structures 7098 and 8851, with two successive phases followed by abandonment with speculation that a third church lay within the medieval enclosure beyond the excavation. The symmetry of the sequence of three from Phase 2.1 (see Section III below) is complemented by their distribution around the site and by the pattern of ditches.

Dendrochronology

by Ian Tyers

Tree-ring analysis of some parts of the timber assemblage was originally undertaken in 1986 (Groves and Hillam 1986). This dated some timbers to the early 7th century, and also created two short undated site sequences and several undated individual sequences all thought to be of Saxon date. Table 2.1 shows the results for the four dated samples, all from building 0734.

The dates of the outer rings of the samples from building 0734 range from AD 501 to 602. In the absence of sapwood, a terminus post quem was calculated for the felling dates of the timbers. It is likely that all four samples are contemporary and were therefore probably felled after AD 612. The building cannot, therefore, have been constructed before AD 612.

Additional timbers were identified during assessment work in 2000, which were thought to be suitable for analysis. It was hoped analysis of these timbers would either help date some of the material undated in the original analysis, or provide additional evidence for the period of occupation on the site. A full report on this work is available in archive (Tyers 2000).

All surviving timbers from the site were assessed for their suitability for tree-ring analysis, and eleven new samples were selected from the material available. Eight of the selected timbers were found after preparation to contain measurable ring sequences, but only two could be dated (Table 2.2). Plank 5504 was recovered from layer 0734 AD 467–602 after AD 612.

Table 2.1 Summary of tree-ring dates from Building 0734

<table>
<thead>
<tr>
<th>Context</th>
<th>Date span</th>
<th>Felling date</th>
</tr>
</thead>
<tbody>
<tr>
<td>0739</td>
<td>AD 467–602 after AD 612</td>
<td></td>
</tr>
<tr>
<td>0740</td>
<td>AD 460–559 after AD 569</td>
<td></td>
</tr>
<tr>
<td>0748</td>
<td>AD 449–543 after AD 553</td>
<td></td>
</tr>
<tr>
<td>1938</td>
<td>AD 417–501 after AD 511</td>
<td></td>
</tr>
</tbody>
</table>

Table 2.2 New samples providing dendrochronological dating

<table>
<thead>
<tr>
<th>Context</th>
<th>Sample type</th>
<th>Sample size (mm)</th>
<th>Species</th>
<th>Total rings</th>
<th>Sapwood rings</th>
<th>ARW mm/year</th>
<th>Date of tree-ring sequence</th>
<th>Period of felling of the tree</th>
</tr>
</thead>
<tbody>
<tr>
<td>5504</td>
<td>Plank</td>
<td>100 x 30</td>
<td>Oak</td>
<td>115</td>
<td></td>
<td>0.88</td>
<td>AD 593–707</td>
<td>after AD 717</td>
</tr>
<tr>
<td>6599</td>
<td>Plank</td>
<td>125 x 10</td>
<td>Oak</td>
<td>157</td>
<td>CH</td>
<td>0.78</td>
<td>AD 519–675</td>
<td>after AD 685</td>
</tr>
</tbody>
</table>

Key: Sapwood rings; CH = series ends in heartwood at a charred surface. ARW = Average ring width in mm/year
5438 in the waterfront peninsula 6894, whilst 6599 was an unstratified find from the waterfront.

One of the two dated sequences is from the end of the 7th century AD or later, the other is of early 8th-century date or later. The earlier of these appears to be derived from a burnt timber. The newly obtained data indicate later activity on the site than had previously been indicated by tree-ring dating. The newly constructed sequence extends the tree-ring chronology obtained from the site from AD 597 to AD 707.

Radiocarbon dating and Bayesian modelling
by Peter Marshall and Alex Bayliss

Twenty-seven radiocarbon age determinations have been obtained on samples of human bone, waterlogged wood, charcoal, and peat. The radiocarbon results are given in Table 2.3, and are quoted in accordance with the international standard known as the Trondheim convention (Stuiver and Kra 1986). They are conventional radiocarbon ages (Stuiver and Polach 1977). All calibrations have been calculated using the calibration curve of Reimer et al. (2004) and the computer program OxCal v4.0.5 (Bronk Ramsey 1995; 1998; 2001; 2008). The calibrated date ranges cited in the text are those for 95% confidence. They are quoted in the form recommended by Mook (1986), with the end points rounded outwards to 10 years. The ranges quoted in italics are posterior density estimates derived from mathematical modelling of archaeological problems (see below). The ranges in plain type in Table 2.3 have been calculated according to the maximum intercept method (Stuiver and Reimer 1986). All other ranges are derived from the probability method (Stuiver and Reimer 1993). A full report on the methodology and results is available in archive, and results of amino acid and stable isotope analysis of bone from cemetery 1 are included in Chapter 7.

Methodological approach
A Bayesian approach has been adopted for the interpretation of the chronology from this site (Buck et al. 1996). Although the simple calibrated dates are accurate estimates of the dates of the samples, this is usually not what archaeologists really wish to know. It is the dates of the archaeological events, which are represented by those samples, which are of interest. In the case of Staunch Meadow, it is the chronology of the settlement and cemetery that is under consideration, not the dates of individual samples. The dates of this activity can be estimated not only using the absolute dating information from the radiocarbon measurements, but also by using the stratigraphic relationships between samples and associated dendrochronological and coin dates.

Fortunately, methodology is now available which allows the combination of these different types of information explicitly, to produce realistic estimates of the dates of interest. It should be emphasised that the posterior density estimates produced by this modelling are not absolute. They are interpretative estimates, which can and will change as further data become available and as other researchers choose to model the existing data from different perspectives.

The technique used is a form of Markov Chain Monte Carlo sampling, and has been applied using the program OxCal v4.0.5 (http://c14.arch.ox.ac.uk/). Details of the algorithms employed by this program are available from the on-line manual or in Bronk Ramsey (1995; 1998; 2001; 2008).

Objectives and sampling strategy
The scientific dating programme was designed to achieve the following objectives, to provide:

- a chronological framework for interpreting palaeoecological results;
- a precise date for the wooden bridge;
- a date for the use of cemetery 2;
- dates for the buildings;
- a precise estimate for the period of use of cemetery 1;
- dates for the waterfront activity.

Sample selection for the material submitted in the 1980s was limited by the size of sample required for Liquid Scintillation Counting, however the samples all have excellent taphonomic integrity; radiometric dating of ‘bulk’ peat samples is still routinely undertaken, the wood samples all came from single timbers and the ‘bulk’ charcoal sample came from a ‘single event’ deposit. The advent of Accelerator Mass Spectrometry (AMS) allowed archaeologists to choose from a far greater range of material due to the much smaller samples that can be dated (Mook 1984). This has led to an increased emphasis on the taphonomy of samples (Bayliss 1999; Van Strydonk et al. 1999), and particularly ensuring as close a chronological relationship between the sample dated and the context from which it came. AMS has also allowed the dating of single entity, rather than bulked samples (Ashmore 1999), meaning fewer assumptions about the origin of material in a context. These factors have combined to increase the reliability of dated samples and also their ability to answer specific chronological questions.

The first stage in sample selection for the material submitted from 2000 onwards was to identify short-lived material, which was demonstrably not residual in the context from which it was recovered. The taphonomic relationship between a sample and its context is the most hazardous link in this process, since the mechanisms by which a sample came to be in its context are a matter of interpretative decision rather than certain knowledge. All samples consisted of single entities (Ashmore 1999). Material was initially selected only where there was evidence that a sample had been put fresh into its context. The main categories of material which met this taphonomic were:

- articulating bone from inhumations. Articulated bone must have been buried with tendons attached or they would not have remained in articulation, and so were almost certainly less than six months old when buried (Mant 1987, 71).
- short-lived wood from wattle fences.

Other samples with a less certain taphonomic origin that were submitted came from an occupation layer associated with a structure, but duplicate samples from this context were submitted to test the assumption that the material was of the same actual age.
<table>
<thead>
<tr>
<th>Lab No.</th>
<th>Context Material</th>
<th>δC (‰)</th>
<th>Radiocarbon age BP</th>
<th>Calibrated date range (95% confidence)</th>
<th>Posterior Density Estimate (95% probability)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Valley sediments</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HAR-4086</td>
<td>Column 1; 3.34-3.35m OD Charcoal, remaining subsample identified, from narrow stems (diameters up to 5mm) Erica sp./Calluna sp., heathers (R Gale, 1998)</td>
<td>-26.4</td>
<td>1350±70 cal AD 570–810</td>
<td>cal AD 550–780</td>
<td></td>
</tr>
<tr>
<td>HAR-4087</td>
<td>Column 1; 3.02-3.04m OD Peat; dark reddish brown to black very sandy peat with fibrous plant remains (P Murphy)</td>
<td>-29.0</td>
<td>1810±80 cal AD 20–410</td>
<td>cal AD 60–410</td>
<td></td>
</tr>
<tr>
<td>HAR-5071</td>
<td>Column 2; 3.32-3.34m OD Peat; very dark greyish-brown sandy peat (P Murphy)</td>
<td>-30.4</td>
<td>1340±60 cal AD 600–780</td>
<td>cal AD 540–720</td>
<td></td>
</tr>
<tr>
<td>HAR-5072</td>
<td>Column 2; 3.56-3.58m OD Peat; dark reddish brown to black homogenously slightly sandy humified peat (P Murphy)</td>
<td>-24.1</td>
<td>1390±50 cal AD 570–760</td>
<td>cal AD 610–780</td>
<td></td>
</tr>
<tr>
<td>HAR-6605</td>
<td>Column 3; 0.25-0.4m Charcoal, remaining subsample identified; Corylus sp. roundwood, diameter up to 15mm, some fragments with 5 or 11 growth rings, 4.4g (82.2%); Quercus sp. heartwood, 0.52g (9.7%); Fraxinus sp. 0.35g (6.5%); Quercus sp. sapwood, 0.08g (1.5%); unidentified 14.09g (R Gale, 1998)</td>
<td>-26.9</td>
<td>1330±80 cal AD 570–890</td>
<td>cal AD 540–830</td>
<td></td>
</tr>
<tr>
<td>HAR-6474</td>
<td>Column 4; 1.17-1.19m OD Peat; dark brown peat with Phragmites remains. Wood, some pieces show transverse cuts. (P Murphy)</td>
<td>-30.9</td>
<td>1920±60 50 cal BC–cal AD 240</td>
<td>cal AD 20–260</td>
<td>40 cal BC–cal AD 210</td>
</tr>
<tr>
<td>HAR-6475</td>
<td>Column 4; 1.19-1.21m OD Peat; dark brown peat with Phragmites remains. Wood, some pieces show transverse cuts. (P Murphy)</td>
<td>-31.0</td>
<td>1950±70 110 cal BC–cal AD 240</td>
<td>cal AD 20–260</td>
<td></td>
</tr>
<tr>
<td><strong>Bridge and causeway</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GU-5048</td>
<td>Part of stakeline 1582 which predates the bridge Wood, Quercus sp. small stake 300x55mm (C Groves)</td>
<td>-23.9</td>
<td>1440±50 cal AD 550–670</td>
<td>cal AD 550–680</td>
<td></td>
</tr>
<tr>
<td>HAR-9273</td>
<td>Post on west side of timber bridge 2909 Wood, Quercus sp. 66 heartwood rings + 6 sapwood rings (C Groves)</td>
<td>-27.2</td>
<td>1180±60 cal AD 680–990</td>
<td>cal AD 740–1030</td>
<td></td>
</tr>
<tr>
<td>HAR-9274</td>
<td>Post on the east side of timber bridge 2909 Wood, Quercus sp. 105 heartwood rings + 6 sapwood rings (C Groves)</td>
<td>-27.2</td>
<td>1110±70 cal AD 720–1040</td>
<td>cal AD 770–1080</td>
<td></td>
</tr>
<tr>
<td>HAR-9275</td>
<td>Post on the east side of timber bridge 2909 Wood, Quercus sp. 83 heartwood rings + 8 sapwood rings (C Groves)</td>
<td>-27.1</td>
<td>1160±60 cal AD 680–1020</td>
<td>cal AD 760–1050</td>
<td></td>
</tr>
<tr>
<td><strong>Structures</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GU-5046</td>
<td>Base of a post-hole along wall of building 1094 Wood, Quercus sp. ¼ tree, probably flat base but outside surfaces not present, 360x150x50mm (C Groves)</td>
<td>-24.7</td>
<td>1360±30 cal AD 640–690</td>
<td>cal AD 610–700 (92%) or 740–770 (5%)</td>
<td></td>
</tr>
<tr>
<td>GU-5047</td>
<td>From a sequence of four piles (structure 8184) Wood, Quercus sp. 65 rings including 1–4 sapwood rings (C Groves)</td>
<td>-24.9</td>
<td>1360±50 cal AD 600–770</td>
<td>cal AD 650–1000</td>
<td></td>
</tr>
<tr>
<td><strong>Cemetery 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GU-5817</td>
<td>Burial 4584 Human bone, left femur, adult male</td>
<td>-21.3</td>
<td>1120±50 cal AD 770–1020</td>
<td>cal AD 820–1020</td>
<td></td>
</tr>
<tr>
<td>GU-5818</td>
<td>Burial 4842 Human bone, left femur, adult female</td>
<td>-24.1</td>
<td>600±80 cal AD 1260–1450</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>GU-6050</td>
<td>Burial 4587, cuts building 4531 Human bone, left femur, young female</td>
<td>-20.1</td>
<td>1290±60 cal AD 640–890</td>
<td>cal AD 680–990</td>
<td></td>
</tr>
<tr>
<td>SUERC-11287</td>
<td>Burial 4602 Human bone, femur, female</td>
<td>-22.1</td>
<td>1000±35 cal AD 980–1160</td>
<td>cal AD 970–1150</td>
<td></td>
</tr>
<tr>
<td>SUERC-11288</td>
<td>Burial 4665 Human bone, femur, child (5–7 years)</td>
<td>-22.5</td>
<td>975±35 cal AD 990–1160</td>
<td>cal AD 980–1150</td>
<td></td>
</tr>
<tr>
<td>SUERC-11292</td>
<td>Burial 4835 Human bone, right femur, female</td>
<td>-21.1</td>
<td>1060±35 cal AD 890–1030</td>
<td>cal AD 890–1030</td>
<td></td>
</tr>
<tr>
<td>SUERC-11293</td>
<td>Burial 4849 Human bone, right femur, male</td>
<td>-21.1</td>
<td>1075±35 cal AD 880–1030</td>
<td>cal AD 890–1020</td>
<td></td>
</tr>
</tbody>
</table>
sand layer and HAR-4086 suggest that the two events (68% probability). Comparison of the estimate date of the deposition of the sand layer in column 2 of cal AD 570–760 (95% probability) and probably cal AD 610–700 (0.15m thick, included a diverse range of material, twigs and small branches of Corylus sp., charcoal from Fraxinus sp. and Quercus sp., together with a variety of carbonised fruits and seeds of wetland taxa, grains and arable weeds (Murphy 1985a). This very mixed assemblage appears to represent the destruction of a timber-framed structure, including wattle panels, which may have been thatched with reed. Given that the material from the "bulk" sample is predominantly short-lived and derives from what appears to be a ‘single-event’ deposit it should provide an accurate estimate of the age of the destruction of the structure.

Column 4: Column 4 was taken from the deepest section exposed at the northern edge of the 1983–4 trench which revealed 1.9m of peat. The three post samples submitted for dating after dendrochronology failed to produce an absolute date (Groves and Hillam 1986). Two samples linking the island to the mainland were submitted for dating for the felling date of the timbers to be calculated. The archaeological samples and sequence

The following section concentrates on describing the archaeological evidence, which has been incorporated into the chronological models, explaining the reasoning behind the interpretative choices made in producing the models presented. These archaeological decisions fundamentally underpin the choice of statistical model.

Valley sediments and associated archaeological deposits Samples were submitted from four column samples located at the margins of the sand hummock on which the settlement was located:

Column 1: Two samples were submitted from a section of 0.53m of peat exposed in the northern part of the excavation, adjacent to the river, in 1980. HAR-4087 came from the lowest 30mm of peat (0.5–0.53m) and HAR-4086 is thought to be a product of a single large-scale burning of heath vegetation on the river terrace (Murphy 1985a).

Column 2: Two samples were submitted from a section sampled in a test pit dug in 1981 to the south east of the excavated area. The bulk peat samples came from depths of 0.25–0.27m (HAR-5072) and 0.49–0.51m (HAR-5071). No charcoal layer equivalent to that seen in column 1 was observed in column 2, but a thin (50mm) deposit of white sand was present at c.0.27m. The sand horizon in this layer is thought to indicate a short-lived episode of increased soil erosion on the sand hummock (Murphy 1985a).

Column 3: The single sample from column 3 was taken from a section exposed during the 1983–4 season. Unlike columns 1 and 2 it was taken through archaeological deposits overlying a very thin layer of partly exposed during the 1983–4 season. Unlike columns 1 and 2 it was taken

<table>
<thead>
<tr>
<th>Lab No.</th>
<th>Context</th>
<th>Material</th>
<th>δC (‰)</th>
<th>Radiocarbon age BP</th>
<th>Calibrated date range (95% confidence)</th>
<th>Posterior Density Estimate (95% probability)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OxA-14604</td>
<td>Part of wooden structure with wattles</td>
<td>Wood, Salix/Populus sp.; wide roundwood, very degraded. Outer surface removed for dating (R Gale)</td>
<td>-24.4</td>
<td>1263±29</td>
<td>1246±20 cal AD 680–860 cal AD 730–780</td>
<td></td>
</tr>
<tr>
<td>OxA-14607</td>
<td>As OxA-14604</td>
<td>Weighted mean for OxA-14604 &amp; 14607</td>
<td>-24.8</td>
<td>1230±28</td>
<td>cal AD 770–950 cal AD 760–860</td>
<td></td>
</tr>
<tr>
<td>OxA-14605</td>
<td>Post from wattle fence 6394</td>
<td>Wood, Corylus avellana; roundwood diameter 45mm. Very degraded, outer surface removed for dating (R Gale)</td>
<td>-27.2</td>
<td>1184±28</td>
<td>cal AD 770–950 cal AD 760–860</td>
<td></td>
</tr>
<tr>
<td>OxA-14603</td>
<td>Post from wattle fence 6394</td>
<td>Wood, Corylus avellana; roundwood 40mm. Very degraded, remnants of bark retained (R Gale)</td>
<td>-26.4</td>
<td>1298±29</td>
<td>cal AD 650–780 cal AD 730–800</td>
<td></td>
</tr>
<tr>
<td>OxA-14606</td>
<td>Post from wattle fence 6394</td>
<td>Wood, Corylus avellana/Alnus glutinosa; structurally degraded remnants of bark retained (R Gale)</td>
<td>-25.1</td>
<td>1178±27</td>
<td>cal AD 770–950 cal AD 760–860</td>
<td></td>
</tr>
<tr>
<td>OxA-14593</td>
<td>Layer 5764 (associated with structure 5736)</td>
<td>Charcoal, Corylus avellana; roundwood, bark in-situ, diameter 14mm, 8 growth rings (R Gale)</td>
<td>-27.9</td>
<td>1313±30</td>
<td>cal AD 650–780 cal AD 730–780</td>
<td></td>
</tr>
<tr>
<td>OxA-14569</td>
<td>Layer 5764 (associated with structure 5736)</td>
<td>Charcoal, hawthorn/Sorbus group Pomioideae, roundwood, diameter 18mm, c. 12 growth rings (R Gale)</td>
<td>-26.3</td>
<td>1317±34</td>
<td>cal AD 650–780 cal AD 720–780</td>
<td></td>
</tr>
</tbody>
</table>

Table 2.3 Radiocarbon results

The results allow an estimate to be derived for the deposition of the sand layer in column 2 of cal AD 570–760 (95% probability) and probably cal AD 610–700 (68% probability). Comparison of the estimate date of the sand layer and HAR-4086 suggest that the two events could be contemporary, although analysis indicates a probability that sand layer dates before HAR-4086 of 60%.

The basal dates from columns 1, 2 and 4, provide estimates for the growth of the valley peat that eventually isolated the site. The results suggest peat growth started in the early part of the first millennium cal AD, although the measurement from 3.32–3.34m OD (HAR-5071) seems anomalously late in relation to the other two.
construction of building 0734 of AD 612 (Groses and Hillam 1986) and for planks 5504, AD 717, and 6599, AD 685 (Tyers 2000).

Twenty samples were submitted from cemetery 1 to the south of the church. Nineteen samples were submitted for high precision dating, but the collagen preservation was extremely poor with more than half the samples containing less than 3% collagen. Attempts to extract protein for high-precision dating from eight samples (Sk. 3099, 3100, 4001, 3135, 3141, 4040, 4039 and 4017) all failed. As this sample contained four of the five samples yielding more than 20% collagen the chances of extracting sufficient material for high precision dating from any of the other samples was thought to be negligible. It was thus decided to not process the remaining eleven samples. A single sample from skeleton 1293 submitted for AMS dating to the ORAU in 2004 also failed to produce enough yield to be measured.

Cemetery 2, located to the north of the site, was only partially excavated with 31 individuals recovered. Associated with these burials was a clay pad 2m x 3m that is interpreted as being a mortuary structure. The clay pad was cut by some burials and its surface then reinstated, suggesting it had significance to the whole cemetery rather than individual burials.

The seven inhumations dated from cemetery 2 were:
- SUERC-11292 the northermmost burial of the eastern row (burial 4835)
- SUERC-11293 from the southern half of the eastern row (burial 4849)
- GU-5817 an isolated inhumation at the west end of the cemetery (burial 4584) that cuts ?early Middle Saxon ditch (4509)
- GU-5818 burial 4842, from the opposite end of the cemetery to GU-5817, that cuts early Middle Saxon ditch (4961).
- GU-6050 burial 4587 that cuts building (4531)
- SUERC-11287 burial 4602 from the western row
- SUERC-11288 burial 4665 from the central row above the clay pad.

As three samples from cemetery 2 submitted in 2002 and 2004 all had sufficient amounts of well-preserved collagen to produce radiocarbon measurements, an additional eight samples were selected in 2006 to provide estimates for the length of use of the cemetery, the date of construction and subsequent modification of the clay pad mortuary structure. Unfortunately only four of these produced sufficient carbon for dating.

Excluding GU-5818 (see below) the six measurements from cemetery 2 are not statistically consistent (T′=5.5; v=5; T′(5%)=11.1; Ward and Wilson 1978), although with GU-6050 excluded they are (T′=8.6; v=4; T′(5%)=9.5; Ward and Wilson 1978).

Six samples were dated from the waterfront:
- One from 6362, a post forming part of a wooden structure with wattles associated with the second phase of waterfront industrial structure, that was sealed by dumped sand after it went out of use (5751).
- Three from posts of wattle fence line 6394 that ran from the waterfront southwards that are stratigraphically later than 6362. The three measurements are not statistically consistent (T′=11.4; v=2; T′(5%)=6.0; Ward and Wilson 1978).
- Two fragments of charcoal from layer 5764 which is associated with wooden structure 5736 are statistically consistent (T′=0.0; v=1; T′(5%)=3.8; Ward and Wilson 1978).

All these waterfront contexts with dated material are stratigraphically later than 6188, which contained two coins, type Q II and type Q or R II that date from AD 720–40. They therefore provide a tpq for the overlying sequence. In addition HAR-6605 from column 3 was taken through archaeological deposits close to the waterfront and the bulk charcoal sample therefore provides a tpq for the associated activity.

Results

The model treats the settlement, cemetery 2, and bridge as independent or potentially overlapping phases of activity (Buck et al. 1996). It shows good agreement between the radiocarbon results and the limited stratigraphic relationships (A_triangle=75.2%) presented in the previous section. The model excludes one result, GU-5818, as the δ^13C for this sample -24.1‰ is anomalously negative suggesting some contamination by humic acids from the soil (Ambrose 1993).

The model provides an estimate for the start of settlement activity of cal AD 680–780 (95% probability) and probably cal AD 720–760 (68% probability), and of cal AD 760–890 (95% probability) and probably cal AD 770–830 (68% probability). These estimates, though, are based on the very small number of dated samples associated with the settlement.

GU-5048 provides a terminus post quem for the stake-lined track of cal AD 535–675 (94% probability).

The best estimate for the construction of the bridge is provided by the distribution Last bridge_construction; cal AD 865–1235 (95% probability) and probably cal AD 950–1075 (68% probability).

The model suggests that cemetery 2 was in use from cal AD 560–990 (95% probability) and probably cal AD 730–990 (68% probability), until cal AD 990–1290 (95% probability) and probably cal AD 1010–1140 (68% probability).

GU-6050 provides a terminus ante quem (taq) for building 4531 of cal AD 680–990 (95% probability) and probably cal AD 750–980 (68% probability); GU-5817 provides a taq for ditch (4509) of cal AD 820–1020 and probably cal AD 880–990 (68% probability); and SUERC-11288 provides a taq for the clay pad of cal AD 980–1150 and probably cal AD 990–1050 (68% probability).

Artefactual evidence for the start of the Saxon settlement

by Andrew Tester and Ian Riddler

The typological small finds dating is presented in Table 2.4.

While few of the finds came from specific features (as indicated) the quantity recovered by metal detecting from surfaces and spoil heaps provides compelling evidence that small finds began to accumulate from the middle of the 7th century. The earliest pottery may have been the 152 hand-built sherds. The seven sherds recovered from small pit 0436 at...
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Table 2.4 Typological small finds dating evidence
The western end of the site and the solitary sherd from palisade-type ditch 0429 provide a plausible correlation between the dating and the stratigraphy which has placed these features in Phase 1.1. A less certain association are the fifteen sherds from pit 1021, at the south-west of the site next to building 1094 (Phase 2.1). The poor representation of hand-built pottery from the early period may be due to the lower status of the early settlement with a less visible material culture.

It is suggested (Blinkhorn, Chapter 6.II) that Ipswich Ware is unlikely to have made an appearance much before AD 720. It was found in significant quantities in a rubbish layer of Phase 2.1.1, with coins sf5103 and sf5104 that Metcalf suggests are likely to have been lost 'somewhere in the 720s or later' (Chapter 9.II).

**The end of the settlement on Stauch Meadow**

The occupation of the main site appears to have ended late in the 9th century. This is supported by the dating of the small finds that were collected from across the site (Table 2.4). While the majority were either unstratified or from surface collection, those from pit 3596 were from a secure late context, which was cut through the main rubbish deposits on the waterfront; the pit included both Thetford Ware pottery and a silver inlaid strap-end sf3638 (Table 2.4). The homogenous upper fill of this pit is interpreted as abandonment fill. The pottery can only provide a very general dating; neither the end of Ipswich Ware nor the introduction of Thetford Ware, which was probably a direct replacement, is closely dated but it is suggested to be c.AD 850 (Hurst 1959). A date therefore towards the end of the 9th century would be consistent with the amount of Thetford Ware that was found on the site. While concentrated settlement ended, the ditches excavated at BRD071 suggest the causeway was maintained during the medieval period, providing access to the church or chapel identified in the evaluation carried out in 1979. The focus of settlement moved to the edge of the floodplain and the site reverted to meadow.

**III. Middle and Late Saxon phasing**

**Introduction**

Period III has been subdivided into two main phases and six sub-phases, which necessarily simplifies a site of great complexity; if local sequences are fully developed it would lead to many more phases and there are of course many isolated features that defy anything but generalisation. This extends to many of the buildings and their relationships with some of the enclosure ditches. The longevity of each phase and the overlaps between phases are difficult to tie down. This problem is well illustrated by the relationship between church 7098 and the boundaries and buildings to the north, where the order of construction has great significance for interpretation of the site but where stratigraphy is lacking. The main boundary ditches were cut into sand which often resulted in a deep primary fill devoid of finds, the upper part could take much longer to infill and reflect later activity nearby; a case in point would be ditch 6849 (Phase 1.2) which was largely infilled with rubbish where it adjoined building 0734 (Phase 2.2), which may have been the source of this midden. The parallel development of groups of buildings is suggested in many cases although much of this is interpretative.

Phase 1 is interpreted as representing primary Middle Saxon occupation of the site and is divided into two sub-phases. While some degree of overlap between phases is assumed, Phase 1 is interpreted as representing a dispersed settlement. Phase 2 is interpreted as the period when the site moved from an association of building groups to becoming a nucleated settlement, including the building of the first church and creation of the cemetery.

A summary of the phasing sequence for the settlement follows, together with a summary of the dating evidence for each phase. The dates applied to the phasing should be seen as a guide only. While there are key changes in the development of the site, which are signposted, the longevity of individual phases is speculative both as a whole and in different areas of the site. These will be examined further in the general discussion in Chapter 12. The small finds provide both particular and general evidence for the timeline. The small finds concordance Table 2.4 suggests that artefacts were being lost from the mid 7th century to the late 9th century in the areas that were well metal-detected. This is generally consistent with the pottery evidence, with a generally poor representation of hand-built pottery and the appearance of Thetford Ware pottery in one of the last heaps from Phase 2.3.

**Phase 1: dispersed settlement – mid 7th to early 8th century**

Fig. 2.2

It is suggested that these phases belong to the 7th century. While Ipswich Ware pottery occurs in features from this phase there is a strong possibility that it was intrusive in the top of ditches and not a fair reflection of contemporary pottery consumption. The total surviving hand-built assemblage was only 152 sherds and the majority of this material exclusively: pits 0436, 1021 and 1817; these occur respectively to the north-west, south-west and south-east of the site. It is suggested that this pottery was the earliest on the site (with Ipswich Ware only arriving after AD 720; Blinkhorn, Chapter 6.II). It would therefore appear likely that settlement had spread from the northern enclosure before that date.

**Phase 1.1**

The primary Anglo-Saxon phase included an enclosure at the northern end of the island (ditches 6846 and 6848) and three buildings that are associated with it, 8125, 8127 and 8137. A trackway marked by stakes provided a route from the floodplain to the south of the island. It is suggested that buildings 2902, 2901 and 8173 may have started at this time and, like those to the north, continued through the next phase.

**Phase 1.2**

Phase 1.1 enclosure ditch 6848 was replaced by ditch 6849. Building 8137 remained, providing the focus for the developed enclosure. It is suggested that building 8125 continued into this phase. Linear ditches 8168 and 8151 were additions to ditch 6849.
Figure 2.2 Phase diagrams showing the major components in each phase of the Saxon period
Phase 2: nucleated settlement – 8th to 9th centuries

Fig. 2.2

Phase 2.1 – early to mid 8th century
During this phase, church 7098 and its various extensions were built and cemetery 1 was established. Two buildings were also built to the north of the church (8832, 9289). Following the building of the church there was an attempt to organise the settlement with a gated palisade ditch, 8143, and ditch 0681 enclosing buildings in the south-west part of the island; an opening was left where a natural hollow crossed the site before the enclosure continued with ditches 4450 and 4447. In the south-west part of the enclosure two sequences of building began with house 1096 and barn 1094, and house 2926 and barn 2925. Building 8139 was constructed on the waterfront as part of the new expansion. The access to the island from the south was consolidated with a simple causeway formed from two ditches, presumably replacing the earlier stake alignment.

There was a lack of well sealed finds groups from this period to tie the phasing down, with the exception of pit 4347 which contained large quantities of Ipswich Ware, although at what point during the phase it was dug is unknown and it can only be viewed as being infilled during Phase 2.1. It is noted that pit 1021 (Phase 1) at the south-west of the site contained only hand-built pottery and that a timber from building 1094 provided a radiocarbon date of cal AD 610–700 (GU-5046, Table 2.3), however there was no sapwood present, which suggests that the timber was felled later than this. It is suggested that the bulk of the development in this phase spanned the introduction of Ipswich Ware. The cemetery is included in this phase as it seems likely that it was extant when church 7098 was built, but there is little independent dating beyond generalisations about the layout of the site and the internal phasing of the graves as discussed in Chapter 7. There was a spread of Ipswich Ware and general finds within the cemetery, with some present in the graves.

Phase 2.1.1
This sub-phase was designated to distinguish well sealed deposits on the waterfront that contained good dating evidence from features that are thought to be close in date but not physically connected. This sub-phase is attached to the new expansion of building 8139 and its place alongside Ipswich Ware pottery and glass, and is dated to the second quarter of the 8th century.

Phase 2.2 – mid 8th to 9th century
This phase was marked by an extensive building programme contained by a new ditch with concentrated settlement activity including the waterfront bleaching and dyeing complex.

Church 7098 was replaced by church 8851 and buildings 8832 and 9289 were replaced by larger ones, 8892, 7500 and 0734. These were separated from the church by ditches 8135 and 8861, with a gated entrance, which enclosed the northern half of the site. In the northern half, a sequence of gated fences and buildings were constructed including buildings 4670, 4531 and 2920; closer to the waterfront was building 4886 and to the west buildings 8138 and 8131.

In the south-west, long building 1095 replaced barn 1094 and house 1096. Building 2923 replaced barn 2925 and house 2926 and a new gated enclosure surrounded these buildings, 6856. The west side was also formalised with a series of north–south ditches, beginning with 6847 and continuing with 6859, which was redug many times. The causeway was maintained to the south of the site.

In the south-east, stable building 1391 may have been constructed at this time, as well as building 9031 (predating ditch 8919 from Phase 2.3) and possibly building 9012. Along the stretch of peat between the island and the River Ouse a sequence of manufacturing structures comprising fenced enclosures, clay tile and flint surfaces and various dump layers, overlay destruction deposit 8155. As these structures were built up and extended, they formed a series of ‘peninsulas’ across the peat, each containing a sequence of structures which are detailed in Chapter 4.VI.

The dating for this phase is quite general, except for the radiocarbon dates achieved for the structures at the waterfront (Table 2.3: OxA-14593, OxA-14569, OxA-14603–7) and based on the small finds concordance and dating presented above. It also reflects its position between Phases 2.1 and 2.3 and allows for the longevity of buildings in the area of the halls.

Phase 2.3 – mid to later 9th century
Key features of this phase were the abandonment of church 8851, and the excavation of ditches 8134 and 8919 and associated entranceways. Within the northern enclosure, buildings 8927 and 8893 replaced 7500 and 8892. Building 8927 originally coexisted with church 8851, to which it was linked by a fence. At the northern end of the site building 6864 replaced building 4670. Another significant development was the enclosure of cemetery 2 into this area. Buildings and posts lines 8178, 8179, 8149, 8148 and 4886 (from Phase 2.2) close to the waterfront may have continued in use. To the south-west, building 2921 replaced building 1095 and building 2924 replaced building 2923.

This phase marks the sudden decline of the settlement and allows a clear association between what might be termed the ‘climax’ rubbish heaps that had built up around the site and between and in front of the last halls, which can be seen in the finds distribution plots (Chapter 4). The midden overlying the smithy contained a mixture of Ipswich Ware pottery with Thetford Ware provisionally dated to appear c. AD 850. This evidence is supported by the small finds concordance table (Table 2.4).

Phase 2.3.1
This sub-phase was created to distinguish the 2.5m squares of ‘occupation soil’ which were stratigraphically above the various peninsulas at the waterfront. This layer undoubtedly contained residual finds but was laid down over the textile processing area.
Phase 2.4 – later 9th century

A few features are associated with Thetford Ware pottery and others post-dated the main phase of occupation. Probably the most important feature for this phase is ditch 8175, which cut through the enclosure ditch entrance from Phase 2.3, and building 8927; it also provides evidence that the central enclosure was an important focus at this time.

Few finds are positively associated with this phase. From a gap in ditch 8175 we may infer some occupation to the south-west of the site, and a single pit (3596) cut through the surface rubbish heaps at the waterfront and produced a collection of finds including a strap-end, sf3638 (8th–9th century), and a sherd of Thetford Ware pottery beneath an abandonment fill. Ditch 8919 (Phase 2.3) had Thetford Ware in its upper fill.
Chapter 3. Pre-Saxon Activity

I. Introduction

Summaries of the main prehistoric and Roman findings, based on the assessment reports, are presented below and the distribution of prehistoric features is shown on Figure 3.1.

II. Period I: Mesolithic

Fig. 3.1

A cluster of features buried within the wind-blown sand produced both burnt and struck flints, and a significant proportion of the latter were long blades. These features were a series of pale grey and purple patches of podsolised sand, notably around grid square 91/51. On excavation, these turned out to be shallow hollows that are similar to those associated with Mesolithic assemblages at Lakenheath and Wangford (Jacobi 1984), West Stow (West 1985) and Thetford (Robins 1998). From chance finds made when the site was levelled following excavation, we can be certain that further pockets with similar flints lie concealed within the ‘natural’ sand.

Flint by Edward Martin

The flint was not included in the assessment stage of the project, but a count of materials using the existing database was produced. Finds from an area which was identified as significant during the excavation were rapidly scanned and the following comments are based on this.

A total of 126kg of struck flint, consisting of 7285 pieces, was recovered. The finds originated from 743 contexts. Of this total, 40% (by context) came from gridded collection, 20% came from the cleaning of 10m grids and 20% came from prehistoric features.

Blades made up a large proportion of the assemblage, strongly suggesting the presence of a Mesolithic industry. The single largest context produced 12.7kg (786 pieces) of worked flint; other contexts in the vicinity also produced large amounts of flint. Where hollows were identified, a wide area surrounding them was cleared in an attempt to ensure total excavation.

The assemblage includes a proportion of very large blades and cores (around 200mm in length). Some of these large blades exhibit edge damage that is similar to that described by Nick Barton in ‘bruised blade’ assemblages that may be of late Pleistocene/Early Holocene date (Barton 1998). The rarity of these ‘bruised blade’ or ‘long blade’ assemblages means that the Brandon flintwork does warrant a full study and publication in the future.

III. Neolithic and Bronze Age evidence

The evidence for activity in these periods comprised only a small quantity of datable finds, so no separate site periods were designated. A total of 220kg of burnt flint was recorded and discarded, and a proportion of the struck flint from the site is later than the Mesolithic assemblage. Only a small amount of flint was retrieved from Iron Age features, which tends to suggest that the majority belongs to earlier periods. The flint assessment report and a full catalogue of the pottery are included in the site archive.

Two rims three undecorated body sherds and a base sherd came from pit 0833. This feature, in grid-square 9052, appears to be of Bronze Age date.

Neolithic pottery by Sarah Percival

Eleven sherds weighing 84g were assigned a Neolithic date. Three fabrics were identified: two were tempered with coarse calcined flint (ten sherds) whilst the other contained coarse quartz-sand with larger rounded quartz inclusions. The assemblage included one sherd decorated with impressions, perhaps cord impressed maggots, one sherd with incised decoration and one undecorated T-shaped rim. The remainder of the assemblage consisted of undecorated body sherds. The sherds were fragmentary and were mostly abraded.

The assemblage was small and dispersed. Close dating of the undiagnostic sherds was not possible. The decorated sherds and T-shaped rim may be of the decorated bowl tradition dating to c.3900–2900BC (Healy 1988, 72).

Bronze Age pottery by Sarah Percival

Thirty-six sherds weighing 203g were assigned a Bronze Age date. Four fabrics were identified: two contained medium to coarse flint and quartz-sand, one contained grog and quartz sand and one contained quartz-sand with small quantities of unburnt flint. Sixteen of the Bronze Age sherds (103g) were abraded, all were fragmentary and no complete profiles were present. The G2 fabric included three rims, one fingertip-impressed with an internal bevel, one everted flat-topped with slashes or fingernail impressions to the top, and two sherds of a simple inverted rim with slashed decoration to the interior. Another inverted flat-topped rim and a simple base were present in the sandy fabric.

IV. Period II: Iron Age

Fig. 3.1

Evidence for Iron Age settlement occurs over most parts of the site. The main features comprised forty-four pits, nine ditches and four large areas of buried ploughsoil. The ditches included two sides of an enclosure comprising 4819 and 6946 and a possible building enclosure with a short entrance, 6855, in the same area. A north–south ditch, 8139 cut through a large Iron Age pit 0221.

A possible burial, or simply a ‘ritual’ deposit containing a human skull, was found in one of the pits to the south-eastern edge of the site.
An unusual linear arrangement of ten sub-rectangular pits in the south-west area of the site was aligned with a crescent-shaped ditch or post-trench, 6861, which terminated in a large pit. These features were cut by plough marks, which were recorded in the buried soil. No stratigraphic link could be made between the pits and the ditch, although the latter appeared to enclose the former.

There was a scattering of pits that can be dated from pottery, particularly towards the south-east of the island. A number of charcoal-filled pits are also suggested to be Iron Age, although this could not be proven.

A stratified buried soil survived in pockets across the site with single-direction ploughing and cross ploughing impressions left in the ground. It was noteworthy that these cut features of Iron Age date where they intersected. This evidence was most impressive at the northern part of the site, where the remains were sealed beneath peat growth, indicating drier conditions when ploughing took place and allowing a terminus ante quem to be established. Such ard marks are a rare occurrence in East Anglia, where later agriculture has usually removed all such features (for some discussion of early plough marks in this region see Martin and Satchell 2008, 9).

Seven hundred sherds of Iron Age pottery (Percival below) were retrieved in the following proportions from the feature groups: 52% from pits, 12% from ditches, 9% from gridded collection, 13% from layers and 9% from ‘post-holes’. Levels of residuality were low with most of the pottery coming from Iron Age features. Iron Age pottery recovered from the 2.5m gridded excavation of
occupation soils was concentrated in the lower grey sand beneath the Middle Saxon occupation soil.

**Iron Age pottery**
by Sarah Percival

Seven hundred sherds, weighing 11.740g, were assigned an Iron Age date. The flattened rims, paucity of decoration and slack shouldered forms suggest that the assemblage dates to the mid to late Iron Age (3rd to mid 1st centuries BC).

The pottery was generally fragmentary, though two contexts produced semi-complete vessels with reconstructable profiles and five contexts produced partially reconstructable profiles. Fifteen percent of the assemblage by weight (1813g) showed signs of abrasion. The general quality and preservation of the assemblage is good.

Thirteen fabrics were identified, these can be broadly grouped as flint tempered fabrics (139 sherds), grog tempered fabrics (30 sherds), organic tempered fabrics (34 sherds), quartz-sand tempered fabrics (465 sherds) and shell tempered fabrics (twelve sherds). There were twenty undiagnostic sherds. The quartz-sand fabrics were the most common, representing 75% of the Iron Age assemblage (8761g). The predominance of quartz-sand tempered fabrics suggests a mid to late Iron Age date for the assemblage, though flint tempered sherds continued alongside the sandy fabrics until the latest Iron Age/Roman transition in many parts of East Anglia.

A limited range of forms was identified. The assemblage consists mostly of jar forms with slack shoulders, short necks and everted flat-topped rims. The pottery appears to represent a domestic assemblage.

Some form of surface treatment was identified on 120 sherds. Of these 105 were burnished, five had fingernail or fingertip impressions, one had incised decoration and the remainder were roughened or rusticated.

A full catalogue listing quantities and weight of sherds by fabric and form for each context is available in archive.

**Iron Age brooch**
by Jude Plouviez

Fig. 3.2

This brooch roughly corresponds to Type 1Ba (Hull and Hawkes 1987) but without the projection on the foot terminal. The moulding on the bow resembles Type 1Bb no 2924 (Hull and Hawkes 1987, 101, pl. 29, from the terminal. The moulding on the bow resembles Type 1Bb (Hull and Hawkes 1987, 48, Class 2, Welwyn Garden City type, pl. 1, no. 2 and fig. 7).

**Bead**
by Vera Evison

SF2703 (unstratified) consists of small fragments of a glass bead, decomposed, with double white ring decoration, and appears to belong to the Iron Age (e.g. Guido 1978, 48, Class 2, Welwyn Garden City type, pl. 1, no. 2 and fig. 7).

**Human remains**
by Sue Anderson

Sk. 1293, discovered to the south of the site, was thought to represent an Iron Age burial, but it may simply be a disarticulated skull placed in a pit, as most of the identifiable ‘post-cranial’ skeleton recovered with it was animal bone. Four sherds of pottery from the pit were identified as possibly Iron Age. A right humerus shaft found in one of the post-holes (1285) of the Phase 2.4 bridge could be part of the same individual, or another redeposited earlier burial. Unfortunately there was not enough collagen in the surviving bones to provide a date.

Other disarticulated remains recovered from features outside the main cemetery areas are discussed in Chapter 7.VI. Some of these may also pre-date the Middle Saxon use of the site.

**Environmental evidence**
by Peter Murphy and Val Fryer

Four column samples for macrofossil analysis were taken from sections through the valley floor peats and associated archaeological deposits to investigate the stratigraphic sequence, and provide data on local habitat change. An interpretation of the pre-Saxon environment based on these samples is presented in Chapter 1.

Five bulk samples containing charred cereals and weeds came from Iron Age contexts (details in archive). Spelt (Triticum spelta) was the main crop represented, with traces of emmer (Triticum dicoccum), barley (Hordeum sp.) and oats (Avena sp.), and abundant weed seeds. The predominance of chaff fragments indicates that these assemblages were largely composed of crop processing waste, though the presence of remains of bracken (Pteridium aquilinum) and heather (Calluna vulgaris) shows that there was some admixture of plant material from other sources. The main weed taxa were Chenopodium album, Trifolium/Medicago, Polygonum spp., Rumex spp and Bromus mollis/secalinus. The occurrence of wetland taxa (Carex spp, Eleocharis spp) at low frequencies is consistent with the evidence from plough marks beneath the peat in column sample 3 for an extension of cultivation onto low-lying ground on the river flood-plain.

During assessment of additional samples, it was noted that five pits at site BRD071 contained spelt chaff and abundant weed seeds, and a further four samples from BRD018 also contained many spelt glume bases (Fryer 2000 and in archive). Some of these features were undated, but others included Iron Age sherds. One context (0239), was considered on artefactual grounds to be of Early Anglo-Saxon date, and the sample from it was analysed. However, the overall composition of this sample is extremely similar to Iron Age samples at both BRD018 and BRD071. It is suspected either that this context included residual re-worked charred material from Iron Age activity in the vicinity, or that the dating evidence for the context should be re-considered. Nevertheless, there is some evidence that spelt cultivation continued into the Early Anglo-Saxon period at some sites in Eastern England (e.g. at West Stow, Murphy 1985b), and this sample from BRD071 could represent similar continuity of production. The significance of this sample could only be resolved by AMS dating, which was not possible at this late stage in the project.
V. Roman evidence

No features could be identified as Roman. The environmental evidence presented in Chapter 10 indicates that peat growth isolated the island in the floodplain, probably in the Late Iron Age, but trees did not return, which suggests that the site was at least grazed through the Roman period.

The site produced an assemblage of Roman finds which included pottery, metalwork and glass shards, as well as a large group of tiles. With the exception of the tile, which was considered to be a recycled product in the Saxon phase (Chapter 5.IV), this material was not taken beyond assessment. A summary of the finds groups is presented below.

Roman pottery
by Cathy Tester

Roman pottery totalling 148 sherds (3,347g) was collected from ninety-five stratified contexts which included 2.5m squares (27%), layers (21%), ditches and other linear features (18%), pits (2%), post-holes and slots (5%), and unstratified contexts (28%). Like the Roman CBM (see Chapter 5), the majority of it was found in Middle Saxon features, and like the CBM, it cannot be classed as ‘residual’ since it was probably brought to the site during this phase. A full catalogue by context and fabric is available in archive.

Eighteen Late Iron Age and Roman fabrics or fabric groups were identified, including local or regional, provincial and imported finewares and coarsewares.

The local or regional coarsewares which make up just over half of this assemblage come mainly from three fabric groups. Miscellaneous Sandy Grey wares are most
common (35 sherds), followed by Miscellaneous Oxidised wares (28 sherds) and Grey Micaceous Wattisfield-type wares (22 sherds). No other group has more than 2% of the total sherd count but other fabrics identified were Black-surfaced wares (4 sherds), Grog-tempered wares (2 sherds) and single sherds of Miscellaneous white wares and storage jar fabrics of unknown but presumed local origins.

Provincially traded specialist wares consist of colour-coated wares and mortaria from the Nene Valley (15 sherds), Oxfordshire (15 sherds), and Much Hadham (8 sherds), and ‘South Midlands’ late-tempered wares (3 Sherds).

Imports are represented by samian from South, Central and East Gaulish factories (12 sherds); these were the only imported finewares. Imported coarsewares are represented by two South Spanish amphora sherds.

The range of forms identified were amphorae, a flagon, beakers, storage jars, cups, dishes, platters, bowl/jars, flanged bowls, mortaria and a lid. The most common forms identified were the beakers, flanged bowls and mortaria in the late Roman specialist wares.

The date range of the Roman pottery forms a continuous sequence from the 1st through the 4th centuries with a notable prevalence of the wares which characterise the late and latest Roman period. The earliest wares are the Late Iron Age or Early Roman Grog-tempered ‘Belgic’ fabrics. The earliest samian is Nero-Flavian from South Gaul and there is also samian from successive 2nd century to mid 3rd century producers. The late Roman specialist wares are all late 3rd and 4th-century, whilst some of the Oxfordshire products have the latest dates (AD 325–400+).

Initial examination of the Roman pottery showed a number of abnormalities in this assemblage in comparison with what would be expected from settlement sites in this region. This group has higher proportions of finewares to coarsewares (which would normally dominate). Also notable is the high proportion of oxidised coarsewares which ordinarily account for a much smaller proportion of Roman fabric assemblages in this region. There is also an imbalance in the sherd types present (body sherds, bases, rims) which is shown most dramatically in the Nene Valley colour-coated wares (NVC) where a minimum of ten vessels were identified and eight of them represented only by their whole bases. Besides these, there were nine other bases in other fabrics. Some of them showed evidence of very neat trimming and wear from re-use. Two of the three samian bases had been perforated and re-used as spindle whorls. Altogether, re-used bases account for 13% of the total sherds.

Almost all of the sherds were found separately and do not seem to be the product of the usual cycle of breakage, deposition and re-deposition which would occur on a contemporary site. It is evident that many of the sherds arrived on the site already broken. With no Roman features in the excavated area, it is possible that pottery was brought to the site as the result of Middle Saxon ‘scavenging expeditions’ to Roman sites such as a villa (BRD007) less than 1km to the west, or possibly from sites on the Norfolk side of the river. This selection would explain the abnormalities in the assemblage. A similar pattern has been described by Plouviez (1985) at West Stow.

**Roman small finds**

by Jude Plouviez, with a contribution by Ian Riddler

**Brooches**

Nine copper-alloy brooches were found, six of them largely complete. They are discussed according to broad groups based on Bayley and Butcher (2004, 4–9) and quantified according to Plouviez (2008).

Overall the brooch assemblage is quite varied in that it includes two plate types (the East Anglian small towns usually include between 10% and 20% plate brooches and rural sites tend to have slightly fewer). It is common for brooch groups to date predominantly to the 1st century in southern Britain. At Brandon however the absence of definitely pre-Conquest types and of the rear hook type of Colchester derivative, albeit in a small assemblage, might indicate activity after about AD 60/65 and continuing to the end of the 1st century. There is nothing to suggest that these brooches were collected for re-use during the Anglo-Saxon period.

**Colchester derivatives**

Brooches sf2101, sf2106, sf2105 and sf2107 (Fig. 3.2) are all Colchester derivative brooches with the spring attached through a single double pierced lug at the rear of the wings. Sf2106, complete except for the spring and pin, and fragment sf2101 are the commonest form in this group (Bayley and Butcher 2004, 84, fig. 63, Hull type 92, also known as Colchester B) having a central flat rib on the bow with a concave moulding to each side. These are found widely in southern and eastern Britain.

Brooches sf2105 and sf2107, both complete except for the spring and pin, are a form that seems to have a more localised distribution. Two examples are published from West Stow (West 1990, 154, 157), and others have been recorded as metal-detected finds in Suffolk. This form has some characteristics similar to the group of Colchester derivatives using a rear hook spring attachment (Bayley and Butcher 2004 group 5b, Hull type 94A) which is commonly found in East Anglia in the immediate post-Conquest period. Sf2107 is particularly similar to West Stow 154, whereas sf2105 has more rounded wings.

The Colchester derivatives with double-pierced lug appear in the immediate post-Conquest period and continue in production and use into at least the mid 70s. They are one of the largest groups in the huge surge in brooch production and use in the 1st century, probably initially focussed in the south-east of Britain, particularly in the areas with strong pre-Conquest links with Gaul. The type expands into northern East Anglia to replace the rear hook type of Colchester derivative, probably in the aftermath of the AD 60–61 revolt (Mackreth 1991, 122–3) and it is likely that the hybrid West Stow type (sf2105, sf2107) dates to this period.

**One-piece sprung brooch**

Two copper-alloy brooches, sf8638 and sf5010 (the latter only represented by the spring and pin) are both probably one-piece brooches of Nauheim derivative type (Fig. 3.2). Sf8638 is also incomplete, consisting of an undecorated lentoid section upper bow and spring with internal chord. Although brooches of this type occur early in the 1st century AD they continue in production and use until at least the last quarter of the century.
Thirty-four copper-alloy Roman coins were recovered, of which thirty (Table 3.1) could be allocated to a coin period in the system used by Reece (1991). Most were from unstratified contexts, and they were in average to poor condition with variable amounts of wear largely obscured by corrosion.

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Table 3.1 Roman coins

Some Roman finds

There is a possibility that some other items of jewellery may be of Roman date, such as a bracelet, some of the glass beads and three pins; these are described in Chapter 8.II. Some Roman lava querns (Chapter 9.V) and a triangular loomweight (Chapter 9.IX) were also identified.

The unallocated coins were one as or dupondius of 1st to mid 3rd-century date and three nummi or radiates of later 3rd or 4th-century date.

The assemblage is broadly comparable to the normal relative quantities of coins per period in Roman Britain, with peaks in the late 3rd century and the 330s. Suffolk rural sites are often, as here, below average in the periods up to 13 (AD 260). The numbers of late 3rd and early 4th century (coin periods 13–16) coins would suggest activity at that time rather than residual use on a site mainly using coins in the 4th century, and the numbers lost in the mid 4th century (coin periods 17–18) are similar to other Suffolk assemblages. However the apparent decline in coin use and loss in the later 4th century (periods 19–21) is similar to the pattern observed in the east of the county (Plouviez 1995). The overall pattern of rural coin loss in north-west Suffolk in the Valentian period (coin period 19) is 16% of the total. Individual sites nearby, BRD007 and BRD010, several miles west along the Little Ouse valley, also have over 15% coin loss in period 19. This suggests a very different pattern here. This is not easily explicable in terms of Anglo-Saxon re-use of the coins for weights, trinkets, etc., as noted elsewhere since again the Valentian total should be high — at West Stow, period 19 coins form over 25% of the total assemblage. The Brandon coins also lack any sign of piercing or smoothing which is commonly found in Early Anglo-Saxon contexts such as West Stow and cemetery assemblages.

On the evidence of the coins one might suggest a Roman rural settlement in the vicinity, probably of fairly low or average status, and that it ceased to be occupied by about 370.

Roman vessel glass

Five fragments of square bottles in blue-green glass included pieces of handles, body and base; these are found throughout the 1st (after AD 43) and 2nd centuries. Two body sherds of jugs included s3795, a body fragment in blue-green glass with a vertical rib, probably Isings 55a, cf. fig. 67, dated c.70–175 (Isings 1957). Two further handles were also identified. These few definitely Roman glass fragments derive from relatively common bottle and jug forms of 1st or 2nd-century date.

Other Roman finds

There is a possibility that some other items of jewellery may be of Roman date, such as a bracelet, some of the glass beads and three pins; these are described in Chapter 8.II. Some Roman lava querns (Chapter 9.V) and a triangular loomweight (Chapter 9.IX) were also identified.

<table>
<thead>
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<th>Coin period</th>
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<td>3</td>
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<td>138–161</td>
<td>1</td>
<td>3</td>
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<td>13</td>
<td>260–275</td>
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Table 3.1 Roman coins
Figure 4.1 Excavation plan showing all post-prehistoric features
Chapter 4. Period III: the Middle Saxon Settlement

by Andrew Tester

I. Introduction

The following chapter deals with the Middle Saxon features that comprised the bulk of the recorded archaeology. A summary of the phasing, and how it was achieved, can be found in Chapter 2.III.

Figure 4.1 shows the Saxon features. Features that have been identified as prehistoric have been removed; however, with isolated post-holes there is undoubtedly a degree of uncertainty and some of the unstratified features may belong to earlier periods. Figure 4.2 provides a key to the section drawings. A separate plan (Fig. 4.3) indicates the position of drawn sections, because many appear in several different phases.

Within the building descriptions, terms common to this area of study are used. The expression ‘weak corner’ refers to a distinctive Anglo-Saxon configuration of post-holes where there were no corner post-holes to buildings (excepting those where two abutting posts were in a single hole). ‘Inset entrances’ are also a common feature whereby two door posts were projected inside the line of the wall posts of the building. Surviving timbers are indicated on the building plans using grey or black tone for the wall posts of the building. Surviving timbers are

II. Phase 1.1 – mid to late 7th century

Summary

This phase is based upon an enclosure created by ditches 6846 and 6848 which was open to the river frontage and had a gap between the ditches facing south. The enclosure was contained to the north of a natural east–west depression, which ran across the middle of the island. East of the enclosure entrance, building 8137 is thought to be the first in a sequence of four buildings occupying the highest point of the island. Two buildings, 8125 and 8127, were prominent at the west end of the enclosure; these are thought to be sequential but were probably close in date.

At the southern end of the site, access to the island from the south was established through stake lines 1582, 1583 and 1603 which are phased early in the site sequence on the basis of a radiocarbon date. Alongside the causeway a small enclosure contained buildings 2902 and 2901; a further structure straddled the enclosure and was therefore later in the sequence, 8173. The phasing correlation between this building group and the north end of the site is speculative — undoubtedly the southern area continued through more than one phase. Associated features may include a number of pits containing hand-made pottery, and several with coarse charcoal, which may be either Iron Age or Saxon.

Northern enclosure

The enclosure ditches

An enclosure, outlined by ditches 6846 and 6848, with an opening that faced south, is thought to form a boundary to the earliest Saxon settlement within the excavated area (Fig. 4.4 upper). The full extent of the enclosure is uncertain as the east end extended beyond the excavation, but it was at least 90m long and 30m wide. The entrance to the enclosure from the south was poorly defined because the terminal to ditch 6846 was lost below a later group of ditches running north to south but the gap between ditches 6846 and 6848 must have been at least 3.5m wide.

Ditch 6846, outlining the west side of the enclosure as 0403 (Fig. 4.5 s7), varied between 1.5m and 2.2m in width and was 0.6m deep from the machined surface; the variable width was undoubtedly the result of re-digging. This ditch was filled with grey sand with darker brown upper fill. The finds comprised a few sherds of pottery, slag, lava quern, Roman tile, fired clay and animal bone, the majority from 0091 at the east end (Fig. 4.5 s4). The small quantity may be the result of a short life and deliberate backfilling as it was soon reshaped and added to, forming a new enclosure (Phase 1.2, Section III below).

Ditch 6848 was c.2m wide and 0.6m deep (Fig. 4.5 s5 and s8). Its full extent is unknown but was traced as far as the ‘chapel’ site beyond the excavation. It produced a slightly larger assemblage of finds which included both hand-made and Middle Saxon pottery, slag, lava quern, Roman tile, fired clay and animal and bird bone, as well as residual prehistoric finds. Small finds included iron nails and fittings, a knife, a buckle and a loom-weight.

The west end of the enclosure was later consolidated, with ditch-segment 0403 being replaced by ditch 0430. Ditch 0430 was also filled with grey sand but contained dark brown sand with charcoal and clay fragments in the upper layers. Section 0381 (Fig. 4.5 s3) contained small quantities of flint and Middle Saxon pottery. It was close to building 8125 and, with palisade ditches 0461 and 0429 (Fig. 4.5 s2), would form a discrete enclosure around three sides with a gated entrance in the corner, indicated by a post-hole, and open towards the river. It may be significant that the only sherd of pottery from palisade ditch 0429 was a hand-made Anglo-Saxon sherd. Other finds from its fill included Roman tile fragments and animal bone. The proximity of ditch 0430 to the building seems unusual; certainly there could not have been a bank standing alongside this ditch when the building was erected.

A small pit 0436 (Fig. 4.5 s1) lay immediately south of ditch 6846. It measured 1m x 0.5m and was 0.3m deep. It contained a dark brown sand fill and included seven sherds of hand-made Early Anglo-Saxon pottery. This pit did not contain a significant basal fill of grey sand, which suggests it was not open for long and that the pottery may represent the date of infilling.
Building 8125

Building 8125 consisted of sixteen post-holes, and was aligned north–south with a hearth towards the north end. The post-holes ranged in depth from just 0.1m to 0.32m, measured from the machined surface. The fills were of grey sand with dark grey patches. There was no evidence of a floor or of walling.

The structure was c.5.2m wide, and c.7.5m long. The slightly greater length of the east wall resulted in the north wall being parallel to the steep river scarp just 2.5m to the north. Notable features of this building are the centrally placed end posts, 0516 and 0445, that probably indicate the position of a central support. An entrance is suggested along the east side between post-holes 0498 and 0499 which are slightly inset; the west side is less clear with a slightly larger post-hole setting, 0513, isolated and central (this may indicate that there was only a single entrance). It may be of note that the suggested entrance posts were never replaced, unlike those of building 8137 (see below p.40). One sherd of pottery and two animal bones were found in two of the post-holes.

Hearth 0462 was located, rather unusually, in the north-west quadrant of the building. The dimensions of the clay were approximately 2m by 1.5m with a maximum depth of about 0.12m. There was more charcoal in the surrounding sand and the top of the clay had clearly been burnt without being properly fired. There was a deposit of yellow sand under the north-west corner of the clay. Unlike many other hearths identified in later buildings, there was no flint incorporated into the structure. Debris from the hearth may have been the source of burnt and partially burnt clay recovered from ditches 0429 and 0430. Finds from the hearth comprised two sherds of pottery, a Roman tile and a cattle bone.

There were four additional post-holes (0399, 0400, 0517, 0518) outside the structure which were probably related.
Building 8127

Fig 4.7

This building only survived in part. Much of the north wall had been lost due to erosion forming the steep scarp slope over the peat, and only four post-holes survived (0265, 0264, 0268 and 0300). Other post-holes were removed by later ditches, including the east wall, and the remainder were quite shallow, varying between 0.1m and 0.3m in depth. The building was aligned east to west with a west wall of five post-holes and a southern alignment of up to twelve (some being slightly off-centre). A ‘weak corner’ formed by two abutting post-holes (0282 and 0283) links the alignments. The south edge extended as far as ditch system 8128 (Phase 2). Taken together the evidence would support a building measuring c.11m x 6.5m. The spacing of the posts was irregular, although in the areas where they existed the maximum distance between them was less than 1.5m. One post-hole (0227) contained fragments of prehistoric and Middle Saxon pottery, lava quern, fired clay and animal bone. Possible entrances could be suggested to the south and east based on post-holes 0262/0263 and slot 0280.
Figure 4.4 Phase 1.1 plan
Figure 4.5 Phase 1.1 sections
A clay hearth 0291 at the west end of the building measured 2m x 1.75m and consisted of a yellow clay pad with a central area of burnt clay with occasional flints on the surface. There was also a scatter of flints in some of the surrounding clay, which suggests some structure had been lost. It would appear that the hearth was not central to the main axis, which was also true of building 8125 (see above), being closer to the north wall. Fragments of fired clay and Roman tile recovered from the hearth probably formed part of its structure, but it also contained four fragments of animal bone and a sherd of Late Saxon pottery which was presumably intrusive.

There were three probable internal post-holes, two of which cut the hearth and therefore post-dated it.

**Building 8137**
Fig 4.8
This building measured approximately 9m x 5.5m. It was exposed by hand clearance from beneath the turf and excavated following the removal of a large, intact, oven from a later building. The palimpsest of post-holes from
several buildings was further confused by high levels of animal disturbance. Despite these problems, it was clear that the post-holes were generally insubstantial and often shallow and that the gaps in the sequence along the short walls could not be explained by the difficulties of excavation. The average depth of post-holes along the north wall was 0.17m, compared with 0.12m along the south with an overall variation of between 0.06m and 0.34m from the machined surface.

The north wall showed a slightly irregular alignment of up to thirteen post-holes, several of which had been re-cut with a suggested entrance between post-holes 0025 and 0027. East of the entrance there was a regular line of six posts approximately 0.5m apart with a further post (0032) north of the alignment. The last post-hole in the line, 0175, was a double post setting and could indicate the total extent of the north wall.

West of the north wall entrance, post-hole 0024 was re-cut at least twice, aside from its being cut on its north edge by a post-hole forming part of the north wall of building 8138. Post-hole 0023 could represent either part of 8137 or a corner post from building 8139. There were at least four post-settings in post-hole 0068 at the north-west corner; some were clearly recuts but it may well mirror the double post-hole arrangement at the other end of the building. The interpretation of post-holes 0175 and 0068...
as the corners is consistent with the central position of the entrance between 0025 and 0027, and the position of the presumed returning west wall post-hole 0084. No other end wall post-holes survived, presumably as they were too shallow. Evidence for the south wall is also very incomplete.

There are several features of this building which stand out from others on the site. Although post-pipes were not recorded at this early stage of the excavation, the post-holes themselves tended to be circular implying that the posts were either round or at the least square, rather than rectangular as most of the remainder on the site. The post-hole alignments were not perfectly regular in comparison with other, more complete, structures, although some of the post-holes could have been offset from the wall line. The entrance post-holes along the north wall were recut many times and from this we can infer that they were required to secure the door during the life of the building and not simply during construction. Of less significance is the absence of a hearth; the position of a later hearth in the middle of the building (0003, Phase 2.2) made the survival of an earlier structure unlikely.

The only feature to produce any finds was a small pit 0054 to the west of the structure (Fig. 4.8), which contained two sherds of pottery, eleven flints, an iron sword pommel (sf2827), fragments of slag and fired clay, and a range of animal bones.

Associated features
Pit 0359, to the west of the building, was cut by Phase 1.2 ditch 6854 (Fig. 4.5 s6). It contained one sherd of prehistoric pottery.

Two pits were excavated c.10m to the south of this building (Fig. 4.4). Both were circular, with pit 0053 measuring 1.5m x 0.5m deep and 0061 measuring 2m x 0.87m deep. They were both filled with black sand and towards the base each contained sherds of hand-made Anglo-Saxon pottery, along with small quantities of animal bone. These features have been placed early in the sequence due to the lack of later material in the fill. It is suggested therefore that this minimal amount of pottery reflects the date of infilling.

Discussion and phasing
The phasing justification for building 8137 is based on its position beneath a stratigraphic sequence of three later buildings. Not only was it the most complex building sequence within the excavation but it occupied the highest point of the island. For these reasons alone it stands out, but it also displays minor differences to the many uniform building patterns that followed. Ditch 6848 was also stratigraphically early and is complementary to the position of 8137; no direct proof of a link exists. Similarly ditch 6846 lay at the base of a ditch sequence and encompassed buildings 8125 and 8127; hearth fill from 8125 appeared within ditch 6846. As the enclosure which
surrounded 8125 was secondary to ditch 6846 we may infer that 8125 was the later of the two buildings.

**Southern area**

The causeway

Fig 4.9

The south and west limits to the site were marked by an accumulation of peat in low ground. These areas were subject to flooding and may well have been seasonally impassable during the lifetime of the site, particularly as the Little Ouse was not controlled. This process appears to have started in the Roman period (Murphy, Chapter 10.V). The critical levels are recorded in the contour survey (Pl. 1.3) which suggests that ground below c.4.25m OD was unsuitable for habitation. The causeway was visible as a standing earthwork before the excavation and spot heights were taken to supplement the overall contour plan in 1980. The area was excavated in a series of large sections with all areas totally excavated by the end of the excavation.

Three phases were identified. The causeway began with a track marked by stakes and supplemented by ditches. Later an elaborate timber bridge was built, and finally an earthen causeway probably provided access to a chapel in the medieval period.

The earliest development consisted of stake alignments 1582, 1583 and 1603, parallel ditches 2913 and 2912 and accompanying causeway (Fig. 4.4 lower). The first pairings were stake lines 1603 and 1583 in conjunction with ditches 2913 and 2912. These ditches and the stake lines were cut by east–west ditches from a later phase (Fig. 4.9 s16 and s17). The stratigraphic phasing is supported by a radiocarbon date from one of the oak stakes (1982; GU-5048, 1440±50 BP, cal AD 530–680 at 95%), placing the trackway earlier than the bridge (Phase 2.4 below). The three stake lines represent two phases with 1603 being replaced by 1582, and 1583 common to both. This is based on the divergence of 1582 from a parallel course to 1583 as it left the peat, in contrast to 1603, suggesting it was later. Line 1603 was also incomplete and stakes may have been withdrawn and reused. It is suggested that ditches 2912 and 2913 were a development and natural progression from the initial stakes. They narrowed as they left the site where the ground dropped away and extended 9m north of the stake lines. The stakes were traced for a further 8m to the south of the main site in a trench extension dug in 1988 (Fig. 4.4 and 4.9 s15).

The stakes were driven at least 0.7m into the natural sand and were on average 0.05m in diameter, occurring at intervals of around 0.6m. The gaps may have been filled with horizontal wattles, although by their nature these rarely leave any evidence. Stake lines 1582 and 1583 had terminal posts, forming a matching pair at the north end of the causeway, 1584 and 1162 (Fig. 4.4). Post 1584 was sealed by the later causeway road.

It is not certain how this feature worked. The stakes may have marked the course of a track when the river was in flood. Material from the ditches must have been used to raise the track. Whether the stakes simply marked the feature when it was submerged or actually supported it is uncertain. It seems improbable that a line of wattles would have provided sufficient strength to hold an earth bank against flood over any period of time and the longevity of this trackway must be doubted. In section (Fig. 4.9 s15) cart tracks are visible between the stakes that appear in the section and indicate the line of the causeway.

Small quantities of animal bone, Middle Saxon pottery, fired clay and slag were recovered from the fills of the ditches.

Building 2902

Fig. 4.10

Building 2902 was approximately 4.8m wide and 8m in length. The long walls consisted of closely-spaced posts at irregular intervals. An entranceway is suggested on the north side between post-holes 1208 and 1203 and opposed by a single deep post-hole 1166 on the south side which had a gap on either side (see also buildings 1094 and 2925, Phase 2.1 below). Post-holes 1196 and 1249 provided central support with post-holes 1179 and 1180, and possibly 1170 and 2905, forming ‘weak’ corners for the south wall. Posts continued west on the same alignment, although whether they were part of the building or part of an attached fence line is uncertain. Post-holes 1171 (which cut 2905), 1195 and 1226 could be part of a separate feature (component number 2903) associated with a fence or enclosed bank post-dating the building (see Bridge, Phase 2.4).

A partition is indicated by post-holes 1234 and 1269 and there was a pit, 1197, immediately to the west, although whether this was contemporary with the building is unknown; it had sloping sides with a dark brown lower fill and it may have been re-cut.

Few of the post-holes contained timber stains. The clearest was partition post 1269, which was 0.1m square.

The absolute depth of the post-holes reflects the slope of the island. The north wall was on average 0.2m higher than the south. The deepest post-holes on the north wall were 1215 and 1210, perhaps reflecting their associations with the north entrance; 1175 and 1178 were also relatively deep. Neither of the end walls had deeply dug post-holes. Post-holes 1203 and 1196 contained fragments of green clay in their fill which may represent flooring material. This clay occurred more commonly in the post-holes of building 2901 and fence line 2903, providing evidence that 2902 was the primary structure, whose flooring was cut through by later constructions.

The only finds associated with this structure were one bone fragment from post-hole 1200 and one pottery sherd from 1275.

Rectangular pit 1160 may have been a latrine trench, although it lay close to the building. It contained ash and charcoal (Fig. 4.5 s11), which may have been useful in this function. Also found in it were several fragments of animal bone and six pieces of pottery.

Building 2901

Structure 2901 was approximately 6.5m long by 4.4m wide and was aligned slightly closer to NE–SW than 2902. This structure was an extension to 2902 and it seems likely that they formed a single multi-purpose unit (this interpretation is also proposed for Phase 2.2 building 1095 c.40m to the east).

This building is represented by a relatively even, sparse distribution of posts along both long walls, four along the north wall and five along the south (some post-holes were undoubtedly removed by the 1979 evaluation trench). The posts were c.1.5m apart and could be paired across the building, allowing for anomalies such
Figure 4.9 Causeway sections
as 1188 along the south wall, which might represent a replacement. The east wall evidence consists of three evenly spaced posts indicating a ‘weak corner’ assemblage, and a central support using 1241, 1239 and 1311. Two post-holes beyond the wall were well placed to act as buttresses, 1238 and 1240. The west wall is less clear and it is possible that post-holes 1248/1249 were common to both structures. Post-holes 1223 and 1224 may have been buttress supports, however, which would tend to suggest two separate structures.

Internal central support was provided by post-holes 1229 and 1245 with a wider gap across the centre of the building. There was no evidence for the position of an entrance. The ground sloped over the area of the building dropping 0.45m between post-holes 1242 and 1331 along the east wall. Four of the post-holes contained green clay in their fill; 1243 and 1244 along the north wall, and 1182 and 1237 along the south. A shallow, wide pit 1189 may have been contemporary with the building.

No finds were recovered from any features associated with this structure.

Structure 8184
This structure comprised four piles (1152, 1235, 1307, 1319) that were partly dug into the ground and then driven in (Fig. 4.4 lower). Their location on the wet lower slope of the site may be significant. A suggestion that they may have formed part of a second bridge was tested by further excavation but this indicated that the structure did not continue over the low ground. The piles were very solid and it is possible that they supported a structure such as a platform. A radiocarbon date was achieved from sapwood from pile 1235 (GU-5047 1360±50 BP, cal AD 650–1000 at 95%). Two fragments of copper alloy tweezers (sfl309) were recovered from post-hole 1319.

Building 8173
This building was 3.5m wide and extended beyond the edge of the excavation (Fig. 4.4 lower). It was based on five post-holes, one of which was a replacement, and a short length of ditch or gully (1301). The building was formed at a right-angle to the natural slope with just one west and two east wall posts. All were shallow and others may have been lost. The building had ‘weak’ corners and only two end wall posts survived with no gable support. There was no evidence of either a floor or hearth. Gully 1301 ran parallel to the west wall and may have been for drainage. There was no relationship between the post-holes and ditch 1280 (Phase 1.1–2) which terminated in the peat over the building. Given the lack of stratigraphy it is argued that this building was a subsidiary of 2901/2 based on size and position, and probably the last in the group and later than ditch 1280, but this phasing is speculative.

Enclosure
Ditches 1280, 1356 (Fig. 4.5 s9) and 2908 formed a discrete rectangular enclosure (Fig. 4.4 lower). They were shallow and wide — which suggests any accompanying bank may have been of more significance than the ditch — and contained grey and dark grey sand. Ditch 1280 cut a burial 1293 which is undated and possibly Iron Age (Fig. 3.1) and 1356 cut one of a series of charcoal-filled pits, 1987 (comp 8171) which is also undated but possibly Iron Age. It is noticeable that the enclosure surrounds both buildings 2901/2902. It is assumed that building 8173 was later than the enclosure as it could not have been contemporary with ditch 1280.

Phasing discussion
Building 2902 is thought to have preceded the construction of 2901 based on several factors:
1) Post-hole 1249 cut 1248; although close, these post-holes appear to be central end supports for the two separate buildings. As 1248 aligns more closely with 2901, this must be the later construction (although it could have been shared with 2902 if both buildings were standing).
2) Post-holes from both buildings contained green clay but this was found predominantly in those of 2901. This could occur if the later building cut through surfaces associated with the first, resulting in the presence of clay in the primary fill of the later construction. If so, they were probably not built at the same time.
3) Building 2902 occupied a level platform, whereas 2901 was half over the slope of the island. Surely the earlier building would occupy the most favourable location? This argument also supports the suggestion that 2902 was still standing when 2901 was built and that they shared a common wall.
4) A ditched enclosure was formed around the buildings.
5) Building 8173 straddles the boundary. Although there was no stratigraphic link, it probably post-dated the enclosure, expanding the site to the west.

III. Phase 1.2 – later 7th to early 8th century
Figs 4.11–4.12

Summary
The site was remodelled to create a new enclosure to the east. Ditch 6854 ran along the waterfront and created an entrance to the west with ditch 6849. It is suggested that ditch 6852 and post-holes 0324, 0347 and 0348 represent a developed entrance with a small ditch supported by a palisade; the south end of the ditch was not identified. The eastern part of the enclosure extended beyond the limits of excavation. Building 8137 remained the focus of the new enclosure. There was a sub-division formed by ditches 3658, 4806, 4811 and 4509 to the east of the building. Within this smaller area, a possible structure 5005 was attached to ditch 6854. Towards the south of the main enclosure two fence lines (8165, 8166) funnelled towards a small structure suggestive of animal pens, 3901. Ditches 0678, 8168 and 8151 were excavated on the south side of 6849. The southern part of the site remained unchanged from Phase 1.1, although ditch 1280 had probably been superseded by building 8173.

Enclosure formed by ditches 6849 and 6854
A new enclosure was created in the eastern half of the northern area (Fig. 4.11). The southern arm of the enclosure ditch, 6849, was approximately 2m wide, 0.5m deep and steep-sided with a flat base (Fig. 4.5 s5). Its fill was of grey and white sand with an upper fill of darker loam containing occupation debris. Different segments of this ditch produced variable amounts of finds, including pottery, fired clay, Roman tile, slag, lava quern, animal bone and a range of small finds comprising antler combs
(sf2357, sf2545, sf3827), knives (sf2443, sf2466, sf2487), a pin (sf4409), a pin-beater (sf2029), an awl (sf2464) and glass vessels (sf2351, sf2350, sf3840); however, many of these finds were recovered from the upper fills and relate to Phase 2. The length adjacent to building 0734 (Phase 2.2 below) in particular contained large amounts of debris that probably resulted from the occupation of that building. This shows that 6849, and probably many other ditches, were not levelled as a matter of course but accumulated, or were used to tip, rubbish.

The enclosure ditch continued to the south of the high point of the island but an arm of it projected north to the waterfront as 4806. This ditch was dug in two lengths with a post-hole at the junction where the ditch was intersected by ditch 4509. The ditch had a maximum width of 1.8m and depth of 0.35m. It contained sherds of pottery, worked flints, animal bone, Roman tile, a loom-weight (sf2664), fragments of a copper alloy brooch (sf4845) and two glass vessel shards (sf4881, sf5163). A further post-hole 1630 was placed at the north end of this ditch, where it overlapped with 6849 (Fig. 4.12 s19). The latter had a broad flattish base (Figs 4.5 s6 and 4.12 s18–20), and produced a smaller assemblage of artefacts than the remainder of the enclosure. It was expanded piecemeal, with a junction where it met ditch 3658. Further sub-divisions in the smaller enclosure were created by shallow ditch 4811. All these ditches are thought to have been open, with no evidence of post-pipes, and the width to depth ratio is consistent with ditches re-dug and cleaned during their lifetime.

At the north-east corner of the smaller enclosure was a possible structure 5003 that consisted of a rectangular ditch with a slightly rounded west edge, measuring 4.5m x 3m. The gully had a shallow profile (Fig. 4.12 s18) partly filled and sealed by grey dump layer 4877 (Phase 2.1). The ditches forming 5003 were also open, suggesting that a simple structure was contained within, possibly a sheep fold.

The northern edge of the enclosure was partially collapsed where it ran into a pit 0045 (Fig. 4.12 s21) which, like the ditch at this point, contained large quantities of finds, although these may have been deposited later than Phase 1.2 (see Phase 2.2). This pit was sampled for macrofossils (Chapter 10.V) and contained a high proportion of weed seeds, particularly nettles, black bindweed, elder and knotgrass.

This list of features is not exhaustive and it is assumed that many of the miscellaneous post-holes and lengths of gully within or related to the enclosure, which cannot be phased with any certainty, had their origins at this time. For example, east of ditch 4806, many post-holes were present and judged to be early simply on appearance, but...
Figure 4.12 Phase 1.2 sections
could not be phased with any confidence. It is perhaps sufficient to say that settlement activity continued beyond the limits of the excavation.

**Fence line 8165, 8166, 3901**

Two parallel lines of posts, 8165 and 8166, 1.5m apart, ran for c.12m before terminating in an ill-defined structure suggested by a large number of post-holes (Fig. 4.11; Fig. 4.5.88). One of the post-holes making up 8165 contained over 100 fragments of lava quern, but otherwise the only finds were a few fragments of animal bone.

The clearest association is with post-trench 3901 that ran for about 7m before turning through 90 degrees. It was only about 0.1m deep. It continued as a trench which was slightly deeper. The fence lines are interpreted as part of a funnel leading to pens, which could have been used for confining animals for slaughtering or shearing. The trench contained small quantities of pottery, flint, slag and animal bone.

**Western palisade and entrance**

Outside the enclosure, ditch 6853 may have formed an adjustment to the entrance that cut ditch 6854 where it ended. Another development which may belong with this phase is ditch 6852 and three post-holes to the south, 0324, 0347 and 0348. Together these are good evidence for a gated entrance to a palisade enclosure positioned slightly to the west of the first enclosure, but this interpretation depends on a ditch or other obstacle on the south side being archaeologically invisible. There are further examples of entrances with three posts at Brandon including that through ditch 8143 (Phase 2.1) and an entrance through ditch 6892 around building 2923 (Phase 2.2). This developed entrance may belong with Phase 2.1; it would explain the shift in position, fitting more comfortably with building 8139.

Part of ditch 6852, small gully 0135 contained a group of finds including pottery, fired clay, tile, quern, slag and animal bone, as well as a copper alloy stylus (sf2009), copper alloy sheet vessel fragments (sf2022, sf2023), a glass bead (sf2062), a fragment of claw beaker (sf2063) and an iron strip.

**North–south ditches 0678, 8168 and 8151**

Three ditches, 0678, 8168 and 8151 ran south from 6849. They were respectively 20m, 24m and 21m in length and between 1m and 1.5m in width. All three ditches were rounded in profile and, allowing for differing machining depths, about 0.7m deep. These may have been a response to drainage difficulties in the main ditch; however they crossed the east end of a hollow or wide gully that extended west and may, instead, represent a short crossing the east end of a hollow or wide gully that may, instead, represent a short fence line that was associated with it. Access to the site from the west of the first enclosure, but this interpretation depends on a ditch or other obstacle on the south side being archaeologically invisible. There are further examples of entrances with three posts at Brandon including that through ditch 8143 (Phase 2.1) and an entrance through ditch 6892 around building 2923 (Phase 2.2). This developed entrance may belong with Phase 2.1; it would explain the shift in position, fitting more comfortably with building 8139.

Part of ditch 6852, small gully 0135 contained a group of finds including pottery, fired clay, tile, quern, slag and animal bone, as well as a copper alloy stylus (sf2009), copper alloy sheet vessel fragments (sf2022, sf2023), a glass bead (sf2062), a fragment of claw beaker (sf2063) and an iron strip.

**Summary**

This phase is seen as key to the development of the site and indicates an expansion of the settlement. Church 7098 and its various extensions were built alongside cemetery 1 (although which came first could not be established). Two smaller buildings, 8832 and 9289, were laid out close by (a latrine/refuse pit 4347 may have served building 8832). A ditch with a gated entrance, 8183, to the north-west of building 9289 may have appeared during this phase (isolated stratigraphically by the medieval enclosure) and we can suggest further buildings beyond the excavated area that were associated with it. Access to the site from the south was already established across the floodplain during wet conditions; this route continued in use. A major division of the site was stratigraphically later than
Phase 1.2: ditches 8143 and 0681 defined an enclosure in the south-west of the site with a three-post-gated entrance that excluded, but faced, the church. A shallow valley in the centre of the site formed a gap in the boundary, which continued further north as ditch 4450 and possibly 4447. It is suggested that the enclosure was formed around new developments to the south-west with two pairs of buildings: 2926 and 2925, and 1096 and 1094. At the north end of the island, building 8139 may have been built during this phase, as might 2920, although the latter is included with Phase 2.2 based on general symmetry.

Church 7098
Fig. 4.14, Pls 4.1–4.4
For ease of presentation it has been assumed that building 7098 was a church, which is the interpretation favoured by the authors and fully discussed in the general discussion in Chapter 12. Cemetery 1, to the south of building 7098, is described and discussed, along with the people buried in it, in Chapter 7.

The primary construction was sub-rectangular with opposing entrances, and an internal doorway into an eastern extension (Fig. 4.14, Pls 4.1–4.2). The extension was also accessed through a doorway in its south wall (there may have been an entrance on the north side but this could not be confirmed). Two further extensions were later added to the west end of the building, before it was replaced by building 8851 (Phase 2.2). A thin spread of crushed chalk was recorded at the occupation surface contained by the outline of this building (Pl. 4.3).

The main structure
The walls of the central structure were bowed, being 13.75m long and 6.5m apart in the middle, tapering to 6.1m apart at either end. The walls were all set in trenches, with separate rectangular pits dug for the three entrances. The corners were in separate pits, which contained two abutting planks at right angles to one another (Pl. 4.4). In the side walls individual planks were set in separate cuts within the wall trenches. The western half appears to have had eight posts in each of the long trenches, of which the stains of fourteen could be recorded. These were closely spaced and at regular intervals of between 0.35m to 0.41m from edge to edge with the exception of the narrower gaps of 0.3m (north wall) and 0.18m (south wall) between the first and second planks on each wall. The east side of the south long wall showed only four posts with two adjoining posts set deeper than the rest. The deliberate gap in the pattern of posts may indicate a window or opening on the south side. Less clear evidence for the opposing north wall suggests it may have mirrored the south wall. The end walls were less substantial than the long walls. On the east side, the planks were set at 4.6m intervals, and the average depth of the plank stains was shallower than along the north wall. There were no clear plank stains along the west wall and the fill was a mixture of swirled grey and yellow sand, rather than uniform grey sand. This may be evidence that the timbers were removed when the building was extended.

Three entrances were all built using the same technique with sub-rectangular post-pits large enough to contain both door-jambs. The evidence showed that the planks were placed against the inside edge of the pits, which positions the door surround inside the line of the wall by almost a plank’s width. The timbers used were large but not exceptional; they varied between 23–29cm in length and 7–9cm in width. In the doorway between the main structure and the east extension the planks were 0.9m apart, and the other entrance widths were probably similar. This construction technique suggests the entrances were prefabricated and inserted into the building. The entrance to the east cell is of particular interest. The post-pit was cut by ditch 8919 but in the grey sand fill at the bottom of the post-pit was the head of a mature male horse (7846, Crabtree Chapter 10.II). Parts of the mandible, vertebrae, and ribs were also recovered although these were removed before the nature of the deposit was identified. The position of the skull is likely to have been of ritual significance (see Chapter 12).

Projecting into the structure from the south side of the entrance to the eastern extension was a slot (7844). It was c.1m long, shallow, and set at an angle so as to taper towards the doorway. A brown stain running the length of the slot is thought to be the remains left by a rotted timber. Unfortunately the north side of the door had been removed and we can only speculate on whether the slot was one of a pair. On general appearance we must suspect it had no major structural role and was related to the internal furniture of the building.

Internal post-holes included an opposing pair to the east of the entranceways at right angles to the walls. This was a substantial building and these posts may have supported the ridge, without obstructing the open room. There were only weak plank marks, although these suggested they were of large timbers. There were several internal features which could have belonged either with
this structure or with replacement building 8851; of these post-hole 7802, with a north–south plank stain, aligns between the internal posts to the east of the entrance, although it would have been central to building 8851, and a shallow pit 7964 was positioned along the axis of the building at the west end. This feature had a pale brown sand fill with shallow sloping sides and did not appear to be structural, but may have been a secondary support.
Figure 4.14 Building 7098 with inset showing surrounding features
Buttresses 9371 and enclosure 8182
A series of buttress timbers (component 9371), supported the main structure (Fig. 4.14 inset). They tended to be set in circular, shallow holes and could barely have been earth-fast. It is suggested that there were four along each of the long walls: two facing the corner, and two supporting the wall either side of the doorframe although not all could be positively identified. These elaborate primary supports are unique on the site, perhaps they indicate a design variation to create a larger open hall within the building by limiting the use of tie-beams?

Buttresses may have been a prominent feature on larger higher status buildings.

There were many post-holes to the north of the building, some of which clearly relate to the entranceways from later phases, but several deserve mention for the symmetry they show with this phase of the building. Group 8182 formed a 1.5m enclosure on the north side with an opening of c.3.5m facing the entrance. There was also an alignment of five circular post-holes angling towards the east side of the entrance. A close link can also be demonstrated with fence line 9770, which was built onto the north-east corner of the east cell. There was no
distinction in fill between the corner post-hole for the cell and the adjacent fence post-hole — they appeared as one, although the outlines of the cuts were different. There is evidence for two entrances through the fence, one facing south at the end of the cell, the other facing east where the fence turned north; they were identified by matching double post-settings. The fence terminated at a gap in ditch group 8861 (Phase 2.2).

**Eastern extension**
The cell at the east end was 5.25m long and 4.25m wide. Its east end was cut by ditch 8919 (Phase 2.3), which removed most of the east wall and the entrance to the nave. It was built using both plank-in-trench and individual post-holes with six along the north wall. The arrangement of the south wall was less clear: three posts were placed in a trench with two large post-holes, 7817 and 7726, indicating an entrance. Post-hole 7726 contained two plank stains which is suggestive of an inset doorway opposed by post-hole 7817; the latter contained three post stains in an odd arrangement. The doorframe was probably too large for the break in the wall, and had to be partly concealed behind it. This may be the result of inserting a prefabricated doorway into a narrow gap. The effective entrance width was 0.65m. There were several post-holes that do not obviously relate to 7098 or its replacement within the area of the building.

**Western cells 8180 and 8181**
The church was further developed with two more cells added to the west end. The first cell, 8180, measured 5m x 4m and was built with separate post-holes on the north side and post-in-trench on the south. There was a single inset doorway on the south side 0.8m wide with common post-holes for the wall and doorway planks. Central support was provided by the central post 7090 in the west wall and by internal supports 7524 and 7522 (the latter with an east–west aligned plank stain). It has been suggested above that the west wall of the main structure was taken out when the cell was added, but alternatively buttress post 7782 may have been removed, leaving the only entrance to the extension from the outside. The awkwardness of post 7782 is the main evidence for this extension being an addition to the building.

The evidence for extension 8181 is less complete; its dimensions were c.6m x 4m with post-holes showing at the west end. This would appear to have been a simple structure with few post-holes recorded. However as it was built against a standing building; there may have been less need for earthfast posts during construction.

**Finds**
With the exception of the partial horse skeleton noted above, very few finds were associated with the church structure. Some residual material was recovered from post-holes 7717, 7819 and 7914, comprising prehistoric pottery and flint and there was some hand-made pottery from door pit 7858. Animal and bird bone fragments were found in post-holes 7528, 7713 and 7818, and Middle Saxon pottery came from 7528, 7751 and 7757. This suggests that the area was largely clear of domestic debris during both its construction and demolition.
North of the church

Building 8832
Fig. 4.15
This building measured 6.9m by 4.25m and was aligned north–south with five post-holes detected along each of the long walls, of which two on each side (8794/8795, 8797/8824) are suggestive of opposing inset entranceways approximately 0.75m wide. There were large gaps between the centre and the corners of the building, with no evidence for earthfast posts. Only two posts were detected along each of the end walls, these were opposing central posts 8788 and 8800 and their respective adjoining posts on the west side, 8787 and 8805, both 1.9m from the centre. Good timber shadows were recorded and most were between 0.22m and 0.27m long by 0.05m to 0.08m wide. 8797 was the bulkiest, tapering from 0.13m to 0.08m over 0.24m. The evidence suggests the timbers were radially split, which accounts for variations in width, but that a variety of timber forms were used. No evidence for a floor or hearth has survived, and no finds were recovered from the post-holes.

Building 8832 was overlain by building 7500 (Phase 2.2) and cut by gully 7556 associated with building 8893 (Phase 2.3). Post-hole 8805 was sealed by several layers of clay, sand and flints from hearth 7501. Post-hole 8827 was cut by post-hole 7913 of building 7500. It was the first building in this group and aligned with similar building 9289 and church 7098.

Building 9289
Fig. 4.16; Pl. 4.5
This building measured 7.5m x 4.75m. It was aligned east–west with six post-holes surviving along the south wall, one of which also supported one side of two inset entrance posts, 8951 and 8936. Two main end wall posts 9213 and 9220 marked the axis, with two evenly spaced posts either side and an extra one on the west side. Internal central support was provided by post-hole 9218 and further support may have been provided through posts 9188 and 9217 which formed a partition of one-third of the building at the east end. There were few post stains, which could be a consequence of the building being demolished before the timbers below ground had rotted. Post-hole 9218 contained a sherd of hand-made pottery.
The north wall was cut away by the medieval enclosure ditch 9128 (Pl. 4.5) and by ditch 8850 (continuation of ditch 8175 north of ditch 8134, Phase 2.4). Most of the remainder was sealed beneath the clay floor of building 8927 (Phase 2.3). The building was parallel with church 7098 and at right angles to building 8832, with which it is associated as the first buildings in this area.

Feature group 8183
A range of ditches, post-holes and pits appear on the northern excavation edge inside the medieval enclosure (Fig. 4.13). They represent several phases of activity, but defy close phasing. Finds comprised largely flint and animal bone with the occasional sherd of prehistoric or Middle Saxon pottery. Ditches 9253 and 9233 appear to have formed an enclosure with an entrance, which was parallel to the Phase 2.1 buildings and church 7098 (as compared with later building 8927). Ditch 9233 appeared similar to a post-in-trench building wall and it is only the unusual width of the entrance, at c.1.3m, that makes it more likely that this was part of an enclosure. If this were the case, it may have been the earliest phase of delineation for a new central enclosure, where the next phase of church building probably took place. The evidence is a reminder that a significant settlement lies beyond the excavated site.

South-west enclosure
This enclosure was delineated by ditches 8143 and 0681, and contained two pairs of buildings, at the north end 2926 and 2925 and at the south 1096 and 1094.

The enclosure ditches
Fig. 4.17
The enclosure was formed by ditches 8143 and 0681 (Fig. 4.13). The junction was marked by a post-hole at the northern end of 8143. Ditch 8143 was c.55m long with evidence of re-digging at the south end. It was c.0.7m wide and up to 0.8m deep (when exposed by hand beneath the 2.5m square excavations in 1986). Approximately 14m south of the north end was a gated entrance to the enclosure that comprised three post-settings west of the ditch, 6789, 6790 and 6791 spanning 3m. Post-hole 6789 contained a rectangular plank stain aligned east–west and measuring 0.2m x 0.12m, post 6790 was c.0.2m square, and 6791 had two smaller, less regular post impressions.

It is uncertain whether this ditch was for a palisade or simply open; there was no evidence for posts within the fill however, and the inset position of the entrance is best understood if there were a bank thrown up on the inside running parallel to the gate. Of course there may have been posts set in the bank which did not penetrate far beneath the topsoil – such a feature would leave no archaeological trace.
Beyond the natural depression at the centre of the site, the enclosure ditch continued for a further 20m as ditch 4450 before turning east. This ditch cut elongated pit 4347 (Fig. 4.17 s22) which was 6.5m long, 1.25m wide and approximately 0.5m deep. It had a lower fill of grey sand, overlain by dark sandy loam with concentrated rubbish deposits which were deepest at the east end, indicating that tipping came from the direction of building 8832. Large quantities of animal bone, pottery and small finds were recovered from this pit, including a strap-end (sf4328), three pins (sf4352–3, sf4355), a glass bead (sf4373), iron fittings (sf4376–7) and a pin-beater (sf4379).

Ditch 8143 produced a number of artefacts, including a large group of flints (in 1070), some pottery, an antler comb (sf3863), a hooked tag (sf4370) and animal bone. Smaller quantities of pottery, flint and bone were recovered from ditches 4450/4447.

Building 2925

Building 2925 measured 11.6m x 6.25m and was aligned approximately north–south. Ten wall posts were fairly evenly spread on the west side; the composition of the east wall is less clear due to its overlap with building 2923 (Phase 2.2). Both long walls were incomplete at their north ends with at least two post-holes on the west side and three on the east side missing. Some of the wall posts may have paired but it is quite clear that most of them did not. Post-hole 0453 could be either an internal post or a later addition. No post forms were recorded.

Allowing for missing posts, this structure was symmetrical with two evenly spaced central supports 0481 and 0506. The depths of post-holes were similar across the building with the exception of these two, which were the deepest. Their depth and positioning suggests they were an important load-bearing element of the structure. They complement the central post-holes (0526, 0488) in the end walls, which probably comprised five posts each (with one missing in the north wall). Only the southern two corners were intact; these were ‘weak corners’ with the post-holes widely spread. The surviving post-holes at the north end suggest they were the same. It is suggested that there was a wide entrance midway along the east wall between post-holes 0470 and 0474 of c.2m; this was opposed on the west side by a central post 0450 (a similar arrangement is proposed for building 1094, also Phase 2.1, below).

The only find from this structure was a chicken bone from one of the south wall post-holes (0487).

There were three pits at the north end of the building (0523, 0524 and 0527) set inside the north wall, and several other features may belong either to this structure or to building 2923.

Associated post-lines and ditches

Gully 0562 (Fig. 4.13) is tentatively linked to building 2925; the surviving length was 14m but it was at least 2m away from the west wall post-holes. It is phased with this building because it was cut by enclosure 6856 (Phase 2.2).

Post-line 8145, to the east of building 2925, consisted of eight closely-set post-holes spanning 6.5m. These post-holes were only 0.12m deep. This line could either be the remnant of a building in which the three remaining walls were too shallow to be detected, or a free-standing fence, which is the preferred interpretation. It is similar to Phase 2.2 post-line 8160 close to the waterfront.

Ditch 0539 was only 0.2m deep but contained a distinct black fill which was sampled for macrofossils. The results of the analysis suggested that the cereal remains recovered represented burnt malt grist (Chapter 10.V). The association of ditch 0539 with 2925 is uncertain, but it lay outside enclosure ditch 6856 (Phase 2.2) and terminated very close to the end of the building; it may have been associated with features in the unexcavated west-central area of the site, however.

Building 2926

Building 2926 measured 10m x 5.25m and was aligned approximately east–west. It was exposed following the removal of the modern topsoil, Saxon occupation layer and some subsoil by machine. No levels were taken on the building but the depth of the post-holes as excavated suggests that the south-eastern corner of the building was lost by machine than in the north-west. The average surviving depth of the post-holes was 0.22m.

The side walls consisted of nine posts each (with one missing in the south-east corner), with four post-holes to...
the west and five to the east of the inset entrances. The posts were not evenly spaced but the pairing of posts across the building was very precise. The end walls consisted of five posts each with the south-east corner post missing. The three surviving corners were 'weak' with the side and end wall post-holes clearly separated. There was one extra post-hole (0330) in the north-east corner; this may be considered as a later addition to support the corner (0331, 0329) rather than a part of the original plan. The entrances were represented by two opposing inset pits, 0338 and 0339, along the side walls, similar to those in church 7098. The fill of the post-holes was often quite distinct in having uniform brown fill at the base with grey sand often with charcoal and clay fragments in the upper fill. There were two post-holes, 0319 and 0320, internally at the east end of the building with no obvious function or proof of association, but they could be the remains of an insubstantial partition. Pit 0338 contained two sherds of pottery and a cattle bone, but there were no finds from any other features in this structure.

Ditch 6860 (Fig. 4.13) may have been a drainage gully serving the building, and pits 0424, 0425 and 0426 may also be related to this or to building 2925. A segment of ditch 6860 (0777) contained five sherds of pottery, five pieces of bone and six flints.
Building 1094
Fig. 4.20; Pl. 4.6
Building 1094 was c.15.4m long x by 7.4m wide and aligned approximately east–west (Fig. 4.20, Pl. 4.6). The long walls were each constructed of eleven posts, with post-hole 1028 along the south wall containing two timbers. It is suggested that there was a central entrance between post-holes 1441 and 1589 along the north wall and that this was opposed by post-hole 1029 in the south wall, which was separated by unusually wide gaps from post-holes 1030 and 1028 on either side, 1.4m and 1.5m respectively (this ‘opposing post-hole’ arrangement is more clearly apparent with building 2902 from Phase 1.1). There was also a relatively wide gap between post-holes 1591 and 1590 along the north wall and 1032 and 1031 along the south wall, of 1.5m and 1.95m respectively, that may also indicate openings.

The end walls were symmetrical; each constructed using seven post-holes, with the central post-holes along the main axis of the building. Several of the post-holes were large, which may have been the product of post removal during demolition rather than posts having been replaced. There were two large central supports spaced equidistant along the axis, 1421 and 1503, with evidence that both posts had been extracted during demolition.

Internal features included a pair of small post-holes, 1018 and 1002, indicating a structure in the south-east corner, possibly a partition or the foot of a ladder providing access to a roof space. Post-holes 1127, 1011 and 1067 were of uncertain function. Features 1419 and 1518 were both shallow and contained charcoal, and 1419 was set in clay; their shape and fill suggest that they were not post-holes. Shallow pit 1530 in the north-west corner contained dark brown sand over leached natural white sand. This may have been caused by livestock grubbing about and urinating in the same spot over a number of years. There was no evidence of a floor although internal features 1419, 1518, 1127 and the top fill of 1421 contained charcoal. 1127 and 1419 were the only features to contain any clay.

Many of the post-holes contained wood impressions and six had preserved timbers. The best evidence was preserved along the south wall. Four pieces of timber survived, representing segments of tree trunks, in post-holes 1008, 1009, 1031 and 1032. The timber in 1031 was the most complete with a section representing two-thirds of a trunk with a diameter of approximately 0.2m. All the other south wall post-holes had wood stains except 1030 and 1092 (where the post had been removed). The stains were generally too irregular to obtain a clear picture of their shape, although 1029 and 1028 were probably rectangular. Two other post-holes contained timber, 1055 and 1505 along the west wall. Post-hole 1505 contained a complete tree section 0.12m in diameter. The other post stains indicate that variation in timber forms occurred throughout the building. 1590 in the north wall probably contained another complete tree section with 1589, 1591 and 1548 containing segments cut from larger trees. The timber in post-hole 1441 was probably from a rectangular plank. The flat side of the half trunks generally faced inwards. Within the building, post-holes 1002 and 1018 contained clear plank stains indicating posts approximately 0.1m square.

A quarter-trunk of oak in post-hole 1032 produced a radiocarbon date of 1360±30 BP (GU-5046, cal AD 610–770 at 95%; Table 2.3). The dating of Phase 2.1 as a whole is uncertain given the lack of direct stratigraphy but this evidence strongly suggests that building 1094 and the associated structure 1096 (see below) may date from the late 7th or early 8th century.
Finds from the structural features included a piece of a Type 1 horseshoe (sf2510) in post-hole 1029, a lead sheet offcut from pit 1127 (sf8364), and fragments of vitrified hearth lining from 1422 and depression 1461.

Associated features
Outside the building was a drip gully 1034, running north to south from the south-east corner (Fig. 4.13), which contained one sherd of Middle Saxon pottery. Other features probably associated are post-hole 1065 beyond the east wall, and the pit series 1047, 1035 and 1012. Pit 1047 contained five sherds of Ipswich Ware. Pit 1035 was smaller and contained a solid layer of clay under charcoal, and fragments of animal bone.

Shallow pit 1057 at the south-west corner (Fig. 4.20) contained two sherds of Roman pottery. It was clearly cut by post removal hole 1058 but not the original post-hole (1092), suggesting it was associated with the building. It had more black and white streaky sand in the fill suggesting the action of water, with a top fill containing lots of charcoal. This conforms to the fill of the post removal holes and the shallow internal feature fills of the building.

Building 1096

Fig. 4.21

Building 1096 was 6.2m wide and at least 12m in length (Fig. 4.21; Pl. 4.6) based on the visible extent of the north wall (the west wall was not detected). There were fourteen post-holes along the north wall with two extra posts inset, 0902 and 0903, and with the possibility that the post in 0892 was also inset and formed a doorway with 0903. The average gap between the post-holes was 0.9m and the posts in both walls were very closely aligned. The south wall was less complete with at least two post-holes undetected along the west half. The central group, 0995, 0994 and 0993 projected forward slightly and may be an indication of a south entrance. Post-hole 0993 was deeper than, and cut, 0994 for which it may have been a replacement. The east wall had eight post-holes with a further post-hole, 0984, south of the building line. The post-holes aligned very closely and the corner assemblages were closely set without actually touching. An even number of gable wall posts is unusual and, although they could have been contemporary, 0914 is thought to have replaced 0915; possibly it was inserted while the earlier post was still in place.

There were six internal features: four post-holes and two shallow pits. The pits contained grey and brown sand; pit 1000 cut 1001. Post-holes 0917 and 0893 were both situated close to the north entrance but neither seems to fill an obvious function; 0998/0999 may have been part of a corner partition.

Information about post forms is limited as the building was excavated by sectioning and no wood survived, although stains varied in width from 0.12m up to 0.28m. It was certain that the stains represented either rectangular or wedge-shaped timbers and not circular posts. The only finds were fragments of animal and bird bone recovered from two post-holes (0887, 0891).

The lack of post-holes for the west wall is not thought significant. The centreline posts and the side walls were probably the most important and therefore the deepest set (only two side wall posts were ‘missing’). A possible explanation for the lack of posts might be the reuse of wall timbers from an earlier building. These timbers would have been shortened because the lower ends would have rotted below ground and therefore cut shorter when they were extracted. They could not have been sunk very deep in a new building, which would explain the lack of post-holes.

Of the external features there was a broad, shallow feature, 1004 (Fig. 4.13) which contained large quantities of charcoal. Gully 1380 was a soakaway from the west wall and contained four sherds of Ipswich Ware; it was cut
by a post-hole of building 1095 (Phase 2.2). The gully sealed post-hole 1415 from building 1094.

It is also noticeable that palisade trench 8143 skirts the building by approximately 2m, suggesting a close relationship.

**Waterfront and northern half of site**

A complex area of activity was located to the north and west of building 8832. Only a small proportion is dealt with in this phase but there is likely to have been a continuation of function into Phase 2.2. Building 8139 is a case in point; it is interpreted as a support building associated with the expansion of the site but whether this occurred in this phase or the next is a matter of conjecture.

**Layer 8156**

Along the edge of the island, ditch 6854 became infilled. This was partly a natural process but there was also a significant dumping of homogenous grey sand in the ditch and beyond (8156; Fig. 4.12 s18 and s20). Presumably this was done for a purpose and indicates settlement activity to the south.

**Building 8139**

This building was excavated in 1980 when the modern topsoil and Saxon occupation surface were removed by machining, except around oven 0006 which was excavated by hand.

The building measured 12.5m long x 6.25m wide and was aligned approximately north–south. The east wall is represented seven post-holes, but there is some potential confusion with buildings 8137 (Phase 1.1) and 8131 (Phase 2.2), which shared the site. The average depth was 0.25m, although post-hole 0200 was just 0.06m deep. North of post-hole 0259 there were either deliberate gaps in the wall or several posts were set in shallow holes. The west wall was more complete although the details of the central area were obscured by post-holes from building 8131; a significant aid to separating the post-holes was the dark fill from accumulated occupation waste and debris from oven 0006 in the post-holes of the later structure. The end walls had unusually close-set posts where they survived. Post 0081, which was central to the north wall, was the deepest at 0.28m. Of the remainder all were less than 0.15m deep. It is suggested that there was a central entrance along the west wall that may have been matched by a single post along the eastern side.

There were numerous possible internal post-holes of which 0013 falls on the longitudinal axis and was also the deepest at 0.4m; post-hole 0095 was probably a replacement or prop. There was a possible latrine pit in the south-west corner, 0106, which was wider than the post-holes with a washed out fill which was similar to pit 0764 in building 0734 and several pits in building 1391 (Phase 2.2).

A substantial oven, 0006, occupied the north part of the building, but was heavily disturbed by post-holes from building 8131. It consisted of an oval of unfired clay measuring 3.5m by 1.5m with a central pad of fired clay measuring 1.2m by about 0.5m. Occasional fragments of bone, slag and pottery were recovered from its make-up. A concentration of Roman tile south of the fired surface was the only direct evidence of superstructure, although large quantities of clay in pit 0045 and the top of ditch 6854 (Phase 1.2, but probably infilled during this phase) could well have come from its dismantling. The flint and tile may have been re-used in replacement building 8138 which was remarkably similar to 8139 in both form and the shape of the oven. These ovens from two separate phases did not resemble the ‘domestic’ hearths encountered within buildings elsewhere on the site. The large number of post-holes at the north end of 8139 also seems unusual, leading to the suggestion that perhaps the end walls were not made of substantial timbers. This multiple post-hole type is only suggested elsewhere for buildings 2923 (Phase 2.2) and 1094 (above).

**Phase 2.1 phasing and dating**

Areas of the site that were previously unoccupied were developed in this phase, and it is the symmetry of the sequences in each cluster which are most striking. It is suggested that the development of the church and the enclosure to the west were close in date. The church and the two adjoining buildings occupied high ground, which lies under the early central enclosure and beneath what became the chapel mound. This suggests that the church was built after Phase 1.2. Of the new features, the church, cemetery and west enclosure appear as if planned; it is suggested that this appearance is the result of the ditch system imposing some order on the site and that developments were sequential but relatively close in date.

It is impossible to establish whether the cemetery or church was first. There is no absolute date for the start of this phase.

Components of this phasing are interpretive. For example it is speculation to assign the first phase of building west of ditch 8143 with the ditch itself. Buildings 1096 and 1094 might have been replaced by building 1095 (Phase 2.2) by this time, for example, although the proposed phasing is preferred. While this needs to be considered, it should not detract from the basic premise that these building groups were separated from the church and cemetery, and from this inferences for the development of the site that can be made. The relationship between buildings 8832 and 9289 and the church can also be debated; were these buildings erected before or after the excavation of ditch 8135 from Phase 2.2? The preferred phasing considers the northern contemporary continuation of 8143 as 4450. The rubbish filled pit, 4347, which it cut, was surely attached to a building and 8832 would seem the most likely, although 0734 (Phase 2.2) is another possibility, as are any buildings located beyond the edge of the excavated area.

The most significant evidence for the dating of this phase is provided by finds from the fill of pit 4347, as these provide a *terminus post quem* for ditch 4450. Alongside a large assemblage of animal and domestic bird bones were a strap-end (sf4328, Hamwic type A; Chapter 8.II) dated 675–750, and 100 sherds of Ipswich Ware. Boundary 4450 was therefore later than the introduction of Ipswich Ware, suggested to be c.720 (Chapter 6. II). Components of boundary ditch 8143 (assumed to be later than pit 4347) also produced small finds: a hooked tag (sf4370), a comb fragment (sf3863) and a bone pin (sf3861), the latter dated AD 650–750 (Table 2.4). Elsewhere components of this phase produced small amounts of pottery; nine sherds were recovered from church 7098, three from building 2926, four from 1094, one from 9289, and sixteen sherds were recovered from ditch 6910 (part of 4450) close to pit
4347, which may have been the source of the pottery. No datable finds were recovered from buildings 2925, 1096 and 8832. These quantities of pottery are relatively small and for any single building they could have been intrusive, redeposited during construction, or date from building demolition. As discussed above, a radiocarbon date achieved from a post from building 1094 suggests that it was built at the end of the 7th century or early 8th century, but it remains uncertain whether Ipswich Ware was present when all elements of this phase began.
V. Sub-phase 2.1.1 – mid 8th century

Destruction layer near waterfront
Following the dumping of spoil over the waterfront ditches an episode of destruction clearance is recorded over several grid squares under group number 8155. This layer is variously described as a thick, coarse, charcoal deposit including clay fragments and loom-weights (Fig. 4.12 s18). It covered over 300 square metres and was up to 0.15m deep in places. The contents and intensity of burning are evidence for a major fire, probably the destruction of a building. Identification is speculative but large amounts of charcoal were observed on the site of buildings 8139 (Phase 2.1) and 8138 (Phase 2.2) which replaced it. Both buildings contained substantial ovens or possibly kilns and must have been a fire hazard. Building 8139 was replaced by an almost identical building with an identical oven, perhaps a replacement after a fire. It may be significant that the replacement building 8138 contained the most incidental charcoal in the post-hole fills — perhaps this was the residue from the previous building. The implications for the function of the building are discussed more fully in the final discussion (Chapter 12).

Finds
Sealed in charcoal 5038 (group 8155) were two sceattas (sf5103–4) which provide a date for the destruction somewhere in the 720s or later, so far as the numismatic evidence is concerned (Chapter 9.II).

Loom-weight fragments weighing a total of 7.5kg were recovered from contexts in this phase, including some unfired examples. Walton Rogers (Chapter 9.IX) has suggested that the fragments largely represent manufacturing debris and may be derived from building 8139, where they were awaiting firing.

Bulk finds from these layers included 189 sherds of Ipswich Ware, 107 pieces of slag, 124 fragments of lava quern, 263 fragments of fired clay, 117 Roman tiles, six oyster shells and a large group of animal and bird bone, as well as some residual prehistoric and Roman pottery and worked and burnt flint.

Small finds other than loom-weights comprised: a glass bead (sf3643); a copper alloy pin (sf5164); a linen-smoother (sf5096); glass vessel shards (sf5097, sf5101, sf5536, sf5537); a spindle whorl (sf5864); iron fittings (sf5107, sf5621); an iron bell (sf5177); and lead waste (sf8362).

VI. Phase 2.2 – mid 8th to 9th century

Fig. 4.23

Summary
A replacement church 8851 was built on the site of 7098, and buildings 8892, 7500 and later (?) 0734, replaced smaller buildings 8832 and 9286. The line of enclosure 8143 was superseded during this phase by an east–west ditch system comprising ditches 8135 and 8861 connected by a gate. The new enclosure encompassed the northern half of the island and excluded the church. A sequence of insubstantial structures north of buildings 0734 and 7500 are suggestive of a service or manufacturing area containing an area of clay with numerous post-holes where smithing occurred (tentatively identified as an irregular building 4491), and a more ordered expansion to the north with well laid out gated fence lines and buildings including 4670, 4886, 4531 and 2920; and post-hole groups 8134, 8148 and 8149. Building 8139 was replaced by building 8138 and ancillary building 8131.

To the south of the site, long building 1095 replaced ?agricultural building 1094 and house 1096. Building 2923 replaced ?agricultural building 2925 and house 2926, and a new gated enclosure surrounded the buildings, 6856. A ditch 6859 was excavated marking the western limit of the site. This was maintained for the remainder of the settlement, and was still visible in 1979. It is suggested that the sequence of buildings at the south edge of the site (2902, 2901 and 8175) had probably run their course by this time. Towards the east side, the site expanded with buildings 1391 and 8122, and 9012 and 9031.

Along the stretch of peat between the island and the Ouse a sequence of craft or manufacturing structures comprising fenced enclosures, clay tile and flint surfaces and various dump layers, overlay destruction deposit 8155. As these structures were built up and extended they formed a series of ‘peninsulas’ across the peat. There is good evidence to suggest these features were associated with linen manufacture, including bleaching and dyeing.

Church 8851
Fig. 4.24
Church 7098 (Phase 2.1) was replaced by building 8851 that was of a similar size (Fig. 4.23). The post-holes were shallower and only the south wall could be said to be in a wall trench. The south doorway may have been blocked and there were no external post-holes that can be positively linked to the building, although the unusual arrangement of east wall planks was replicated from 7098.

The replacement building measured c.13 x 6.45m and was aligned east–west (Fig. 4.24). The south wall was the most complete and comprised two 4m lengths of post-in-trench at either end, and two double post-hole settings either side of two inset entrance posts. The profiles of the trenches suggest that there were four timbers in each of the larger segments and, by the depression in the base of 7748, probably two in the shorter.

There was a separate weak corner post-hole on the east side (7733). The north wall may have mirrored the south; on the east side there are traces of a post-in-trench (7832, partly removed by the later ditch), a double post setting (7831) and inset door posts. Two pairs of inset opposing posts, 7827 and 7830 in the north wall and 7744 and 7747 in the south, clearly show the entrances. However a single post-hole seems to block the south doorway, 7750; this may not have been contemporary.

The details of the end walls are uncertain. On the east side post-holes 7942, 7822 and 7884 may combine with 7730. The axis of the building falls between post-holes 7942 and 7822 on the eastern side. The post-holes that formed the west wall are uncertain due to the overlap with the earlier building; post-hole 7775 probably provided the end wall central support, perhaps replacing an earlier post 7959; however post-hole 7516 may have fulfilled this role. Post-holes 7544, 7954 and 7792 may also have been in use as part of this wall. Within the building, post-holes 7803 and 7973 could have provided central support.

The post-hole arrangement by the doorways of this building is reminiscent of 7098 with an uneven spread of post positions indicating some structural variation along
Figure 4.23  Phase 2.2 plan
the wall. It is speculation that these might indicate windows, double post-holes 7831 and 7748 attaching respectively to 7832 and 7731. The lack of an obvious central support at the east end (central supports are usually visible as they were of structural importance to all of the buildings at Brandon) might be accounted for by an entrance between post-holes 7942 and 7822. If so we might expect a cell or ‘chancel’ if the building were a replacement church; no such extension is visible, unless the original eastern cell of 7098 continued in use. There was a slight misalignment, however, between the north wall of 8851 and the previous cell, which overlapped the later building. It was also cut by ditch 8919 at the beginning of Phase 2.3. The western extension 8180 aligned exactly with the north wall of 8851 and it is possible that they stood together if 8180 were structurally sound. On balance we must suspect a complete rebuilding, however, and assume that 8851 was smaller and less grand than its predecessor.

There are no direct stratigraphic relationships between buildings 7098 and 8851. Their relationship is securely established by the sequence of cuts made during the development of the entrance between ditches 8134 and 8919 (Phase 2.3).

Finds from the building were limited to a few fragments of animal bone from slots 7731 and 7831 and Middle Saxon pottery, Roman tile and a flint from slot 7731.

Central area

Enclosure ditches 8135 and 8861
Fig. 4.25
A large proportion of the north end of the island was contained by a new ditch system (Fig. 4.23). The east length developed piecemeal, with ditch 8996 terminating at fence line 9770 (Phase 2.1) and post-hole 9054 (Fig. 4.25). Ditch 8861 extended as far as fence line 9770 (Phase 2.1, Fig. 4.13) and an extra post may have been inserted here, 8879. A gated entrance covered the narrow opening of c.1.7m which separated 8861 from ditch 8135, and was made from two pairs of posts indicated by 8864/8865 and 8887/8888. Ditch 8135 appears to have been dug in one go, cutting enclosure 8143 (Phase 2.1) as

Figure 4.25 Details of the entrance to enclosure 8133
it left the excavated area curving to the west. This new alignment was quite close to the old east–west alignment of ditch 0681 (Phase 2.1), which was on the edge of a depression, and therefore did not seriously impinge on the size of the southern enclosure. 8135 is likely to have continued as far as ditch 6859, the western limit of the site. All lengths of the enclosure ditch were c.1m wide, and as the entrance posts were on the north side, we can assume a modest bank here, and probably a palisade.

Finds from the eastern length of the ditch (8861, 8996) were limited to seven sherds of pottery and some bone. A much larger assemblage was recovered from the fills of ditch 8135, with the lower fills containing Ipswich Ware, fired clay, slag, Roman tile and large quantities of animal bone. The upper fills of this feature produced some Late Saxon pottery.

Building 7500

Fig. 4.26; Pl. 4.7

This building was one of the largest on the site, measuring 13.3m long and 6.7m wide at the entrance, tapering to 6.4m in width at either end (Fig. 4.26; Pl. 4.7). It was aligned north–south.

The long walls comprised seven post-holes along each section either side of the entrances. There were two opposing entrances (7991/8703 and 8719/8720) with a third in the north wall (7980/8712). With the exception of 7980, all had double post settings containing a wall post...
and an inset entrance post in the same post-hole. The surviving corners also comprised abutting posts in a single post-hole. The south wall was incomplete but should have comprised five separate post-holes. Two post-holes, 7989 and 7988 shared a short trench but the remainder were set in individual post-holes.

Post stains survived in most of the holes and their dimensions in plan were recorded. The majority were long and tapering suggesting that trees were radially split. They tend to fall within the range 0.2m to 0.3m wide although at least three of the door timbers were 0.4m wide. Posts varied in thickness between 0.05m and 0.14m.

The absence of posts in the south-east corner is of note, particularly as post-hole 8726 was outside the wall line and floor material had spread beyond the building. Several posts may have provided support from the outside. They were not symmetrical which tends to suggest that they were a response to structural failure. Post-hole 8831 was aligned at right angles to the west wall, which would be necessary if the post were to be levered up into a wall plate (similar evidence was uncovered with building 2921, Phase 2.3). Two post stains were uncovered either side of the east entrance, 7875 and 7876. These were shallow but when first exposed had very sharp edges. It is suggested that they in some way enhanced the entrance but may not have been structural because they were not earth-fast. Despite the grandeur of construction the building showed no evidence of having been partitioned.

This building was superseded and various later cuts, particularly ditch 8121, removed much of the surface within the structure. Despite this, there was clear evidence of flooring. There were two layers of material: a lower layer of grey clay, and an upper layer of orange sand. These layers were contained by the walls except for some overspill in the south-east corner, coinciding with the noted gap in the earth-fast posts, and in the east entrance. The floor was absent inside the west entrance, presumably worn away. A patch of flints, 7865, under the axis of the building immediately north of the entrance over the floor and was unburned; it is best explained as a surface pad for a secondary post providing central support. Centrally positioned at the south end was a hearth 7501 (Pl. 4.7). It measured 2.6m x 1.55m and was built of flints set in a bed of crushed chalk and clay. It sat on top of the floor layer and the surface of the flints was burnt. This hearth was similar to those within neighbouring buildings 8892 and 0734.

Finds were recovered from seven post-holes/slots, the hearth and the floor layers. These contexts together produced over 6.3kg of animal bone, 34 sherds of pottery and occasional pieces of Roman tile, slag, worked flints, lead waste (sf8347–8) and a glass vessel fragment (sf8655).

It was apparent during excavation that a path was maintained between buildings 7500 and 8892 (Fig. 4.23). It consisted of a wide spread of sand between the buildings with a concentration of chalk, 8818, on the direct path between the entrances. Layers of rubbish were identified as part of these deposits below the dark earth, with finds including Ipswich Ware, oyster shell and animal bone.

**Building 8892**

**Fig. 4.27**

The building measured c.7.9m x 4.9m and was aligned north–south. The long walls comprised six posts each with central and opposing inset entrances between 0.75m and 0.8m wide. Unusually the doorframes were separated from the nearest wall posts by 0.6–0.75m, the gaps between the uprights ranged from 0.8m to 1.05m. The end walls comprised five post-holes each with the corner post assemblages in separate post-holes. The west doorframe and an adjoining wall post were partially set in a trench although the post settings were deeper than the trench as a whole. A square annex to the building is suggested by four post-holes, enclosing an area approximately half the width the south wall. It is unclear from the evidence whether it was roofed or enclosed.
Two substantial post-holes, 9211 and 9212, indicate a partition with an entrance between them at the north end. These were not central and post-hole 9212 lay directly beneath the main axis; this post-hole seems to have been replaced or adjusted. A third, smaller post-hole supported the partition on the eastern side, 9210. Fragments of animal bone, a residual prehistoric pot sherd and a Late Saxon (?intrusive) sherd were recovered from two post-holes (9203, 9212).

The area of the floor was defined by spreads of charcoal, chalk and grey sand and patches of clay, although no one layer could be identified as a laid floor. It was noticeable that clay survived along the wall line on the north-west side and south-west corner.

The hearth 8810 measured 1.95m x 1.3m and was built of chalk and clay with a central concentration of flints. It was noted during excavation that there was a gap of c.0.15m on the east edge between the hearth and the general floor spread. This had no structure and may indicate a timber surround. Sherds of Middle Saxon pottery (and one Late Saxon, presumably intrusive), Roman tile, burnt flint and animal bone were recovered from the hearth and surrounding layers.

Building 0734
Fig. 4.28; Pl. 4.8–4.10
This building was approximately 6m wide by 10.6m long, and aligned north–south (Fig. 4.28; Pl. 4.8). It had a plank-in-trench method of construction, broken by opposing entrances in the long walls and by independent post-holes along the south wall. The west wall segments were approximately 0.2m shorter than the opposing segments along the east side. Some of this discrepancy was taken up by the timbers being set closer to the door posts on the east side than on the west.

The side walls consisted of seven planks either side of the entrances. In the southern half of the building the planks ran down the centres of the trenches. In the northern half the planks rested against the internal faces of the trenches. The wall planks, on average, measured 0.28m wide by 0.08m thick (Pl. 4.9–4.10). Despite the presence of wood in the west entrance post-holes, it was only possible to measure the north door post stain on the east side accurately, this being 0.44m x 0.1m. The evidence for the other door posts suggests they were of a similar size. The north wall was unique in having two parallel plank alignments, planks 0767, 0766, 0765, 0798 and possibly a plank in setting 0796 being set a plank’s width outside the wall (based on the corner planks 0724 and 0794), and planks 0797 and 0795. Plank 0798, overlapping 0797, takes up this staggering of the planks. The re-alignment of the wall was apparent in the continuous wall trench.

Between planks 0795 and 0797 there was an internal post setting (0799), which was probably original. It was shallower than the wall trench. The north end of the west
Figure 4.28 Building 0734

Plate 4.8 Building 0734
wall was cut by a plank removal pit 0761. The plank position was visible below the pit, which contained a dark organic fill with charcoal, chalk lumps and a quantity of yellow unburned clay. Three corners had abutting posts, showing that both end walls abutted the west wall, but the evidence was unclear on the east side.

Plank settings 0791, 0790 and 0789 along the north-east wall were overlain by shallow scoops which intruded slightly into the building interior. These can also be interpreted as the remains of robbing pits. In this case the ends of the planks were not completely removed as both 0791 and 0789 survived as timber and 0790 left a timber stain.

Internal features included an alignment of larger post-holes, 0729, 0708 and double post setting 0731 across the building. The depth of these post-holes was similar to that of the nearest wall trenches. The two central posts left fragmentary staining suggesting plank dimensions of 0.62m by 0.18m for the west part and 0.48m by 0.18m for the east. The impressions in post-hole 0729 were made up of mixed charcoal pieces which must have fallen in after the post was removed. The edges of the charcoal were very clear and measured 0.4m by 0.15m, being aligned at right angles to the central posts. Post-hole 0708 did not reveal any indications of the post size but the alignment of the post-hole was north-south and was probably similar to 0729. These four planks were clearly an integral part of the layout of the building.

There were a number of smaller post-holes and although an association with this building is likely they could have belonged to earlier or later phases. Post-holes 0707, 0705 and 0704 might indicate a fence line, however a line drawn between post-holes 0704 and 0684 runs parallel to the side walls slightly to the west of the centre line and they may have been secondary supports. Slot 0732 was very shallow and may well have lain differently than is apparent from the plan as only the very base was found; it may represent a subdivision of the northern partition. Pit 0764 in the north-east contained a dark organic fill and was surrounded by a white staining of the yellow sand suggesting a shallow open pit, possibly a urinal.

Several external post-holes may have been added to buttress the walls including 0703, 0692, 0736, 6889, 0822 and 0821; this last post-hole lay along the main axis of the building. None of these features were deep, from the level at which they were excavated, or contained post impressions.

Small quantities of animal/bird bone and Ipswich Ware were recovered from eight post-settings and a slot. A copper alloy pin was also found in the area of this building (sf0835).

The building trench in the north-east corner was cut and partially overlain by ditch 0727 (Fig. 4.23). This did not intrude over the corner post settings, and the ditch may have been a contemporary soakaway. Fragments of animal bone were recovered from its fill.

Features associated with buildings 7500, 8892 and 0734
Finds of clay, flints, pottery and animal bone were retrieved from the top of ditch 6848 (Phase 1.1) and may represent waste from building 0734.

Plate 4.9  Building 0734, plank remains in the south-west corner

Plate 4.10  Building 0734, timber stains in trench
A short ditch 0076 was approximately 8.5m long (Fig. 4.23). It had a loamy fill which contained occupation debris (largely animal bone, but also pottery, Roman tile and fired clay) and was bordered on the south edge by an irregular line of seven post-holes. It is possible this ditch was associated with structures beyond the excavated area or possibly with building 0734, just 4m to the east. It cut the south edge of ditch 6848 (Phase 1.1).

Pit 3826 was circular, measuring approximately 1.7m wide x 0.7m deep (Fig. 4.23). It was located to the north-east of building 0734, across the junction of ditches 6849 and 8168, both of which it cut. It had a lower fill of grey sand with occupation debris (including animal bone, forty-six sherds of pottery, slag, lava quern and a loom-weight fragment) with a distinct upper fill of very dark organic sand with chalk, charcoal and a lot of clay, among the occupation debris.

Pit 7563, between buildings 7500 and 8892 (Fig. 4.23), was 3.8m long x 1.25m wide and had steep sides; a post was driven in to one end. The lower fill was of grey sand but the upper fill comprised distinct layers of dark loam with much charcoal and occupation debris including pottery and animal bone similar to the ‘dark earth’.

**Phasing**

There is some uncertainty about the phasing here; the new enclosure was probably built while church 7098 was standing (this is established because fence line 9770, attached to church 7098, terminated at a gap in ditch 8861 from Phase 2.2) and it is uncertain whether buildings 8832 and 9289 (Phase 2.1) were built before or after this enclosure ditch. If the enclosure preceded the buildings it may indicate that they were not closely related to the church.

Building 8892 replaced structure 9289 (Phase 2.1), although there was no direct stratigraphic relationship between the two and this phasing is based on spatial relationships with other structures. Building 8892 was linked to building 7500 by a path and the two were therefore contemporary. Building 7500 overlay building 8832 (which was sealed by the floor of the later building), so 8892 was also later than 8832. Both buildings 9289 and 8892 were beneath building 8927 (Phase 2.1), which was also later than 8832. Both buildings 9289 and 8892 were beneath building 8927 (Phase 2.3). Buildings 8892 and 9289 were very close and unlikely to be contemporary.

The path between 7500 and 8892 was later cut through and covered by building 8893.

**Smithing area 4491**

In this area a range of post-hole groups and surface spreads indicate several phases of activity which are identified through the finds concentrations as representing the site of a smithy. Structural details are hard to disentangle from the palimpsest of post-holes and the unconventional nature of construction in this area. Several alignments of posts were excavated, of which the majority contained only small amounts of charcoal and clay within the fill. Spreads of chalk and clay with flint covered the area.

**Building 4491**

Fig. 4.29

This is one of the least understood buildings on the site but is interpreted as a smithy from the diagnostic concentrations of smithing hearths and slag recovered (Keys, Chapter 9.VI). It was centered on a clay spread 9m long and 2.5m wide that broadened out at the south end (Fig. 4.29). It was up to 0.1m thick and was mostly unburnt although it was partly overlain and surrounded by charcoal. In places the surface comprised broken up fired clay and there was a spread of burnt flints 4505 and an unburnt concentration at the north end of the clay, 4537. There were few straight edges to the clay and no delineating lines of post-holes. The various layers and spreads contained around 3.5kg of animal bone, as well as some pottery and Roman tile.

The structural evidence around the clay was difficult to interpret. There was a semi-circle of post-holes at the south end of the clay; although they were not all contemporary they could have formed a succession of shelters at the south end with the north end open. This would have been appropriate for a working forge (see Chapter 9.VI).

Few post-holes contained clay but a notable exception was 4529, which was packed with clay and Roman tile and dug into backfilled ditch 4447 (Phase 2.1). The proximity of this reinforced post to flint concentration 4493 may indicate the site of the smith’s hearth. This could have been close to the ground or 4529 may have been the firm base for a raised hearth; this feature was unique within the excavated area and this interpretation seems plausible when considered alongside the distribution of slag, smithing hearth bottom waste and the iron tools on this site. These features were later covered by further deposits of clay, burnt clay and flint and we can suggest a complex sequence of repair and refurbishment.

**Associated features**

Pit 4431 adjoining this area (Fig. 4.29) is placed within the same phase. It was c.1.3m wide and 0.9m deep with steep sides. It was later than ditch 4450 (Phase 2.1) and contained a layer of slag and a large amount of animal bone and pottery. The upper fill contained few finds which suggests this may have been one of the last open features in this area. Its function is unknown. The basal fill of brown sand gave no clue but its absolute depth was 3.35m OD and therefore it would have been wet and possibly a source of water; alternatively it may have been a source of clean sand used during metalworking. Finds recovered from the fill comprised 3.6kg of animal, bird and fish bone, small amounts of slag, pottery and fired clay, and several small finds including iron objects (awl sf2534, hinge strap sf2533, bell sf2563, nail sf4488) and three fragments of antler comb (sf4434–5 and sf4448, the latter dated 875–950).

To the west of the area was a spread of clay 3578 surrounded by flints 3576 (Fig. 4.23; Fig. 4.5 s8). The clay measured 5.7m by 4.8m. Spread 3577 was a smaller and less well-defined area of flints which contained a high proportion of chalk in nodules. It spread over an area roughly 4m by 2m, overlaying part of fence line 8165 (Phase 1.2). No post-holes were associated with it. A similar spread of flint was located c.10m to the west. These features are best interpreted as open working areas of unspecified function.

Below the clay was a depression over the earlier ditches, 7m across and up to 0.35m deep, filled with grey sand mixed with unfired clay. The source of the clay was probably the overlying surface 3578 brought down by animal activity. Finds recovered from the grey sand fill,
beneath the dark earth, included a pin beater (sf2356), three iron knives/blades (sf2451, sf2454, sf2470), an iron buckle (sf2471), a loom-weight fragment (sf3831), a sandstone hone (sf3796) and a coiled one-piece brooch (sf3869). Forty-seven sherds of Ipswich Ware were also retrieved from this context and a single sherd of Thetford Ware, along with small quantities of other domestic waste and slag. No direct stratigraphic link could be made between the smithy and this working area.

Area north of building 4491 and south of the fenced enclosure
This area includes five buildings, dealt with individually below, together with associated features. The fence lines running between the structures are considered separately.

Building 2920
Fig. 4.30
Overall the building measured c.7.25m x 4m, and was aligned slightly towards NW–SE. It was built with individually-set post-holes and had weak corners and slightly bowed walls. Opposing entrances are suggested in the long walls. Central support was provided by gable-end posts and by two further internal supports set 1.3m from the end walls. The northernmost of these (3994) contained a substantial post stain, which was almost square in plan. This building has an excessive number of post-holes and the post-holes that mark the axis do not fall equidistant between the long walls. No wholly satisfactory interpretation of the arrangement of posts has been found. They may indicate a replacement building with few earthfast post-holes; alternatively it is possible that torsion caused a major structural failing and the building was propped.

Contained by the building on the north and east sides were surfaces of unfired clay and, to the west, chalk. The internal post-holes on the west side cut the chalk confirming that they were later. Any surfacing in the central area may have worn away.

North of the building, post-holes 3964 and 4117 align with the west wall, possibly linking with post-holes to the north. Alternatively they may relate to trench 3943 to the north (Fig. 4.23) which measured 3.5m long and 0.6m wide and may have served the building as a latrine. Post-holes 4124 and 4120 contained large rectangular post
stains. They were positioned either side of the north end of the building, which suggests they were related, probably sharing a common function relating to the building.

This building may have continued through phases Phases 2.1 to 2.3 and it is likely that the confusion of post-holes represents more than one building. The principal reasons for placing this building in Phase 2.2 are that it cut ditch 3658 (Phase 1.2), it roughly aligned with other Phase 2.2 buildings in the area, and it was similar in size. The post-hole fills were generally of grey sand suggesting little rubbish had accumulated when it was built, however it may have stood when boundary ditch 4450 was excavated, influencing its placement during Phase 2.1. The only finds were small quantities of animal/bird bone, Roman tile, worked flints, one piece of slag and a sherd of Ipswich Ware recovered from seven of the post-holes.

Building 4531
Fig. 4.31; Pl. 4.11
Building 4531 measured 4.2m x 3m and was constructed using one continuous trench with a 0.6m gap along the north side for an entrance (Fig. 4.31). The north and south walls both contained rectangular timber stains; the north wall trench was dug to a uniform depth with the exception of the two post-holes either side of the entrance 4769 and 8102. Entrance post 4579 was 0.2m deeper than the trench, perhaps because it was freestanding. There were opposing inset posts at the south end of the building.

The north-west segment contained a slightly inset post 8108. This was matched on the opposing wall even more clearly. The soil mark in 8108 was not very clear but suggested a rectangular timber aligned east west. The north-east corner was composed of two abutting posts (4507, 4563). Most of the timber stains were similar in size. The north wall stains were approximately 0.31m x 0.7m, those along the south 0.29m x 7m. The end walls were both shallower than the adjacent side walls (the east wall was cut by several graves from cemetery 2 to the east (Phase 2.3).

Internal posts included 4548, lying under the axis of the building and alongside 4547; they may have formed a partition although the building would have been extremely small when compared with others on the site. A third post-hole (4508) found within the footprint of the building may have been related.

Finds recovered from trenches and layers associated with the building included several fragments of slag, worked and burnt flint, five sherds of Ipswich Ware and a large quantity of animal bone. A sherd of Thetford Ware was recovered during cleaning.

This building cut ditch 4509 (Phase 1.2). It was cut by several graves in cemetery 2 (Phase 2.3), and one, 5484, was contained within the west part of the building (Pl.
4.11) but no stratigraphic link could be established (this is discussed further in Chapter 7); it may be of note, however, that the only finds from this grave were fragments of lava quern, in contrast to the range of domestic waste recovered from the rest of the structure. An association is suggested with building 4670 to the north due to similar spreads of pebbles between the entrances which suggests they were linked by a path (Figs 4.23 and 4.31).

Building 4670
Fig. 4.32; Pl. 4.12
Building 4670 was constructed of timber planks set in individual post-holes (Fig. 4.32; Pl. 4.12). Its dimensions were 7.38m x 4.43m. Although the building was generally rectangular it varied either side of the entrances, being 4.47m wide to the west and 4.4m to the east. There were two opposing entrances along the side walls located slightly to the west of centre and built with inset door posts providing openings 0.8m and 0.6m wide respectively along the north and south walls.

The long walls comprised eight posts each with five in each end wall. These were set in individual post-holes, except those sharing post-holes with the inset doorways. The south-west corner post-hole 4613 cut 4612, which suggests that the end walls were erected after the side walls. The central post-hole along the east wall contained two timber stains, one (4760) abutting the wall post 4761 at 90 degrees and running inside the building. The eastern third of the building was partitioned by post-holes 4765 and 4766 and lesser post-holes 4794 and 4772. Post-hole 4765 lay directly under the building axis. Internal posts were of a similar depth to the wall posts. No wood remained but there were plank stains.

Only post-hole 4645 along the west wall had a removal pit, indicated by the width of the post-hole. No cut was visible in the fill but the post-hole was probably backfilled as the location was re-used for building 6864. This may have been the case elsewhere, particularly along the west wall where no post-stains were detected. Some of the post-holes contained an irregular central grey fill suggesting their posts were levered out. Most of the surviving
post-marks were regular in shape and suggestive of rectangular timbers; the average size was 0.24m by 0.07m. The post stain from post-hole 4746 in the south wall contained an odd appendage to the north (4748). The stain was very clear; possibly it was a wedge associated with the positioning of 4746. The inset door-post timbers measured 0.27m x 0.07m, slightly larger than the wall timbers. The central pair of posts were both 0.31m x 0.08m. The only find recovered from this structure was a chicken bone from the doorway post-hole 4747.
The position of the standing wall is provided by the straight edge to flint patch 3334 in the north-west corner that was contained by the west and north walls, and abutted door post 4770. The irregular broken south edge to the flints matched the north wall line of building 6864 (Phase 2.3); odd flints scattered to the south were probably the remnants of the floor that once covered 4670, and which had been salvaged when replacement building 6864 was built. These flints were presumably covered, possibly by chalk or unfired clay which dispersed in the soil or was reused. The straight edge to the flints suggests that they were either contained directly by the walling or by a separate plank running along the inside of the wall posts.

Two spreads of rounded pebbles are also associated with this building. Spread 6895 formed a 0.6m-diameter circle several layers deep, bordered by flints similar to those making up 3334. The border of flints was not complete and there were stray flints close by which may have been displaced from the feature. This discrete group lay in the angle between the main partition and the south wall. A second more scattered group lay outside the entrance to the building, being very similar to those around the entrance to building 4531.

From the surface spreads it could be established that building 4670 was replaced by building 6864 (Phase 2.3). Two distinct groups of pebbles associated with the entrance to 4670 were mirrored at the entrance to building 4531, which suggests they were contemporary. Spatial links can also be made with a range of fence lines. These factors broadly place the building in Phase 2.2 although there is likely to be a significant overlap between these features and those from Phase 2.3, most notably cemetery 2.

Building 8138
Fig. 4.33
Building 8138 measured 11.5m by 5.5m and housed a large oven, 0003 (Fig. 4.33). The only physical relationship was with building 8137 (Phase 1.1), which it cut. It is argued that it replaced an identical building 8139 (Phase 2.1). They both contained substantial ovens, which were unique on the site, and whereas that within 8139 had been cut through and robbed, the oven within 8138 was almost intact when it was excavated, suggesting abandonment. The buildings were also very close to each other. These factors support the idea that they were sequential.

The north wall consisted of up to ten post-holes, although at least one of these (0174) may be assigned as easily to Building 8137. The post-holes align fairly closely although the west end of the line was slightly ragged; most notably 0172 was slightly offset. The distribution of recovered post settings was uneven, varying from just over 0.5m to 0.75m apart, with a large gap of at least 2.5m just east of centre. The post-holes were insubstantial with the three westernmost cutting earlier post-holes, confusing the precise shape.

The south wall contained at least nine post-holes, six of which lay to the east of the large central opening, in contrast to three along the north wall. One of these (3607) may clearly be seen as an addition, being east of the gable wall line. The alignment of the posts was slightly ragged with 3771 positioned south of the projected wall line. The west end of the south wall may be represented by just three posts, 0196, 0246 and 0244. This leaves a gap of 5.4m in the south wall and in an area where post-holes have survived from the wall of 8137. These three posts could have paired with post-holes 00024–0026 along the north wall.

The east end wall was the most complete with three well-spaced posts. The central post (3612), was much deeper than the other two and clearly a significant setting. The other two posts were part of weak corner assemblages. Only the two post-holes south of the central support survived along the west wall line. The central support, 0260, was the deepest post-hole in the building. It suggests that there may have been five posts in all along the east wall.

Several internal post-holes may have been related to 8138 but the most clearly related are 3760 and 3761, which formed a pair across the building 1.75m apart. They are similar to others on the site and probably indicate a partition of the east quarter of the building. Post-holes 3415 and 0233 may have provided internal central support. There was no evidence for structured entrances but the gaps in both the long walls may have been open. It is suggested that this may be related to the function of the building, which was not a standard dwelling or hall.

The only finds were one chicken bone each from post-holes 0244 and 0247.

Oven 0003
Oven 0003 was aligned along the axis of building 8138, west of the central openings. The remains of the flint surround extended to the west wall, and the spread of flint and tile to the east was just short of central post 0233. The dimensions were 2.8 x 1.8m with a broadly oval plan (Fig. 4.33).

The oven was constructed in a shallow pit that was lined with clay and reinforced with flint (sections, Fig. 4.33). The west end and side walls survived to a depth of 0.3m. The east end revealed the fired clay surface dipping below a later deposit of partially fired clay. This represented at least two phases of construction with the partially fired material representing a contraction of the central area. The later phase was built inside the earlier one but shared a common floor. The fired surface of the early phase was 0.8m wide and 2.1m long with the clay dipping away at the east end. The later phase measured 0.55m x 1.75m. Presumably the structure was domed using clay on a frame of woven withies similar to a kiln. Cleaning around the feature produced eleven sherds of pottery, some worked flint and Roman tile, and a few fragments of bone.

A considerable quantity of burnt and unburnt clay was found in the upper fill of the large pit, 0045 (Phase 1.2, Fig. 4.12 s21), less than 10m away towards the river, and ovens 0003 and 0006 are the most likely source of such material. The fired surface of the flue dipped away from the centre of the oven towards the east end and it was clear that the oven had been open but was later blocked up and the structure enclosed.

The eastern end of the building contained spreads of clay and chalk although the connection to the building is not certain. There was a spread of flints around post-hole 3771. Clay and chalk was present over post-hole 3763 in the north wall. A feature less clearly associated with the oven was 3758, a burnt area of clay and chalk, possibly the remains of a hearth. This could have been within building 8138 and it does fall along the axis of the building.
Associated features
Ditch 3581 (Fig. 4.23) ran north and then east from the north wall. It contained large amounts of charcoal which may have come from the oven. If this is true then it holds implications for the design of the building, perhaps explaining the wide gap in the north wall and lack of formal entrance. It would also suggest an association with fence lines 8149 and 8160 as it respects them both. Pits 3587 and 3588 (Fig. 4.35) may also be included, based on their position and fill which included both charcoal and clay.

Finds from the ditch included small quantities of Middle Saxon pottery, fired clay, slag and Roman tile, a range of animal and bird bone, a stone spindle whorl (sf3580) and two pins (sf3584–5). A similar range of bulk finds was recovered from both pits, and another pin (sf3586) came from pit 3587.
Building 8131

This building was 3.75m wide and either 4.7m or 6m long depending on the position of the south wall. It was later than building 8139 (Phase 2.1), with several post-holes cutting through oven 0006. Post-holes from buildings 8139 and 8131 could be separated by their differing fill type, the latter containing more debris from the earlier oven. This included fragments of Roman tile in post-hole 0146 and a piece of fired clay from 0105.

The north end of the east wall consisted of five separate post-holes, four of which had good post-pipes indicating rectangular or radial timbers posts between 0.14m and 0.3m wide. All these posts contained debris from oven 0006, as did corner posts 0142 and 0143. There was a gap of c.1.25m between 0130 and 0105. The latter contained a quantity of ash in its fill, as did 0104 and 0191. Of these, 0104 was wide and shallow suggesting the surviving feature was a post removal pit. The west wall line was shared with building 8139 but it appears to have matched the east wall with opposing posts. Two sherds of pottery were recovered from adjacent post-holes in the west wall (0120, 0121).

The average depth of the post-holes was about 0.22m; 0015 was the shallowest at only 0.06m with 0151 at only 0.08m and 0094 at 0.12m. The deepest post-holes in the building were 0123 and 0125 at 0.4m with 0152 and 0121 close at 0.36m and 0.38m respectively. The depth of post-hole 0123 may be significant in its relation to the entrance along the opposite wall.

The north wall was quite clear, consisting of only four posts, two at the corners with two evenly spaced along the wall. The lack of a central wall post is unusual. The position of the south wall is not clear. Post-holes 0015 and 0016 form a matching pair with the centremost posts along the north wall but only 0151 survives as a possible corner post. It also places the east wall just 1.25m from the entrance, an unusual arrangement even in a small building. The alignment of post-holes 0093 and 0094 seem to be the more likely position of the end wall with 0015 and 0016 as a partition. This would separate off exactly one quarter of the building area. The arrangement would include post-holes 0152 and 0153 in the south-west corner and post-hole 0191 on the east side. It would also place the entrance in the centre of the building. It leaves the question of the south-east corner unresolved with potentially three post-holes missing, and 0093 and 0094 were not as symmetrically placed in relation to the north wall as 0015 and 0016 were. An alternative line could also be found for these posts in the internal structure of 8139.

It seems likely, despite the gaps, that posts 0093 and 0094 represent the south wall, making the building 3.75m by 6m with a central solitary entrance, on the east side. The lack of central supports along the end walls is a fairly rare phenomenon and may be related to the size of the building. Certainly the size of the identified post forms with the quantity of timber and the presence of an internal structure, 0015 and 0016, could provide very adequate support for a building of this size. There was no evidence of either a floor or a hearth.
East and south of buildings 2920 and 4531

To the south-west of building 4531 and east of building 2920 was a range of post-holes and small pits. From these a fence 8152, aligning with the south wall of 2920, ran east. The association here is uncertain: the fence has been placed within Phase 2.2 principally because of a boundary that is suggested from the pattern of late rubbish dumping in this area. A group of five post-holes, 8162, ran south from the side of building 4531.
North of building 4670
Fence line 8153 ran parallel to building 4670 c.2.5m to the north. It comprised at least eight post-holes making a line at least 15m long. Most of the posts were spaced between 2m and 2.5m apart except at either end, where gates are indicated. At the east end four post-holes made an entrance c.0.75m wide. Two gateway post-holes (0.75m apart) projected south at the west end at the junction with north–south fence 8154. The latter was 5.5m long and consisted of ten close-set posts, including abutting end posts. Most were rectangular with similar post stains measuring 0.22–0.3m by 0.07m; possibly they were salvaged building timbers judging from their size and shape. The gap between the timbers was c.0.4m and from this unusual density we can conclude it was more than a simple fence and may even have been solid with horizontal timbering. Offset post-holes 4786 and 4782 were smaller and square and may have acted to buttress a substantial wall.

Fence 8153 may have continued to the south-west (post-holes 4777 and 3650), or to the south (post-holes 4654 and 4653), or may have joined fence line 8154 running north-west, or all three. The fence is unlikely to have ended with a gate at the east end, so it may have continued east on the same alignment with shallow set posts, or perhaps turned south and east joining the dogleg of smaller post-holes north of fence line 4815. This might have the effect of separating the building enclosure from the manufacturing area to the north.

East of building 8138
A line of posts, 8160, curved around the east wall of building 8138. These post-holes varied in depth between c.0.22m and 0.08m and it is possible insubstantial post-holes could not be detected.

It may be significant that fence line 8154 aligned at right angles with the west edge of building 8148, dividing the space to the east of building 8138. It is possible 8160 and 8154 were successive barriers separating three areas of activity: the large oven to the west, the waterfront industry to the north and the higher status building and later cemetery to the south-east.

Island frontage
The area of peat stretching to the river from the edge of the sand bank was developed at this time with a sequence of structures thought to be associated with the manufacture of linen and bleaching and dyeing (Fig. 4.35). These industries are separated from the body of the island by building 4886, less formal structure 8148 and associated post-holes 8149 suggesting a line of sheds and enclosures.

Building 4886
Fig. 4.36
Before excavation commenced in the 1984 season, damage to the upper layers on the east side of 4886 was caused by illicit metal detecting. Following soil stripping the surface rubbish deposits were removed by 2.5m squares, exposing a rectangular spread of chalk and clay.

The building was very regular and measured 5.05m x 3.6m with six posts along each long wall, two inset posts for each of the opposed entrances and five posts along each end wall. They were all set in individual post-holes except for the corners where two posts either abutted or were set close together. The wall timbers measured between 0.2m and 0.3m in length and 0.05m and 0.08m in width with the exception of the north-west corner which contained a 0.01m square post. It was uncertain from the decayed outline whether the posts were radially or tangentially split. The entrances were 0.6m and 0.8m wide north and south respectively. There was a spread of chalk leading south from the south entrance, which may have infilled a worn area of floor. A circular gap in the chalk outside the north entrance may have held an external prop.

Post-holes 4941 and 5000 were also external supports added later, possibly to resist torsion. Evidence of internal timbers is restricted to post-holes 5001 and 5204 in the south-east quadrant and small post 5119 to the north. A possible drip gully 4841 was evident beyond the eastern line. Post-hole 5001 produced a rimsherd of a small Thetford Ware jar, as well as a sherd of residual handmade pottery, and a chicken bone was found in post-hole 4931.

The sequence in this area (Fig. 4.12 s18) showed ditch 6854 (Phase 1.2) infilled with dump layer 8156 (Phase 2.1). A charcoal layer 4960 (group 8155, Phase 2.1.1) was overlain by bright yellow sand 4831 containing occupation debris, Roman tile and oven dome fragments. This layer was deeper over ditch 6854 and it is interpreted as a levelling layer. Successive layers of charcoal and sand were then sealed by a mixture of yellow clay and chalk confined to the area of the building and interpreted as a floor. The layer contained a few sherds of pottery and Roman tile, fragments of fired clay and lava quern, a variety of animal bones, two pins (sf4837–8), a sherd of window glass (sf4839), a glass bead (sf4875) and a silver coin (sf4876) dated early to mid 8th century. Although placed in Phase 2.2 it is possible that this structure began earlier and finished later.

Building 8148 and fence 8149
West of building 4886 there was a parallel group of post-holes (Fig. 4.36) which showed up at the same level cutting both dump layer 4877 and charcoal 4960 (Phase 2.1.1). This group, in conjunction with trench 3690, formed a small structure, 8148, measuring 3.8m x 3.3m. The building was very irregular but there may have been a central inset entrance on the south side. Both stratigraphic and spatial evidence suggests it was contemporary with 4886. With the exception of a goose bone from trench 3690, there were no finds from this structure.

A line of post-holes, 8149, interrupted by buildings 8148 and 4886 extended for at least 35m to the east edge of the site (Fig. 4.35). It may have been free standing but it is also possible there were insubstantial sheds and huts backing onto this line. There may have been a roofed structure east of 4886 based on the post-holes, but no clear picture has emerged and the post-holes may simply be the remains of fenced enclosures.

The waterfront area
Fig. 4.37
Reclamation of the peat
The tract of peat separating the river from the site was developed for cloth working. Three structures were built contained within wattle fencing. These were enhanced with dumped and waste material and extended out over the peat to form ‘peninsulas’. Across the surface of the peat beneath the structures was a layer of compacted loose
Figure 4.36  Building 4886

Figure 4.37  Phase 2.2 waterfront features 2
wood, which is interpreted as a makeshift attempt to stabilise the surface.

The layer of burnt material identified in Phase 2.1.1 was sealed by spreads of sand, silt, charcoal and peat growth; the peat could be less than 0.01m thick and is interpreted as the remains of seasonal growth caused by raised water levels in winter and overbank flooding. Above these was a sequence of dumped layers of sand extending from the edge of the island out onto the peat. These corresponded to the positions of the working areas and created firm, dry access to the site. Above these layers, and post-dating the manufacturing features, were concentrated finds deposits in dark soil which were excavated by 2.5m squares (see Phase 2.3).

There were three peninsulas beneath the dark soil, 6892, 6893 and 8116. They were orientated NNW–SSE and extended at least 15m into the peat. They measured between 5m to 6.5m across and were separated by shallow channels approximately 1.2m wide. Along the centre of the channels thin stakes 15–30mm in diameter were driven into the peat, forming the vertical stays of a wattle fence. The most defined of these ran either side of peninsula 6893 with the wattle fences in the centres of the gullies on either side.

There were only limited stratigraphic links between the working areas on the peninsulas, but it is suggested that they were contemporary and developed in parallel. They are discussed below from east to west in their entirety but they may have run through more than one phase.

Peninsula 6892

Fig. 4.38

Two discrete working areas, both of which showed a number of phases of use, were identified on this peninsula. The build-up of layers provided some evidence for seasonality of use and relationships with the neighbouring peninsula were also recorded.

Structure 8115 and ‘causeway’ 8123

This structure was rectangular, measuring c.5m x 3.8m, and was delineated to the north and north-east by a line of twenty vertical stakes that were driven into the peat. An outline of unfired clay partially survived between the stakes and indicated an extension, 8123

Sited centrally in the western half was feature 6044. A foundation of large unburnt flints arranged in an irregular concave ring and set in clay was covered with at least three distinct surfaces of unfired clay separated by thin lenses of charcoal. A reddish staining of the clay appears to have been the result of a manufacturing process but was not caused by heat. Small quantities of pottery, Roman tile, fired clay hearth lining and animal bone were recovered.

Within the top layer of clay was a surface of Roman tiles paving an area of approximately 0.5m square and one tile thick. The reinforced centre of the feature suggests that it may have been built as a beating surface rather than as a hearth or oven. Although 8115 went through several phases, and the compound surrounding it moved slightly, the central pad remained on the same spot, being raised slightly, perhaps between seasonal use.

Contained within the wattle and clay limits of 8115 were successive layers of charcoal and yellow sand, e.g. charcoal 6047 and sand 6046, associated with the earliest phase of the clay pad. The layers of peat between the sand are good evidence of seasonal abandonment; as a consequence modifications and repair were annual events.

The phase shown in Figure 4.38A represents one of many for this working area. The dumping of sand and waste to the north led to the raising of the surrounding structure and the shape and position of the rectangular enclosure changed. Layer 6047 contained sherd of Ipswich Ware, Roman tile, slag and glass (SF5971), and a few animal bones, but there were no artefacts from layer 6046.

During the first phase of 8115 a layer of coarse charcoal, 6174, accumulated around the enclosure to the north and west. Within it were lenses of peat indicating possible seasonal growth as the charcoal accumulated. Two layers of sand, 6167/6168, were dumped over 6174 but respected the edge of 8115. Layer 6168 was quite thick and may have been contained on the north edge by the wattles on the north side of 8115. Whilst these sand dumps were separate, they were deposited over a short time period as there was no peat between the layers. Layers 6174 and 6168 contained small quantities of pottery, bone and other debris, but there were no finds from 6167.

A narrow spit, 1m wide, extended north from the edge of the sand dumps 6168/6167. This layer, 8123, was laid directly onto the base peat running between posts 6224 and 6218. They probably indicate the position of lines of wattles that were later removed. Peat growth over this causeway suggests it flooded. Layers 8123, 6167/6168 were then buried, first by more charcoal 6160, and then brown sand 6127 (Fig. 4.38B). In this way the causeway was expanded beyond the edge of the excavation. The causeway probably provided dry access to water. Sections through the area either side of the causeway and the adjoining peninsulas show a build up of loose silts, each with a relatively high peat content. These layers were deposited in suspension or grew up seasonally (peat) and contrasted with the dumped and structured deposits which made up the peninsulas.

A shallow gully, 6095 (Fig. 4.38B), 2.8m long ran across the west side of 8115 and into the channel dividing peninsulas 6892 and 6893 (Fig. 4.37). The gully cut the early clay and charcoal layers within 6044, but it could not be determined whether it cut the clay surrounding 8115. The lower fill of 6095 was peaty over a fine white silt, implying the passage of water. This, combined with the addition of a clay ridge, 6049, suggests a modification to 8115 which may have resulted in water being directed into the channel between the peninsulas.

Working area 5726

A new working centre was built on the raised ground created to the north of 8115 on the western edge of the peninsula (Fig. 4.38C). Stratigraphically it was later than both 6044, and 5576 on adjacent peninsula 6893 (Fig. 4.37). It consisted of a rectangle of clay with chalk; at the centre was a depression which was packed with large flints covered and suspended in clay. The north and south edges of 5726 were defined by single rows of flints marking the inner surface of what is interpreted as a wooden box. This sturdy base remained constant, although there were signs of rebuilding. Surrounding the box were spreads of clay and silt. The southern and eastern edges were very straight and there was a gully in the clay on the south side; this may indicate where a fence once stood although the evidence is uncertain.
Figure 4.39  Waterfront peninsula 6893
Overlying 5726 was a separate cluster of flints 5571. These were also laid in several layers which suggests there were repairs, but it was a simple structure with no evidence for a containing box. Like 5726 it was positioned on the edge of the peninsula, presumably to facilitate drainage.

Phasing evidence
The silt layers west of 6892 covered a steep elongated knoll which was made up of peat adjacent to north–south wattle line 6118 (a retaining fence on the east edge of 6893). The upper fill of channel 6095, the low-lying area between the peninsulas, the hollows within 6892 and the basin created within 8115 were buried by a mixture of yellow sand, dark ash, charcoal flecks and peat suspended in a brown silty peat. It may have originated in the neighbouring structure 5776 from peninsula 6893, which suggests 8115 went out of use first. This layer was cut by structure 5726, however.

Structure 8115 was abandoned with the spreading of yellow sand 6089, which buried the entire peninsula and infilled the gaps between 6892 and 6893. This expansion blurred the division between the peninsulas, creating a single platform. This more extensive working area provided enough space for the development of later working centres.

Peninsula 6893
Fig. 4.39; Pl. 4.13
This peninsula also produced evidence for a series of similar structures overlying and replacing each other, adjacent to the early structure on peninsula 6892.

Structure 8114
The first structure on this peninsula developed in a similar way to 8115 (see above) with a staked enclosure surrounding a clay structure built onto the peat measuring c.4m x 3.2m (Fig. 4.39A). The clay pad, 6162, had been partially removed during rebuilding in the next phase, but had a consolidated base of Roman tile and flint; it was contained within a timber-lined box and measured 1.5m x 1m. The position of the decayed wood was demonstrated by a precise rectangular border of grey sand against the clay. The box was positioned on the east side of the peninsula, allowing free drainage into the adjoining gully. The position of the fence is inferred from the regular shape of sand and charcoal deposits and the occasional presence of stakes, rather than a clear fence line. To the north of the enclosure was a spread of grey ash and charcoal layers 6187 and 6120, which contained within them twiggy deposits and dense spreads of elder seeds (*Sambucus nigra*) and flax stem residue (*Linum usitatissimum*), a waste product in the extraction of fibre for the manufacture of linen (Chapter 10.V).

Beneath the enclosure was a spread of brushwood, probably a deliberate attempt to stabilise the peat. Above this were layers of brown and yellow sand, and a deposit containing charcoal and fragments of clay which had spread beyond the enclosure on the west and north sides (6125). Working area 6084 (Fig. 4.39B) shows one of several interim stages in the development of the working area. As the elevation increased it became easier to direct the spillage from the central structure. This feature was gradually raised by the deposition of residues and deliberate dumping which created the raised peninsula similar to 6892. The most prominent layer was 6085 (Fig. 4.39C) which spanned the entire peninsula abutting wattle fences 6394 to the west and 6118 on the east (Pl. 4.13).

Structure 5776
This structure represented the last phase in the sequence on peninsula 6893 (Fig. 4.39C). The central area

Plate 4.13 Peninsula 6893, the remains of wattles and other organic debris on the surface of the peat
comprised a rectangular enclosure measuring 1.95m x 0.9m, bordered by a shallow slot, 5572, which contained a
dark grey grainy sand interpreted as the remains of a solid
timber surround, as well as sherds of Ipswich Ware and
fragments of bone. Within the area defined by the slot was
a layer comprising a mix of fired clay, silt and fine chalk. A
central area of 0.5m square was paved with Roman tile and
flints. Flints were added along the western edge bordering
the channel and they overlaid the slot on the north side.
Surrounding 5572 was an irregular spread of muddy clay
and sand with chalk lumps, 5566, similar to the layer
within the slot. The clay appeared to have been subject to a
process which discoloured it to a reddish brown. There
were three linear gullies to the west and north of 5776:
6058, 5556 and 5439. All three may have been associated
with run-off or drainage, although only 5439 had a regular
shape and was positioned in such a way as to suggest a
deliberate excavation. All were filled with fine dark silt,
and fragments of pottery, bone, window glass (sf5506)
and a loom-weight (sf5865) were recovered from their
fills.
Waste material from 5776 was dispersed in the gully
between peninsulas 6893 and 6892 and spilled over the
top of 6892. This layer was cut by structure 5726 on
peninsula 6892.
No working areas were identified further north but the
peninsula continued and other structures may have
remained undiscovered beyond the limits of the
evacuation. There was, however, a further spread of
unfired clay, 5030, to the south at the junction between the
island and the peninsula (Fig. 4.37). It was a single layer
measuring c.2.5m long x 2m wide and was laid over a
dumped layer of natural orange sand. It had no formal
shape but was very similar to feature 5570 on peninsula
8117 (see below and Fig. 4.37) and is probably best
interpreted as a distinct clay structure.

Peninsula 8116
Fig. 4.40

Structure 8136
This structure was built directly onto the peat close to the
timber post. A thick deposit of charcoal with burnt clay (5751)
then buried the structure and extended beyond the
boundaries of the enclosure.
Another dumped layer containing charcoal was
identified around the outside of 8136, but did not cover it.
Lea droplets were scattered within the charcoal (located
by metal detecting). This layer had a straight edge on the
north side from which a wattle fence retaining wall is
postulated. In turn this layer was buried as the peninsula
was built up. All these layers were sealed by dumped grey
sand. It is suggested that the first phase was short-lived, as
it became clear that more height was required to avoid
waterlogging.

Structure 8118
The next structure measured 3m x 2.6m as shown by the
limits of dumped sand (Fig. 4.40A). It was orientated
along the peninsula with clay positioned on the north
edge. The contracted structure shared the north and south
edges with 8136; presumably the posts protruded above
the buried sand layers. Clay pad 5429 measured 1.2m x
1m. It had a greyish grey sand surround similar to those on
other peninsulas, which is suggested to be the remains of
timber. The structure was open in the north-west corner
with an adjustment to the timber surround and the clay had
spilled into a shallow kidney-shaped hollow 5436. Fine
layers of silt within the hollow, and on clay elsewhere
within the structure, provided evidence that it was
deposited in suspension. Roman tiles and flints reinforced
the clay within the box. Beyond the box there were at least
two layers of clay that were separated by thin layers of
charcoal; the clay was not burnt, however. The earliest of
the clay layers was laid directly on the peninsula sand
5760, and charcoal and clean yellow sand were built up
around it, within the larger enclosure but outside the plank
that contained the clay. Feature 5436 overlay the line of the
wattle fence. After the clay pad 5429 fell out of use it was
buried by a mixture of charcoal and sand which spread
over the top of the fence line onto the surrounding
peninsula. A much thicker deposit of sand buried this layer
and ensured that 8118 had completely disappeared before
the next use of the peninsula began. Layers within the
structure incorporated pottery, bone, tile and occasional
fragments of slag, lead waste, window glass, pins (sf5481,
5484) and flint.

Structure 5396
This was a much cruder structure than 5429. It comprised
a spread of clay with flints and was set on the east side of
the peninsula (Fig. 4.40B). Associated with it were sand
and charcoal spreads. It was rebuilt at least once. A
shallow gully ran along the top of the peninsula. The
location is odd, given the slope on either side, but the north
end was beyond the excavation and no explanation is
offered.

Western peninsula 6894
Following the removal of dark featureless silty loam by
2.5m squares, the sand edge of the island and a small
extension created by the dumping of manufacturing waste
and sand appeared. Although protruding slightly from the
island there was no formal attempt to expand onto the peat
as occurred elsewhere and four working surfaces were
built in a restricted area close to the natural edge of the
island. The surviving features appear in the sequence:
5418 and 5353 (Phase 2.2) and 5249 and 5390 (Phase 2.3);
there was no stratigraphic link between the last two
structures.

Structures 5418, 5353, 5249 and 5390
Pl. 4.14
Structure 5418 (Fig. 4.35) was built on dumped sand and
other accumulated debris over peat close to the natural
ege to the island. It comprised an oval of clay that was
consolidated by loosely packed unburnt flints. The clay
was thicker in the centre where a flat surface made of
Roman tiles had been laid; these were slightly burnt and
had a skin of hard fired clay. A layer of coarse charcoal
mixed with large flints buried most of the structure. Layers
Structure 5353 (Fig. 4.35) had two distinct phases; the first was built over the charcoal and flint described above. The ground was then levelled with a dump of orange sand and a base layer of yellow clay set down. Over this was a layer of brown clay with large flints set in along the eastern side. A sealing layer of grey sand and charcoal marked the end of the phase. The layer above, marking the second phase, was formed of yellow clay with compressed chalk. The surface contained some large flints and was scorched but not fired. Fragments of slag, a lead droplet and Ipswich Ware sherds were recovered.

Structure 5249 (Fig. 4.37) had a distinctive rectangular form with a hard-fired clay surface, which was crazed into small pieces, and a cluster of flints was set in the fired clay on the eastern side. The yellow clay below also retained the rectangular shape, aligning NW–SE, but the edges were irregular, particularly on the north side. The distinct rectangular shape distinguishes this feature and it is consistent with an oven lacking its dome. Sherds of Ipswich Ware and fragments of animal bone were incorporated into the structure.

Structure 5390 (Fig. 4.37; Pl. 4.14) was the most regular of the structures; a rectangular pad of clay measuring 1.2m x 1.92m with sharp edges and corners was cut into brown silty sand. The structure was built on a slope and to compensate for this the clay was supported by a bed of flint, which became progressively thicker as the ground dropped away. Centrally placed within the flint was a reused lava quern stone (sf5260). When the clay was removed a strip of grey sand in the underlying silt probably marked the line of a rotted plank which had been used to contain the cobbles. This hard platform was sealed by unfired clay.

Although these features are very similar to others along the waterfront, a significant amount of slag and hearth lining was found in the area recorded in the 2.5m square collection. While much of this was later dumped material it is certainly possible that smithing was carried out here, or nearby at some stage, possibly using hearth 5353 which contained and was associated with slag and hearth bottoms (Keys, Chapter 9.VI).

Pits to the west
Further to the west of these features was a rectangular pit 0045 measuring 3.5m x 3.1m and 0.8m deep. It was half filled with sand and silt before being sealed by a band of charcoal which marked the boundary with a solid layer of mixed burnt and unburnt clay. This is interpreted as a separate feature laid over the top of the partially filled pit. The lower fill of this pit was sampled for macrofossils and finds included charred seeds of flax, and was assigned to Phase 1.2, but the upper fill is placed within Phase 2.2. This contained fired and unfired clay, as well as pottery, Roman tile, lava quern, animal bone, an antler comb (sf2038) and iron shears (sf2499). Adjoining pits (Fig. 4.35) included 6779, 6764, 6767 and 6941 which were between 0.5–0.8m deep — sufficient depth to have supplied water at various times of the year. Three contained Middle Saxon pottery, bone and other debris, with a glass palm cup (sf8240) and pin (sf8241) being recovered from 6764.

Pit 0045 was on the edge of the excavation and further pits may have existed where the ground dropped away. There were various minor depressions east along the
waterfront, including 5394, 5201, 5211 and 5039 (Fig. 4.35), of which the latter at 0.3m was the deepest. Small quantities of pottery were recovered from 5201 and 5039.

East side of waterfront: peninsula 8117
This ‘peninsula’ was less well defined than its neighbours to the west because it had not been deliberately built up using dumped material. It did contain several structures however.

The physical break between 6892 and 8117 was marked by a channel worn towards the peat from structure 5570 (Fig. 4.37). Intercutting layers of charcoal and sand were associated with hearths, particularly 5443, and others within the building destruction layer 8155 may have been. These layers, and the various sand layers could not be separated with confidence within the site phasing. It is suggested that only those with a primary deposit of clay can be associated with the identified fabric processing.

Hearth or oven 5443
Feature 5443 (Fig. 4.37) was directly on top of the peat, and burnt and unburnt clay were dispersed in the occupation layer which covered the area. The structure comprised a rectangular pad of yellow clay measuring 1.8m x 1m with a hard fired central area. Sectioning the hearth showed its construction as bands of yellow clay each sandwiched between thin lenses of charcoal. The top three bands were removed and the last one had been reinforced by large unburnt flints, beneath which was a skin of hard fired red clay. The fired clay was supported on a thick layer of yellow unburnt clay which also had large flints set into it. The banding of the yellow clay and the charcoal lenses show that the hearth was repaired or re-built frequently. In all but one case, the fired surface had become cracked and crumbled away. Waste from the hearth and some of its make-up was widely spread and included several hearth bottoms and iron objects. Circumstantial evidence would lead to the interpretation of 5443 as part of the smithing process but how this may have worked is uncertain and the interpretation tentative (Keys, Chapter 9.VI). Pottery, Roman tile and animal bones were also collected.

Similar enigmatic evidence for manufacture recovered from the dark earth close to the edge of the island comprised 25 red deer metapodia. This context also produced metapodia of cattle and horse. It seems likely that these cannon bones were collected for bone working (Chapter 10.II). The worked bone small finds include several handles which appear to have been made from proximal cattle metatarsi (e.g. combs, Chapter 8.III; see also Chapter 9.X).

Features to the south of peninsula 8117
Feature 5703 (Fig. 4.35) was a sub-rectangular pit measuring 1m x 0.5m with a charcoal lower fill below uniform grey sand. It was capped by yellow clay which is thought to come from feature 5570 (Fig. 4.37). It did not appear to have been a post-hole. This pit was cut by ditch 5574 (4.6m x 1.6m), which was steep at the south end but opened out over the slope leading down to the peat at the north end. There were several layers of charcoal within the grey sand fill, and finds comprised small quantities of bone and flint.

Pit 5580 (Fig. 4.35) was almost circular, measuring 1m across and 0.5m deep. It was filled and partly buried by grey sand. It may have been related to gully 5086, which also contained a grey sand and charcoal fill. There were many post-holes in this area that may form fence lines, sheds or open enclosures (see above), and ditches such as 5574 may have provided a run-off for wet materials. Pit 5733 was similar in size and shape to 5580; it contained peat in the lower fill.

Pit 5924 (Fig. 4.35) was D-shaped, measuring 1.4m x 1m. The straight edge to the north was very distinct, although the feature itself was quite shallow and cut only 0.1m into the natural subsoil. It was filled with grey sand and broken up yellow clay that became thicker at the sides and base. Allowing for animal disturbance this may be interpreted as a sealed, clay-lined, pit with a slight but noticeable curve creating a shallow basin.
Structure 5570
Fig. 4.41
Surface 5570 comprised a large rectangular pad of unfired clay approximately measuring 5.8m x 3.4m and 0.08-0.1m thick (Fig. 4.41). It was positioned over a gully created between the east edge of peninsula 6892 and the much smaller rise created by dumped sand to the east. The south end rested on the natural island edge. This had the effect of creating a channel down which any liquid could be discharged over the clay towards the peat. 5570 is stratigraphically late in the sequence, overlying many of the dumped layers from 6892.

Two further features formed of unfired clay were 5573 (Fig. 4.37), which comprised a layer of flints set in clay, and 8197 located on the peat margin. The latter consisted of a concentration of driven stakes with a central area of sand layers and an intermittent layer of clay in the centre (Fig. 4.41). This feature was probably much degraded but had similar properties to others across the waterfront, with a sloping surface of unfired clay and access to water.

The north end of this peninsula marked the northern-most end of the site. The last feature, 8198, was an east–west channel between sand resting on peat (Fig. 4.37). This may have been created naturally during flooding, although the course of the river at that time is unknown, but the sand either side was similar to the dumped peninsula deposits, which hints at further features perhaps to the north and east.

Structure 5570 produced a range of finds including 82 sherds of pottery, 3kg of animal bone, some Roman tile, fired clay and slag, a bone needle (sf5570), a copper alloy spoon (sf5654), a lead spindle whorl (sf5659) and six iron strip fragments (sf5671).

Area west of building 8131
Fig. 4.42
This area appears to have become peripheral to the main occupation on the island from Phase 1.2 onwards. It was marked by a sequence of north–south ditches and numerous pits and rubbish heaps lay within the area of the site (which will be discussed with the ‘dark earth’ below). The order of the ditches was difficult to establish as the upper parts were often left to infill naturally, resulting in a homogenous layer. It seems likely, though, that after Phase 2.1 a continuous ditch bounded the site on the eastern side.

A boundary was created at the western end of the site with ditch 6847 (Fig. 4.42) that cut ditch 6846 (Phase 1.1). There was no clear stratigraphic sequence for the next development but it seems possible that two palisade ditches 0212 and 0382, with an entrance of c.3m marked a more formal boundary. Possibly this was gated although only a single large post-hole, 0216, was identified; palisade-type ditch 0212 cut 6847. These were succeeded by ditch group 8128, which was redug many times leaving a permanent scar in conjunction with 6859 to the south.

Ditch system 8128 ran north–south and their northern length was recut with the angle changing at least six times; two lengths (0300 and 0383) reached the river scarp, with 0297 curving to the east. Ditch system 8128 narrowed as it left the excavated area to the south. The homogeneity and natural infilling of the upper portions of these ditches is evidence that the area had become peripheral to the settlement. From the south edge of the excavation in this area it appears that the palimpsest of ditch lines may not have extended over the east–west gully. However, either these ditches or the ditch terminals to the east may be a continuation of ditches 8134 and 8135 (Phases 2.2–2.3) which defined the enclosure of the north of the island. Ditch group 6859 replaced a possible palisade and entrance, and presumably building 2926 (Phase 2.1).

These boundaries were realigned once more and re-dug many times before the site was abandoned and the scar, which was 4–6m wide, was visible as an earthwork when the excavations began (Plate 1.2, C). Beyond an association with Ipswich Ware, and nothing to disprove a Middle Saxon origin, no useful dating evidence was retrieved from these ditches.

The phasing of ditch group 8128 is general. The main group post-dated Phase 1.1 and left a visible earthwork. The ditches therefore developed over most of the life of the settlement.

South-west area
Buildings 2926 and 2925 (Phase 2.1) were replaced by building 2923 and a new enclosure was established with a gated entrance facing south-east (Fig. 4.23). The phasing of 2925 and 2923 is dependent on the enclosure ditch sequence and the boundary ditch, component 6859, to the west, which cut the north-east corner of building 2925 (Phase 2.1). Building 1095 to the south of the enclosure
Figure 4.42 Area west of building 8131
cut both a gully associated with building 1096, and building 1094 (both Phase 2.1).

Western enclosure and ditches to the north
Ditches 6862 and 6856 formed an enclosure with three inset entrance posts that aligned directly between the centre of building 2923 and building 1095 (Fig. 4.23). Ditch 6859 was expanded to establish a straight edge on the west side of the site. Building 2926 had presumably fallen into disuse as it lay beyond this boundary.

Two short ditches, 0540 and 0541, exited the site to the north of the enclosure. Their associations are uncertain and they could have related to the enclosure to the east, probably examples of the re-digging of a length of boundary.

Building 2923
Fig. 4.43
Building 2923 measured 11.5m x 5.75m. The long walls were very incomplete with widely spaced posts and significant gaps, particularly along the north wall. Depths of post-holes varied between 0.04 to 0.34m, with an average of c.0.2m overall but showing no particular pattern of distribution.

There were just five posts visible along the north wall: 0493, 0503, 0505 and 0507, which were evenly spaced at approximately 2.3m, with 0422, the last post in the wall, separated by 4.15m. Given an even distribution of posts based on surviving post-holes, a symmetrical plan could be constructed using just six posts, an unusually small number to cover a building 11.5m long. The south wall contained more posts with a less clear distribution pattern, although there were pairing posts for those along the north wall (except the corner post 0422) and for the two absent north wall posts.

Towards the centre of the building were two large opposing posts, 0484 and 0504. Both were inset from their respective walls. These might indicate the position of central entrances. Post-hole 0503 could have been part of the north entrance as its charcoal and clay fill was similar to that found in post-holes 0504, 0493 and 0505 (as opposed to the grey or brown fills from post-holes associated with building 2925).

Seven post-holes may be identified forming the east wall with gaps for two or three more. There was no indication of a particularly centred axis post. The west wall was less well defined due to its intersections with building 2924 (Phase 2.3). There was no evidence for either floors or a hearth. The variety of features within the area of the building may have been associated with either 2925 or 2923.

There was no evidence of any flooring material from any of the post-holes, but both 0505 and 0493 contained charcoal. The only finds were six burnt flints from post-hole 0505.

Building 1095
Fig. 4.44
Building 1095 was 18m in length and 4.4m wide at the entrances, tapering to 4m at the end walls. This is an unusually long building with a ratio of length to width of 4:1. Despite this, the side wall posts aligned very closely, particularly along the south wall; the alignment of the north wall changes abruptly at the entrance. Although described as one building here, it is possible that two related buildings were built end-on and what appeared to be inset entrances (1726/1841 opposite 1741/1424) were
in fact opposing weak corners. This might be supported by the slight change in angle in the middle of the complex. The deciding evidence for the single long building interpretation is the lack of abutting end walls, but this is not conclusive.

The north and south walls had seventeen and sixteen posts respectively. Along the north wall the posts were on slightly separate alignments either side of the entrance. Two post-holes contained plank stains: 1571 was 0.12m square, 0876 0.12m long. Post-hole 1534 contained two plank stains but it seems likely the larger of these was a post of building 2921 (Phase 2.3) and that a smaller timber was inserted behind an earlier stump. The widths of the opposed inset entrances were 1m on the north side and 0.9m on the south.

The end walls were not symmetrical with seven post settings on the east wall and five along the west with a further post (1540) slightly off the main alignment. The west wall posts were evenly spaced with one central post 1546. The east wall also had a central post (0885) with four posts, arranged in pairs either side. With the exception of the south-west corner, which was incomplete, the corner post assemblages were set very close together, particularly 0881 and 0882 where the post-holes overlapped. There was little variation in the depth of post-holes throughout the building; measured from the occupation horizon most were at a depth of c.0.45m.

There were numerous internal features but it was difficult to separate these from building 2921 (Phase 2.3) where they overlapped. Post-hole 1388 stands out, falling between wall posts 1729 and 1742 and being along the main axis. In the west half of the structure 1800 lay close between wall posts 1729 and 1742 and being along the main axis. In the west half of the structure 1800 lay close where they overlapped. There was little variation in the depth of post-holes throughout the building; measured from the occupation horizon most were at a depth of c.0.45m.

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Figure 4.45  Phase 2.2 eastern area detail
Figure 4.46 Building 1391
the south wall. Adjacent to aisle post-hole 1466 was a shallow post-hole 1514, presumably a replacement. There were five shallow post-holes next to the side walls, four of which aligned opposite central posts: 1718, 1755, 1394 and 1397. The fifth, 1753, projected at right angles from north entrance post 1752. These features were all shallow and it is possible that others were lost in the machining or did not leave any trace in the subsoil.

In the west end of the building were two symmetrically placed slots, 1522 and 1523. The former was rectangular with a flat base, the latter irregular but animal-disturbed. There was a series of pale grey features in the south-east end of the building (close to pit 1448); despite their small size and depth they registered clearly in plan.

Five pits were recorded, all situated in the east half of the building and, individually, in compartments which can be formed by joining the central posts to the walls of the building. Pits 1524, 1480 and 1494 were very shallow and contained a black organic fill. Below this fill the natural yellow brown sand was white, apparently due to leaching from an open pit. Pit 1447 was the largest. It had a grey sand fill, less organic than the other pits, and there was no staining or leaching below; 1448 had a similar grey fill but it was very shallow.
There was no evidence for flooring material but the section through the north wall revealed a layer of charcoal in the threshold (Pl. 4.16). This showed that the post-holes were set c.0.5m below the Saxon ground surface.

Gully 1384 projected from the south-east corner of the building. It was broad and shallow with a mixed fill of burnt flint, charcoal and unfired clay mixed with peat and sand and is likely to have been a soakaway. Two sherds of pottery were recovered, one hand-made and one Ipswich Ware.

The phasing of this building within the site sequence relies on the interpretation of the structure itself. It is argued (see Chapter 12) that the internal furnishings are only consistent with a byre or stable built to a high specification and therefore associated with other occupied buildings either beyond the excavation or within the halls area.

**Building 8122**

*Fig. 4.47*

This building was 3m wide with a minimum length of 3.5m (Fig. 4.47), but probably did not exceed 5m. It was built with five gable wall posts and a weak corner joining the south and west walls. The position regarding the north wall was less clear; a corner post-hole was missing, probably machined away as the adjoining post-holes were very shallow. Based on the adjoining baulk, the average depth of the post-holes was probably in the region of 0.5m below the Saxon ground surface. There was no evidence of either a floor or the position of a door. There were six internal post-holes without obvious functions; 1658 and 1660 were both north of the probable main axis. It is possible that these predated the building and were associated with the surrounding features. Projecting beneath the baulk was a pit, 1700, containing two sherds of Ipswich Ware, and two of the post-holes contained small quantities of animal bone.

Despite its size, 8122 was well made. Its position within an enclosure probably associates it with building 1391. Its alignment, like that of 1391, ran parallel to the edge of the island, being built at the top of the slope.

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*Figure 4.47 Building 8122*

*Figure 4.48 Building 9012*
Building 9012

Building 9012 was approximately 5.9m long by 3.85m wide (Fig. 4.48). The side walls were each constructed in trenches 0.15m deep, although the north wall was incomplete. Three post settings showed in the south trench, of which 1737 was the deepest at 0.4m deep; the other two were towards the east end and only 0.2m deep. The north wall slot was confined to the east half and had two post settings, 9034 and 9013. A possible post position (9035) is suggested on the plan in the centre of the trench but did not show in section. The gap between slot 9011 and post-hole 8999 was approximately 1.75m. The form of this post-hole suggested a possible double post setting. A gable post survived in the west wall, 1775. The evidence for the east wall suggests a shallow continuous slot was originally dug with the post positions being deeper than this. Post-hole 1690 supported the east gable. Three of the corners probably comprised abutting posts, but the south-west corner had an unusual outward curve of the slot, 1716. A large quantity of animal bone and one sherd of Ipswich Ware were recovered from this slot.

Inside the building footprint there was symmetry between post-hole 1719 inside the north wall and post-holes 1720, 1735 and 1736 inside the south, which were all quite shallow. Post-hole 1734 was the deepest of the internal post-holes at 0.29m.

There appeared to be a fence attached to the south-east corner, comprising post-holes 1693, 1694 and 1715. The range of post-holes around the north-east corner, however, may have predated building 9012. They were filled with grey sand suggesting they were not dug through a rich occupation soil.

In general terms this building had a wall-in-trench construction although the gable ends were in post-holes with pronounced gable posts. No entrances were visible although there was a gap in the north wall; an entrance here would be unusual within the general tradition of buildings at Brandon. This building was clearly an oddity, however, and bespoke carpentry may have adapted it to specific requirements. Aside from the building’s size, which mitigates against it being either a hall or a barn, the only clues towards its function are its location close to the cemetery and the proximity of building 9031. The west wall of the building lay just 1.5m from the end of the closest grave, which could suggest a funerary function. Building 9031 was similar in size however, and the two may have been related either chronologically or by function.

Building 9031

This building measured 5.8m x 4.8m (Fig. 4.49). It was laid out using five separate trenches (there were two separate cuts along the west wall). Post stains were visible in all the walls and they suggest a close spacing of timbers. In the west wall, a central gable post, 9341 (a large plank), was present and was matched by a post-position with no plank-stain in the east wall. There may have been an entrance on the south side, where post-holes seemed to be inset slightly, but this remains uncertain. There was no evidence for the corner assemblages. On the east edge of the building a deep surface of chalk corresponded to a line of substantial posts that extended beyond the excavation (Fig. 4.45). They respected and aligned with the end of the building.

This structure was unusual in having four separate wall trenches, and for its approximately square plan. This may be related to its function, which is unknown, but it was clearly not a hall or barn in the fashion of other buildings on the site. The answer may lie in the large post-holes and chalk surface immediately to the east. These are likely to represent either a substantial post-line, similar to others from the site, or the end of a large building. If this were the case 9031 may simply be an annex at the west end of a larger building similar to those attached to church 7098.
Building 9031 is phased by its relationship to ditch 8919 (Phase 2.3). Although there were no certain stratigraphic links they were too close together to have been contemporary, and whereas the upper fill of the ditch was of dark silt, commensurate with abandonment, dark soil with bone recovered over the building next to the ditch is adjudged to be up-cast bank material. Building 9031 was similar in appearance to building 9012 to the south and it is likely that they were either contemporary or sequential.

Finds related to this structure were recovered from three of the post-trenches and the chalk spread and were largely fragments of animal bone and oyster shell. There was one sherd of Ipswich Ware and a fragment of lead sheet.

Well 7651
This well (Figs. 4.23 and 4.45 s26) was 2.2m wide x 1.2m deep and lined with withies that survived at the bottom of the feature. It was the only one identified on the site and is likely to have been either contemporary with, or later than, the churches simply because of the lack of features in this area. It lay beyond the enclosure fence, with the entrance to the enclosure. Ditch 8134 was maintained and ditch lengths 7561 and 7888. A 3.8m-wide entrance through the ditch was probably formalised by a combination of the unassigned post-holes in this area.

VII. Phase 2.3 – mid to later 9th century

Summary
Fig. 4.50
This phase records the last major sequence of building replacement within the excavated area. The enclosure encompassing the north part of the island was extended, with ditch 8861 being replaced by ditch 8919. Ditch 8919 butted against the rear of replacement church 8851 (Phase 2.2) but continued with short ditch length 7661, thereby incorporating the corner of the building in the boundary. Central buildings 8927 and 8893 replaced buildings 7500 and 8892. There were set out on a new alignment that probably originated on the waterfront and buildings as yet uncovered. Fence 8870 connected building 8927 with entrance ditch 7661 and divided the site, with access to the east either through building 8927 or through a putative gate in the fence. It is suggested that 8851 was demolished soon after ditch 8919 had been constructed, and ditch lengths 7561 and 7862 rationalised the entrance to the enclosure. Ditch 8134 was maintained as before with evidence of re-digging. It is suggested that the central enclosure ditch was first dug in this phase.

To the north, ‘cell’ building 4531 was abandoned and the area encroached upon from the west by a second cemetery. The southern boundary to cemetery 2 was established with fence line 8152 from the previous phase. Building 4670 was replaced by building 6864 on the same site. Fence line 8133 was replaced by a ditch, 4826. Building 6864 and the cemetery were contained within a well-defined area. An important factor in helping to identify this enclosure was the build-up of dark earth recorded by the finds distribution plots. South of the enclosure a range of features, post-holes and clay spreads indicate settlement activity similar to that which occurred in Phase 2.2. This was eventually covered, however, by a dense spread of rubbish in dark soil. The waterfront industry also became less visible with large amounts of rubbish accumulating over the island edge.

Two fence lines, 6850 and 6851, defined an east–west track across the site; beyond the line of the track at the west end were two large rubbish heaps 8129 and 8130. Large heaps were also traced to the west of the site and close to the last buildings in the central area.

To the south-west, building 2923 was replaced by building 2924, and building 2921 replaced building 1095. The causeway entrance to the south was maintained.

Central area

Ditch 8919/8134
This ditch stretched c.80m across the site (Fig. 4.50). It was 0.6m deep and up to 2m wide having at least four separate cuts. In practice it was probably narrower at any one time and supported by a bank on the north side. It had an entrance close to that of earlier ditch 8135 (Phase 2.2) but the east arm was extended to the south and we must assume this was necessitated to encompass buildings east of the excavation. This made for an awkward entrance, tucked in behind church 8851, the corner of which was incorporated as a part of the boundary by the addition of short ditch length 7661. The boundary was straightened following the demolition of the church, with secondary ditch lengths 7561 and 7888. A 3.8m-wide entrance through the ditch was probably formalised by a combination of the unassigned post-holes in this area.

Ditch 8919 contained only a moderate collection of Ipswich Ware but a more sizeable number of animal bones. The largest groups were of cow and ox. This feature contained far fewer finds than ditch 8135 from the previous phase.

Building 8927
Fig. 4.51
This building was 12m long and at least 5.5m wide. The north wall and most of the east wall were removed by medieval enclosure ditch 9128, and ditch 8850 (group 8175, Phase 2.4) ran through the centre (Fig. 4.51). The south wall consisted of fourteen individually dug post-holes with two central, inset, entrance post-holes in a separate trench. Neither of the end walls was complete although from the pattern along the west wall we might expect seven posts. The two surviving corners were weak. Rotted timbers were present in the south wall posts; these tended to fall within the range 0.22–0.29m long by 0.07–0.09m thick. Entrance post 8891 was the largest single timber, measuring 0.29m x 0.09m.

A substantial clay floor c.0.1m deep survived, where later features had not removed it. Overlying the floor was a spread of burnt clay and daub. This does not appear to be the remains of a hearth, for which there was no trace, but is interpreted as the remains of burnt wattle and clay, possibly from a partition (Chapter 5.V). No other significant finds were recovered from building contexts.

The floor of this building overlaid two post-holes from building 8892 (Phase 2.2), and it was also built on a new alignment.

Associated features
To the east of the building were two shallow pits 9247 and 9248 (Fig. 4.51); 9247 was filled with rubbish, mostly animal bone with some daub, whilst 9248 was filled with
Figure 4.50 Phase 2.3 plan
grey-white sand. Both pits may have been drip gullies or soakaways but the area became buried in finds-rich occupation soil (below) which might account for the fill of 9247.

An alignment of close-set, large post-holes, 8185, extended the line of building 8927 to the east (Fig. 4.50). Three revealed wood stains that were circular and between 0.18m and 0.2m in diameter.

Fence line 8870 extended at right-angles from building 8927 (Fig. 4.50) and stretched for 10.5m to the south, linking the building with the entrance in the new enclosure ditch 8919 and finishing close to ditch terminal 7661. Two of the posts were paired, which may indicate an opening or gate. They ranged between c.1.2–1.45m apart.

The only measurable plank stains were in post-holes 8869 at 0.21m x 0.08m and 8872 at 0.23m x 0.07m. These dimensions are comparable to those from buildings and may exemplify the reuse of building timbers.

Building 8893
Fig. 4.52
This building was the last in a sequence of three. It cut building 8892 and the path that had connected it with building 7500 (Phase 2.2). It was aligned with building 8927 with which it is associated (Fig. 4.50).

Building 8893 was c.5.5m wide and approximately c.9.15m long (Fig. 4.52). Five posts survived from the east wall. The south wall was the most complete with eleven post-holes, of which one was a double or replacement, and another an inset entrance post. The position of an entrance was not clear from the plan but it is thought to fall between post-holes 8901 and 8902 on the south side, placing it centrally within the building. 8901 was opposed by post-hole 9199 on the north side. A single, shallow-set, internal post provided extra central support close to the west end but there was no sign of a second to indicate a partition. Seven post-holes contained measurable plank impressions; the most substantial were 8802 measuring 0.3 x 0.09m and 8792 measuring 0.24 x 0.12m. The others ranged between 0.19–0.24m in width and 0.09–0.05m in thickness. Several narrowed, suggesting they were tangentially-split planks.

No internal surfaces or a hearth were identified although there was a worn area showing in the surviving spread of sand and chalk from the path (Phase 2.2) which underlay the building. Only a few fragments of animal bone were recovered from building contexts. A shallow scoop, or worn depression appears in the north-west corner.
To the west of the building was a curving shallow ditch 8120 (Fig. 4.52) which sloped away from the building and probably formed a drip gully, although it was very wide, c.1.4m, and only 0.15m deep. The fill included a fragment of glass globular beaker (sf7368), as well as animal bones and Ipswich Ware.

Two adjoining pits to the north of the building, 7824 and 7564 (Fig 4.50, Fig. 4.53 s27), were c.1m deep and filled with a dark silty loam. Pit 7564 also cut the outer ditch of the central enclosure, 7545. The fill is interpreted as an abandonment fill. The association with the building is speculative and based on them both being late in the local sequence. If associated, this implies that the first (?) version of the enclosure ditch was contemporary with this.
Pit 7824 contained a fragment of vessel glass (sf8501), and both pits contained animal bone and small quantities of pottery.

**Area north to the waterfront and cemetery 2**

North of the working area, a rectangular enclosure continued from Phase 2.2 (Fig. 4.50). This is demonstrated by a distribution of rubbish heaps (‘dark earth’, below). These record a shift in the position of an existing enclosure. The enclosure was marked north and south by ditch 4826 and fence line 8152; the west edge ran along the end of building 6864 which replaced building 4670 (Phase 2.2). The edge south of this is unclear but there may have been a feature which, of its nature, was invisible during excavation such as a stake fence, shallow gully or hedge marking the boundary.

Infilling the enclosure from the east was a second cemetery which was identified as Saxon by radiocarbon dating; it included several rows of burials and an associated structure, 4669. These are described and discussed in Chapter 7. That the enclosure was maintained to the end of the settlement can be seen in the pattern of rubbish plotted from the 2.5m square surface collection which laps against the boundary.

The use of the waterfront area itself probably continued into this phase, but the many sub-phases of construction and reconstruction on the peninsula are difficult to link to the main site phases, and all evidence for the waterfront is therefore described together in Phase 2.2 above.

**Fence 8152 and ditch 4826**

Fence line 8152 comprised seven posts spanning at least 11.5m with an average excavated depth of 0.25m and gaps of c.1.9m. One post-hole contained a single sherd of Thetford Ware pottery. This fence appears in Phases 2.2 and 2.3; it aligned with building 2920 from Phase 2.2 but was respected by the encroachment of rubbish from the south.

Ditch 4826 was 12m long with a 1.3m entrance. It was at least 0.5m wide and quite shallow which suggests it may have been an open ditch. This interpretation is supported by the fill type which was of a dark earth and similar to the overlying deposit. It contained animal bone (2.2kg), 55 sherds of Ipswich Ware, slag and lava quern and included a padlock (sf2769).

**Building 6864**

Fig. 4.54; Pl. 4.17

Building 6864 may have been a two-phase construction. The post-holes appear different at either end of the building and the dimensions are also unusual, the length being more than twice the width: 10.85 x 3.85m (Fig. 4.54; Pl. 4.17).

It is suggested that the first stage, probably the east end, was approximately 6 x 3.85m. The east end wall comprised three posts with 4767 the central support. There is a regularity in the remainder of this segment: post-holes 4648 and 4772 in the north wall match post-holes 4611 and 4753 in the south. Middle post pairings are less certain; post-holes 4623 and 4745 may also be paired and, as they are both inset, may indicate entrances. Post-holes 4616 and 4617 are likely to be gable post supports, possibly indicating the end of a construction phase, pairing with 4767 and internal gable support 4775. The west segment of the building also reveals two matching pairs; post-holes 4633 and 4797 along the north wall with 4619 and 4622 along the south. The west end of the building is marked by slot 3652.
The familiar weak corner construction is absent here and many post-holes may not have been earth-fast. It is possible that the earlier ditch (3583, Phase 1.2) caused a rethink over the west end wall. Post-holes 4622 and 4619 may have formed an entrance although there is no sign of one opposite.

The evidence for posts in the eastern half was good, either as impressions or stains, compared with only a single stain at the west end. The posts were rectangular, the average size being 0.19m by 0.8m. The east end posts were slightly larger at 0.24m x 0.07m and the central end wall timber, 4767, was the largest being 0.25m x 0.09m. The average depth of the wall posts from the Saxon ground surface was c.0.65m. The deepest feature was slot 3652 at approximately 0.84m below the suggested ground surface. Its exceptional depth may be due to its location over ditch 3583, which may have been unstable. However, post-hole 4636 was dug on the edge of the ditch and was much shallower than the slot at 0.56m. There were numerous post-holes in the central area between the two building phases, which were all irregular and relatively shallow. Post-hole 4638 was an exception and compared closely for shape and depth with the post-holes to the north of the building.

There was a wide spread of clay in the east end of the building, which respected the outline of the building. A much wider spread of worn chalk covered the central posts and spread beyond the north wall which may be evidence for an opening.

Apart from the wall alignment there is little in common between the two ends of the building. The distribution of post-holes in the west half was uneven and if central post 4617 was attached to the ‘extension’ there was no comparable post along the west wall. The size and depth of 3652, allowing for its location over 3583, suggest it was an important structural element which does not compare with the east end of the earlier construction. Furthermore the shapes of the post-holes in the extension and the lack of post evidence in most of them distinguishes them from the eastern part of the structure. Finds from the post-holes were scarce with low quantities of pottery and animal bone and residual Iron Age pottery. Clay and chalk flooring associated with 6864 overlay the wall line of 4670. Building 6864 removed part of the flint surface associated with 4670.

Gully 4676 probably related to 6864 rather than building 4670. It was filled with occupation debris suggesting it was open, and it was similar to gullies associated with other buildings.

Cemetery 2
While building 4670 was replaced by 6864, cemetery 2 developed in the central area of the fenced northern enclosure (Fig. 4.50). This included clay surface 4607 (structure 4669) which may have provided some kind of focus. The cemetery also encroached on building 4531 (Phase 2.2) although the relationship here may have been complicated. The evidence is presented and discussed more fully in Chapter 7.
The occupation soil 'dark earth' and features associated with rubbish management
Figs 4.55–4.72

It is appropriate to discuss the results of the surface finds collection at this point, as a correlation is suggested between the surface finds distribution and the underlying stratigraphy of the later phases of the site.

It was evident from the first season that middens survived on the site as areas with large find concentrations and usually a dark soil surface between areas of brown sand with fewer finds. The system of finds collection by 2.5m square with plotting of small finds was an attempt to make sense of the finds patterns, allowing comparison of the evidence from the Saxon ground surface with the structural evidence that (aside from the odd cluster of flints or clay spreads showing higher up in the soil profile) could only be identified in the underlying subsoil. Apart from the strong evidence for a chapel that fell out of use in the medieval period, Staunch Meadow was largely a meadow following abandonment of the settlement. The site suffered no natural erosion and was not extensively damaged by later agricultural regimes. The excavation offered a rare opportunity to study the material culture where it was left when the site was abandoned.

Excavation by 2.5m square from the topsoil down through the occupation horizon began in 1983 and continued to the end of the excavation. The areas dug using this technique are shown in the excavation sequence plot in Chapter 1 and are indicated here by the coloured outline for the bulk finds plots discussed below.

The major finds are represented in distribution plots comprising: animal bone by weight, cattle bones, sheep/goat bones, pig bones, horse bones, oyster shell, Ipswich Ware, Thetford Ware, slag and iron tools, querns, Roman ceramic building material, fired clay, window glass, lead, pins, 'precious' objects, copper alloy objects, and glass vessels including inkwells (Figs 4.55–4.72). Each of the bulk finds distributions has been generated by computer, using the Vertical Mapper program, based on the numbers or weights recovered from the 2.5m square surface collection. The colours are therefore only consistent for individual find types and cannot be directly compared between them; it is the patterning within each find type that is shown. The background plan is selective; alongside features from Phase 2.3 are those from 2.2 where they potentially overlap or there is clear evidence of continuity. For example fence lines at the north end of the site from Phase 2.2 define an enclosure which continues through into Phase 2.3. The Late Saxon/medieval enclosure ditch is also included as it clearly interfered with the pre-existing rubbish spreads.

Casual loss, rubbish heaps and manure

Finds can be divided into two kinds: those simply lost — such as dress pins and coins — dropped and not noticed, and those items deliberately discarded, including slag, pottery and animal bone. Bulkier material could simply be discarded close to where it was generated (this might apply to slag for example which, unless used for surfacing, has no value as rubbish) or collected in heaps for permanent disposal or redistribution as manure. Presumably animal dung was a major component of any regime of waste management, although it is the household waste containing fragments of material culture that is most easily identified.

There is compelling regional evidence for the use of manure in Iron Age and Roman agriculture based on the lack of correspondence between fieldwalked finds and underlying settlement evidence, for example at Barton Bendish, Norfolk (Rogerson 1997, 13). Iron Age manuring has been suggested for Birchanger (Essex) where the use of manure from pits within an Iron Age settlement has been suggested (Medlycott 1994). The movement away from the use of pits in the Roman small town at Scole and the heaping of rubbish is argued to be a pragmatic change simplifying the disposal of manure into the countryside and probably continuing an Iron Age tradition (Ashwin and Tester forthcoming). Physical evidence from the Middle-Saxon period is necessarily weaker in comparison with the Roman period because of the relative invisibility of material culture, but convincing fieldwalking evidence was obtained from North Walsham of manuring around a settlement (Wade 1983, 74). There is extensive documentary evidence from the late medieval period to suggest widespread manuring took place (Tipper 2004, 159).

While the value of manure in farming was understood, it is clear from the evidence that large amounts of general rubbish were left exposed on the site in the main enclosure during Phases 2.2 and 2.3 at Brandon. It is interesting to note, however, that the surface finds collected towards the south-west of the site in an area interpreted as a simple sequence of farm buildings, suggest that the rubbish did not pile up, whereas in the central halls area it seems to have been widespread. This may be ascribed to comparative levels of consumption but given that the south-west area was probably occupied for 150–200 years we would expect more evidence if it had simply been allowed to accumulate. Conspicuous evidence of feasting with discarded animal bone was a feature of the excavations at Flixborough (Loveluck 2007, 148–50). It is suggested that rubbish was probably cleared infrequently and that its value may have been more appreciated by those at the lower end of the social scale than those feasting in the halls.

With the collection of rubbish into heaps, we might expect a pattern with rubbish dumping zones for general ‘household waste’ set against patterns related to where accidental loss activities occurred. The evidence lends some support to this interpretation. The animal bone and shell distributions (Figs 4.55–4.60) reveal a distinct shape in the north part of the site with more general heaping over the halls area building sequence. This compares with a more general spread of pin loss across the site (Fig. 4.69; pins have been selected as an example because of their everyday use and the large numbers involved). The picture is more complicated, but there are some concentrations of pins in areas where the bulk finds are heaped. This may be accounted for by finds discarded accidentally in the general rubbish. There may also be some bias generated from specialist loss patterns, for example manufacturing waste (unfinished pins have been identified by Riddler, Chapter 8.II). Other finds groups include iron tools and slag, clustered very close to the centre of the site where a probable smithy has been identified (Keys, Chapter 9.VI). A link can also be suggested between the lead and window glass (Figs 4.67–4.68), which both occurred almost exclusively over the waterfront and to the south of the medieval enclosure. These find types stand out by their complete absence from the general rubbish heaps and
large parts of the surveyed area. The lack of window glass and lead in the main rubbish heaps is not unexpected because they are unusual finds in the Middle Saxon period and not associated with everyday activities. They may have been linked by function — salvaged lead from cemeteries associated with the window glass — or they may have been linked chronologically, belonging to structures in the mound area such as a suggested Late Saxon or Norman church. If these find types are connected in this way we may ask, did they post-date the main settlement? Or were they deposited later, representing a destruction phase. The answers to these questions probably lie beneath the unexcavated central mound.

Phasing the heaps
Assessing the length of time over which the finds accumulated is problematic. Animal bone is dated by association and the ubiquitous Ipswich Ware pottery has a wide date range from the early 8th to the mid 9th centuries. The distribution of Thetford Ware (Fig. 4.62) is of particular interest, however, as a proportionately large concentration occurs on a rubbish heap that overlies the former smithy, 4491, with Ipswich Ware, animal bone and slag. As Thetford Ware is seen as a replacement for Ipswich Ware it suggests that this heap was the last in the area. Conversely there was very little Thetford Ware from the waterfront rubbish heaps, which may have gone out of use earlier; stratigraphically, however the waterfront heaps overlaid the accumulated silt that had buried the waterfront cloth working area.

Small finds present a problem; there were too few coins and of limited date range to allow meaningful comparisons and in any case these and other precious objects are interpreted as casual losses (Fig. 4.70). Comparative site evidence from the Roman small town at Scole was recently published (Ashwin and Tester forthcoming). The dark soils at Scole were less well preserved than those at Brandon due to ploughing, but an intermittently surviving dark soil with finds concentrations was excavated by 2.5m squares as a direct comparison with the earlier fieldwork carried out at Brandon. At Scole the evidence showed that heaps which formed towards the end of the Roman occupation contained earlier residual finds of coins and pottery (Ashwin and Tester forthcoming, 72). A pattern is formed of bulk finds around the area of cemetery 2 and building 6864 that is approximately in the shape of a rectangle in Phase 2.3, and leaves the cemetery area clear of rubbish. The rubbish distribution pattern is probably accentuated by the similarity between Phases 2.2 and 2.3 — if rubbish were excluded from the enclosure for at least two main phases it might increase the contrast either side of the enclosure barrier. It does not, however, help to record the rate at which a particular heap of rubbish accumulated; a heap may have been through many cycles of deposition and disposal.

The area of the halls had a generally high weight of animal bone. Concentrations can be identified, however, in front of and between buildings 8927 and 8893 (hot spots show particularly well in the distribution of sheep/goat and cattle bones (Figs 4.56–4.57). This supports the suggestion that the heaps could be directly linked to features by spatial analysis. The evidence from here, and from outside the enclosure that contained buildings and later cemetery 2, is for casual rubbish disposal close to where it was created.

The picture of squalor may be misleading; the chronology of site abandonment needs to be considered — the excavated remains are what was left behind as areas declined and fell out of use. It is not a snapshot of the settlement while it was thriving. It is possible that the rubbish was carted away on a regular basis and that the ‘heaps’ provide a distorted record of bulk waste piling up as occupation ended in different parts of the site. It is clear however, that there were two separate areas with buildings at the northern end of the site, the one free of rubbish, the other covered with it.

Evidence for rubbish management?
There is evidence, albeit interpretative, of rubbish management. This is linked to the appearance of fence lines 6850 and 6851 in the north-west of the site and their relationship with rubbish heaps 8130 and 8129 (Fig. 4.50 and Chapter 12 Fig. 12.7) lying either side of the fence lines at the west end; this is adjudged to be beyond the main area of settlement by Phase 2.3, although within the boundary of the site. Whether the fence lines were related to rubbish disposal is unknown, but they do indicate a clear route in and out of the settlement. From these heaps, dumped material may have been removed.

Two parallel ‘slots’ or fence lines 6.8m apart extended north-west from the central part of the northern area, 6850 and 6851, which were 12m and 15m long respectively. Neither was more than 0.15m deep and it is possible that the east ends were lost during excavation. These features are phased here on their spatial relationship with two large rubbish heaps, groups 8129 and 8130. The heaps were exposed during machining in 1980 as upstanding areas of black soil densely packed with finds. This area, which had become peripheral to the settlement during Phase 1.2, contained numerous shallow pits. Pit 0201 contained large quantities of material, as did pit 0147 (Fig. 4.50). There was also a substantial hearth made of clay, flint and chalk, 0067, overlying 0147 (Fig. 4.53 s28). A range of unphased pits that were probably Anglo-Saxon was found within this area; these appear in the total excavation plan and further information is available in archive.

The area contained large quantities of finds and clearly acted as a rubbish tip, but was initially stripped by machine resulting in some loss of occupation material. Finds from the area centred on shallow pit 0147 amounted to 28kg of pottery (of which only four sherds were Thetford type ware), 24.5kg of animal bone, 3.5kg of ceramic building material and tile and 41kg of slag. Pit 0201 contained over 5kg of pottery, and may be seen as the start of the complex. If this area had been excavated as part of the 2.5m square system, it would have shown up as a very dramatic concentration of finds, one of the largest within the excavated area.

Area 8129 consisted of a series of pits and ditch ends coming together on a shallow depression filled with occupation debris. Its north edge was bordered by fence line 6850. Ditch 6848 (Phase 1.1) was cut by pit 0136 and by ditch 0165.

There were apparently no major features in the area between fence line 6850 and the wider enclosed area to the
west. Depression 0294 (area 8129) was similar to pit 0147 (area 8130) to the north (Fig. 4.50), being a rounded shallow feature with a high organic and waste content. The scale of dumping was less than in area 8130, although some material was lost during the initial machining. The total amount of pottery from the pits and 0294 was 4.51kg with 11.35kg of animal bone. Pit 0287 (Fig. 4.5) appeared to cut slot 6850. This may not preclude a relationship between the rubbish area and the ‘trackway’ defined by 6851 and 6850. Like the other western ditch systems, 0155 disappears into the south baulk of the 1980 excavation leaving its further association unknown, although it seems probable that it was associated with either 8134 or 8135 (Phase 2.2/3).

North–south ditches 8128
This feature was discussed with Phase 2.2. The evidence supports a long-standing western boundary ditch (Fig. 4.50) that was maintained until the site was abandoned, leaving a permanent scar.
South-west area
In this area building 2924 replaced 2923. Ditch 6862 was shortened and ditch 6856 re-aligned, directing the south-facing enclosure entrance towards building 2924 and away from building 2923. On the west side this occurred with ditch lengths 0585 and on the east side with 0569. These directional changes in the entrance are important reasons for phasing the two stages of the enclosure respectively with buildings 2923 and 2924. The settlement boundary ditch 8128 was re-dug 3m to the west, presumably to accommodate building 2924 which was built very close to ditch 6860. The two phases of ditch 8128 came together near the south-west corner of 2924. This suggests that the ditch re-alignment may have begun earlier during the life of building 2923 and continued in use.

Figure 4.56  Distribution plan of cattle by fragment count
Figure 4.57  Distribution plan of sheep/goat by fragment count
Figure 4.58  Distribution plan of pig by fragment count
Figure 4.59  Distribution plan of horse by fragment count
Figure 4.60  Distribution plan of oyster shell by weight
Figure 4.61  Distribution plan of Ipswich ware by weight
Figure 4.62 Distribution plan of Thetford ware by weight
Figure 4.63  Distribution plan of slag by weight with iron tools and iron objects
Figure 4.64  Distribution plan of lava quernstones by weight
Figure 4.65  Distribution plan of CBM by weight
Figure 4.66  Distribution plan of fired clay by weight
Figure 4.67 Distribution plan of window glass
Figure 4.68  Distribution plan of lead
Figure 4.69 Distribution plan of pins
Figure 4.70 Distribution plan of precious objects
Figure 4.71  Distribution plan of copper alloy objects
Figure 4.72 Distribution plan of vessel glass and inkwells
Building 2924

Fig. 4.73

Building 2924 measured 5.25 x 11.5m (Fig. 4.73). Neither of the side walls was complete with six posts down the west side and probably eight along the east. The posts were closely aligned with the exception of 0409 along the east wall. Opposing posts paired, despite their distribution being slightly uneven, with odd posts associated with opposing entrances 0368 and 0369 on the west wall and 0413 and 0410 along the east, which created openings of 1m and 0.75m respectively. The building offers an interesting comparison with adjacent structure, 2926 (Phase 2.1), where the entrances were off-centre (the south of the building having one extra pair of posts). The width of the buildings was remarkably similar, as was the arrangement of the wall posts.

The north wall consisted of five evenly spaced posts. The two surviving corners were ‘weak’ with the gable wall falling beyond the last of the pairing wall posts. The south end of the building was poorly preserved and several square metres could not be excavated as there was a standing electricity pylon at the time of excavation. Post-hole 0563 is suggested as a gable post and 0564 a possible end wall post.

A variety of post-holes survived within the building at the north end. The position is confused by the probable west wall of 2923 (Phase 2.2) coinciding with post-holes from 2924. There may have been two main partition posts, either of 0379 or 0373, combined with 0404; 0379 forms a slightly better pair with 0404. Beyond the post-holes discussed, many more could potentially belong to either 2924 or 2923, although as part of 2924 they are likely to have been secondary. Post-hole 0371 lies directly under the main axis of the building.

The post-holes were dug from approximately the same level and varied between 0.2m and 0.4m in depth, although some of the gable wall post-holes were slightly shallower. No finds were recovered from any of the features.

Some external features may have been directly related to the building: 0419 was a double post-hole, which could have supported the north-east corner; 0418 was a shallower rectangular slot aligned north–south and contained a high proportion of charcoal, which suggests it may have been open and was not a post-hole.

It is argued that building 2924 was later than building 2923 because post-hole 0404 cut the wall line of 2923. A further relationship is suggested because gully 0562 (Phase 2.1, Fig. 4.13) could not have been contemporary with 2924, and was cut by enclosure ditch 6862, suggesting it was earlier, possibly running parallel to 6860 and providing drainage for building 2925.
Building 2921
Fig. 4.74
Building 2921 was 11m in length (Fig. 4.74). The primary section measured 6.5m in length with the south extension adding a further 4.5m. The width of the main section was 4.75m, compared with an average of 3.25m for the extension. The north wall contained three evenly spaced post-holes with the gable post-hole 1851 replaced or reinforced by post-hole 1866. The position of 1866, slightly in front of the first, confirms its function as a central piece support. These post-holes paired with 1903 to the south. There were several post-holes within the area of the building with no obvious functions that could have belonged with either 2921 or 1095.

The side walls were founded on a series of pairing posts with lesser posts between and there was a substantial gap in the east wall that may have been opposed by deep post-hole 1801 in the west wall. An interesting feature of the west wall was post-hole 1544 and the single plank stain within it, aligned east–west, which fell along the projected wall line. This was a replacement for post-hole 1812, which it cut, and may have been inserted into a wall plate from below (hence the size and shape of the post-hole which allowed the timber to be slotted into the wall plate). Once the timber was in place, a wedge of Roman tile was jammed in at the base to prevent it from falling out. If the post 1544 was to take the load from 1812, the load itself must have rested on the wall plate, implying that if post-holes 1812 and 1867 supported a tie beam, it was above the wall plate in 'normal assemblage'. This evidence may be identifying a change in building technique; it is difficult to imagine how a building with this ground plan could have stood without tie beams given the paucity of earthfast posts.

The slot 1544 contained 40 fragments of fired clay and a piece of lead waste (sf8363). Central post-hole 1545 contained a sherd of Ipswich Ware, and fragments of Roman tile, burnt flint and animal bone were found in 1534 (this double post-hole may also form part of Phase 2.2 building 1095). There are wide gaps on either side of the building where we might expect an entrance but they could not be positively identified as such.

A hearth 0871 was identified measuring 0.75m x 0.6m at the north end of the building. It was built of chalk, which was burnt on the surface and bordered by broken tile and flints. There was no indication of any flooring material. A sherd of Ipswich Ware and fragments of Roman tile and mortar were collected.
This phase has been created to separate artefacts collected by 2.5m squares which are demonstrably late by virtue of their stratigraphic location. This can only be done on any scale at the waterfront where dark earth deposits sealed the artificial ground consolidated during the construction of the textile processing feature (Phase 2.3). The evidence from the dark earth discussed in Phase 2.3 showed through the textile processing feature (Phase 2.3). The evidence that rubbish heaps respected features from the dark earth discussed in Phase 2.3 showed through it, are evidence that occupation was continuing to be late stratigraphically. Radiocarbon dates achieved from contexts associated with Phase 2.3.1 can be shown to be Phase 2.3 and that they were probably contemporary. The spatial analysis that rubbish heaps respected features from the dark earth discussed in Phase 2.3 showed through it, are evidence that occupation was continuing to be late stratigraphically. Radiocarbon dates achieved from post-holes and the back end of the main building, 2m on the west side and approximately 2.5m on the east. Post-hole 1764, on the west side, was only 0.04m deep when excavated and others may have been lost.

Sub-phase 2.3.1
This phase has been created to separate artefacts collected by 2.5m squares which are demonstrably late by virtue of their stratigraphic location. This can only be done on any scale at the waterfront where dark earth deposits sealed the artificial ground consolidated during the construction of the textile processing feature (Phase 2.3). The evidence from the dark earth discussed in Phase 2.3 showed through spatial analysis that rubbish heaps respected features from Phase 2.3 and that they were probably contemporary. The contexts associated with Phase 2.3.1 can be shown to be late stratigraphically. Radiocarbon dates achieved from wattles and other timber at the waterfront were buried by the later layer.

VIII. Phase 2.4 – later 9th century
Fig. 4.75

This phase is represented by features late in the stratigraphic sequence or demonstrating through their artefact assemblage or appearance that they were late. Overlaps are assumed between features of this phase and those from Phase 2.3, marking the ending of settlement over different areas of the site. A timber bridge, possibly at the end of a causeway to the south, is tentatively placed within this phase. One of the most significant features is ditch 8175 which flanked the path from the bridge and causeway and ran through to the central enclosure. It cut through ditches 8134/5 and building 8927 of Phase 2.3. The ditch did not emerge inside the medieval enclosure, and it may have terminated in the boundary enclosure which was possibly an early version of the medieval enclosure 9128. West of ditch 8175 there was a scatter of Thetford Ware pottery over clay spreads. Along the north edge of the island, pit 3596 was excavated through surface rubbish deposits. Odd finds of pottery south of this suggest a trickle of activity but there is no evidence for new buildings on the site.

Ditch 8175
Fig. 4.76
This ditch flanked the trackway from the causeway to the central enclosure on the west side (it was renumbered 8850 where it appeared north of ditch 8134. An opening to the west of the site is indicated by a 1.75m gap in the ditch 23m from the end of the causeway. The largest ditch dimensions were 0.9m wide and 0.4m deep. It took a disjointed route through redundant ditches 8134 and 8135, which suggests neither ditch was completely infilled when 8175 was excavated; it also supports the interpretation that it was an open ditch rather than a palisade. Both the presence of the ditch and the entrance through it, are evidence that occupation was continuing to the west of the causeway. The ditch terminated in the area of the later enclosure ditch 9128 and is recorded in section (Fig. 4.76 s29) where two recuts of 9128 are numbered, although the shape of the base would suggest that many more were made during the life of the feature. The origin of the central enclosure is uncertain but it is possible that the failure of ditch 8175 to emerge on the north side of the enclosure ditch is circumstantial evidence that it was laid down at this time. There are, however, numerous features stratigraphically isolated north of ditch 9128 and these defy reasonable phasing and interpretation until the central enclosure can be investigated.

Sections of ditch 8175 contained animal bone, lava quern and occasional Ipswich Ware.

West of ditch 8175
No major phases of building have been identified within the excavation area and it is suggested that existing structures from Phase 2.3 continued in use, such as buildings 2924 and 2921. There was, however, a roughly circular surface of clay, which measured c.20m across and appeared about 20m west of the opening in ditch 8175 (Fig. 4.75). The stratigraphic position of the clay is uncertain as it was not solid and therefore post-holes may have projected through it rather than being sealed by it. A gap in the distribution of unassigned post-holes in the area of the clay may be significant and suggests the clay occupied this space and was therefore contemporary with some of the post-holes close to the clay. It overlaid ditch 8143 (Phase 2.1). The surface deposit over the clay showed a concentration of Thetford Ware pottery.

From this, and the gap in ditch 8175, we can suggest that some occupation continued in this area. The purpose of the clay is uncertain; it could be postulated that Late Saxon buildings lacking earthfast posts may have stood here, but the clay did not conform to any rectangular patterns indicative of building floors. It seems more likely that this was an open working area of unknown function. There is limited stratigraphic evidence for features later than buildings 2924 and 2921, but four sherds of Thetford Ware were recovered from the cleaning of 1m squares, three from intercutting ditches 0599 (group 6856) and 0569 and one from post-hole 0596. The sherd in post-hole 0596 weighed only 3g and is interpreted as intrusive. The remainder may have accumulated in the top of an open ditch. Ditch 0569 also produced seven sherds of Ipswich Ware and thirty-six sherds of Iron Age pottery and has been placed within Phase 2.3.

Timber bridge
Figs. 4.77–4.78
The access to the island from the south was dramatically improved with the construction of a timber bridge replacing the stake-lined causeway, and new east–west ditches which enhanced drainage, provided a flood bank and formalised the access to the site.

The bridge
The bridge 2909 was constructed using three rows of timber posts and piles, of which only the east alignment fully survived (Fig. 4.77). This consisted of two shallow-set squared timbers at either end, posts 1607 and 1251 (in post-hole 1221), 9.3m apart with four large piles driven in between: 1285, 1295, 1296 and 1606 (a further, smaller, post 1953 is thought to have been secondary). The central row of post-holes consisted of robbed post 1161,
Figure 4.75  Phase 2.4 plan
Figure 4.76 Phase 2.4 section
timber piles 1271 and 1236 and post-hole 1268. The central post line did not appear in the extension trench to the south and it is suggested that shallow-set posts decayed or were robbed. The west post line was similar to the east although the post position opposite 1607 was not investigated. Post-hole 1145 had been robbed, and pile 1183 was positioned east of the standard alignment. Other related post-settings at the north end of the bridge, from which the posts had been removed, were 1147 and 1186 to the north of 1145, and 1157 and 1151 on the east side north of 1221. Their position suggests that they formed part of an elaborate entrance to the bridge. Aside from the principal timbers there were two stake holes, 1163 and 1164, beneath the centre line of posts, and fragments of two supporting timbers north and south of 1221 within the post-hole. Various layers from the watercourse that were contemporary with the bridge (ditches 2906 and 2907) were sealed beneath the medieval causeway and cut the peat on the south.

All the timbers were of oak and had diameters between 0.2–0.24m. They were generally round with only minor trimming except the points, which were sharpened. Post timbers 1607 and 1251 had square bases, 1251 also had an exceptional diameter of 0.3m. Its two flanking timbers were much eroded but appeared rectangular and at least 0.1m wide by 0.2m long in plan, aligned east–west. The piles were driven between 0.7m and 1m into the natural sand penetrating well below the water table (Fig. 4.78).

Three posts from the bridge linking the island to the mainland were submitted for dating after dendrochronology failed to produce an absolute date (Groves and Hillam 1986). Two samples (HAR-9274–5; Table 2.3) came from posts forming the east side of the causeway (bridge) and a third (HAR-9273) from a post on the west side. The three post samples submitted for dating all comprised a large proportion of heartwood rings with some additional sapwood, thus applying the methodology outlined by Bayliss and Tyers (2004), allowing an estimate for the felling date of the timbers to be calculated. The Bayesian model applied to the dating of the causeway and bridge is included in the absolute dating section (Chapter 2). The causeway and bridge are estimated to have been constructed in cal AD 865–1235 (95% probability) and probably cal AD 950–1075 (68% probability). The date range for the bridge is wide and it is uncertain how long after the site was abandoned that this structure was built although it does appear that it post-dated the settlement and was related to the central enclosure extant during the medieval period.

Finds from this area were scarce with no more than a couple of dozen sherds of Ipswich Ware in total.

Ditches

Contemporary with the bridge were east–west ditches 1146 and 1290 (Fig. 4.77). Both were shallow; 1146 was detected under the western site baulk but barely showed in plan. It is suggested that they supplied spoil for a bank alongside the bridge. They were not re-cut, but were themselves buried by upcast spoil from a parallel pair of ditches 2906 and 2907; these were closer to the island edge and were linked by a sequence of gullies that ran beneath the bridge. Two parallel lines of post-holes 2903

![Figure 4.77 Detail of bridge](image-url)
are visible east of the bridge (illustrated with Phase 1.1, Fig. 4.4). These may have been positioned to support a bank to the east of the bridge, although the only clear relationship proves they were not contemporary with building 2902.

The bridge section (Fig. 4.78 s32) shows a broad, very shallow channel approximately 6m wide running below the bridge. After the construction of the bridge, the parallel north–south ditch system which originated as part of the causeway was replaced and maintained through several phases with ditches 2910 and 2911. They were aligned slightly east and extended further north than previously, and their shallow profile supports the suggestion that they provided spoil for a new raised causeway.

North end of the site

Pit 3596
This feature was demonstrably late as it was cut through the rubbish layers (Sub-phase 2.3.1) on the waterfront. It measured 4.5m x 1.8m and was 0.4m deep (Fig. 4.76 s30–31). It had charcoal in the base and burnt clay in the lower fill. The upper fill was a dark stoneless silt which is consistent with an open pit having been abandoned. It produced a range of animal bone and included twenty-nine sherds of Ipswich Ware and seven sherds of Thetford Ware, as well as almost 5kg of bone, fragments of lava quern, slag and fired clay. Small finds included iron nails (sf3468, sf3627, sf3640), iron fittings (sf3625–6, sf3623, sf3639) antler comb fragments (sf3597, sf3628); glass vessel shards (sf3635–6), and a copper alloy strap-end with animal head terminal (sf3638). The antler comb fragments are dated to 675–800 and the strap-end to 800–900. There is likely to have been a substantial residual element in these finds, reflecting the intensive rubbish spreads through which the pit was cut. The dating for the strap-end is consistent with the introduction of Thetford Ware, however.

Cemetery 2
The morphology of this cemetery is discussed within Phase 2.3 and as part of Chapter 7. No close end date is established for the cemetery, which extended beyond the eastern boundary of the site. Burials were cut by the returning medieval enclosure ditch (Period IV). Thetford Ware pottery was also found in this area of the site although not in substantial quantities. Post-hole 4630 in fence line 8162 contained a single sherd of Thetford Ware but this probably came from the rotted post-pipe and post-dated the fence.

Other features
Of the very few features containing pottery, lengths of 0555 and 0599 (ditch group 6856) both contained single sherds of Thetford Ware to the exclusion of all else. It should be noted that ditch 0599 was established in Phase 2.2, however and the pottery is likely to be intrusive. Ditch 0569 also contained a single sherd of Thetford Ware amid seven Ipswich Ware sherds and thirty-six pieces of Iron Age pottery concentrated at the south end (length 1376).
I. Introduction
This chapter includes the artefactual evidence for structures on the site. For the buildings and a few other structures this includes surviving timbers and impressions of timbers in burnt daub, fragments of window glass, and occasional fragments of structural ironwork. The use of Roman tiles and fired clay in hearths, ovens and working surfaces is also reported on.

II. Timber
by Richard Darrah

Introduction
Although Brandon is a dry sandy site, wood survived in the bottom of post-holes and trenches and along the marshy margin of the site where land was reclaimed by dumping. The wood evidence from the site can be divided into four groups by function:

1. Structural timbers: the lower ends of structural posts in situ from buildings 0734 and 1094, and piles from structure 8184 and bridge 2909.
2. Joints represented by pegs and peg-holes in discarded boards.
3. Roundwood, represented by cleft stakes and daub impressions.

These fragments enable us to assess the type of timber that was being used, understand the way it was being converted and the tools used in conversion, estimate the length of time that the structures may have survived, identify the types of axes used, and comment on the skill of the tree wrights shaping the timber.

At Brandon the best-preserved timbers were pile points from two distinct structures. Four formed a rectangle as part of structure 8184, dated to between cal AD 650–1000 (GU-5047, Table 2.3). The remaining eight made up two rows in the bridge structure (2909) constructed around a century later. Both sets of multifaceted pile points had excellent tool marks surviving over the bottom 0.6m of their length.

In two buildings (0734 and 1094), remains of the structural timbers survived at the base of post-holes or construction trenches, as continuations of the post ghosts. These structural timbers represented two distinct building types. Building 0734 (Phase 2.2) was a typical stave-built Middle Saxon hall with opposing doors in the centres of the long sides. Building 1094 (Phase 2.1) was a large (14 x 7.5m) but less prestigious building made from timber left in the round. Although most of these structural timbers survived as incomplete cross-sections, there was sufficient evidence to identify the section and diameter of tree that they had come from.

Other evidence of joints and timber-working comes from the unstratified timbers from Anglo-Saxon contexts. There was further evidence for a round or part-round post, with an estimated diameter of 0.3m, from a daub impression in an internal wall in building 8927.

The oak pile points

Growth rate
The timbers surviving from building 8184 and bridge 2909 were all driven oak piles shaped from small oak trunks less than 0.32m in diameter. The sapwood had been left on, but only the bottom 0.6m of the tapered multifaceted points survived in excellent condition with clear tool marks. The cross-sectional dimensions and the growth character have been recorded in Table 5.1. The

<table>
<thead>
<tr>
<th>Context</th>
<th>Trunk diam (m)</th>
<th>Mean annual ring width (mm)</th>
<th>Description of growth rate</th>
<th>Mean annual ring width, first 20 years (mm)</th>
<th>Mean annual ring width, last 20 years (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure 8184</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1152</td>
<td>0.30</td>
<td>2.30</td>
<td>Slow initially then fast</td>
<td>1.25</td>
<td>3.25</td>
</tr>
<tr>
<td>1235</td>
<td>0.28</td>
<td>1.65</td>
<td>Even</td>
<td>2.08</td>
<td>1.68</td>
</tr>
<tr>
<td>1307</td>
<td>0.25</td>
<td>1.43</td>
<td>Slow initially then fast</td>
<td>0.80</td>
<td>1.90</td>
</tr>
<tr>
<td>1319</td>
<td>0.25</td>
<td>1.95</td>
<td>Slow initially then fast</td>
<td>1.85</td>
<td>2.55</td>
</tr>
<tr>
<td>Bridge 2909</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1158</td>
<td>0.30</td>
<td>1.54</td>
<td>Suppressed</td>
<td>2.45</td>
<td>0.80</td>
</tr>
<tr>
<td>1183</td>
<td>0.25</td>
<td>0.99</td>
<td>Suppressed</td>
<td>2.35</td>
<td>1.00</td>
</tr>
<tr>
<td>1216</td>
<td>0.25</td>
<td>1.40</td>
<td>Suppressed</td>
<td>2.45</td>
<td>1.25</td>
</tr>
<tr>
<td>1236</td>
<td>0.30</td>
<td>1.27</td>
<td>Suppressed</td>
<td>2.80</td>
<td>1.00</td>
</tr>
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<td>0.25</td>
<td>1.03</td>
<td>Suppressed</td>
<td>2.03</td>
<td>0.50</td>
</tr>
<tr>
<td>1285</td>
<td>0.32</td>
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<td>1295</td>
<td>0.25</td>
<td>0.88</td>
<td>Suppressed</td>
<td>1.75</td>
<td>0.95</td>
</tr>
<tr>
<td>1296</td>
<td>0.25</td>
<td>1.68</td>
<td>Suppressed</td>
<td>1.70</td>
<td>1.05</td>
</tr>
<tr>
<td>Bradfield</td>
<td>0.34</td>
<td>3.90</td>
<td>Even</td>
<td>4.10</td>
<td>3.20</td>
</tr>
</tbody>
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Table 5.1 The growth rate and character of the timber used in the oak piles from structure 8184 and from the bridge, and a modern standard oak tree growing in ‘ coppice with standards management’ in Bradfield Woods, Suffolk
growth character of a modern trunk from a standard growing within a coppice stand in Bradfield Woods has been included for comparison.

Three of the four piles (1152, 1307 and 1319) from building 8184 show slow initial growth followed by faster growth. Similar growth rate in different timbers suggests a similar woodland resource. The change in growth rates was consistent with oak seedlings in woodland growing within the coppice under-storey. When the under-storey was coppiced these trees were left as standard trees, and their growth rate increased, as they were no longer competing with the surrounding coppice. The slower growth rate than the modern Bradfield Woods standard may be due to a less productive woodland (drier or poorer soil) or closer tree spacing. The fourth timber (1235) from this structure showed a different, more even, growth rate.

The piles from the bridge grew in a different conditions, where they initially grew fast then slowed down. This growth pattern would be produced by trees growing in a clearing in a wood — when the canopy closed their growth rate fell — or could be due to other long term factors such as changes to the water table. The slowing growth rate tends to suggest dense woodland rather than the more widely spaced trees in coppice with standards.

**Tool marks**

Fig. 5.1

The main evidence for tool use on this site came from the carefully shaped points of the piles. When these were recorded, soon after excavation in 1982, clear tool marks of two distinct axe types could be identified from both 2909 and 8184 (Table 5.2). A narrow-bladed axe was used to produce both weakening cuts and for rough hewing to shape. Broad axes were used to flatten or finish the surfaces.

The process of shaping was to take a trunk length of freshly felled oak, decide on the shape of the point, and cut across the grain with a set of widely-spaced blows with a narrow-bladed axe. These cuts were at right-angles to the long axis of the trunk but at 45 degrees to the surface. The steep axe cuts cut the grain but also began splits in the oak, making the hewing easier. Parts of the curved blade profile were still visible in some of the finished faces of the piles.

The weakened wood was then removed by hewing with the same axe along the trunk length, but parallel to the final faces of the pile point. This removed most of the oak and formed the pile shape. These faces tapering to the point were finished with a broad axe hewing across the roughed out faces producing flat faces. The axe stop marks produced by this tool on these faces were at 45 degrees to the long axis of each face and up to 120mm long. It was only where the timber was unskilfully hewn that the first stage was not completely eradicated by the final stage of hewing.

One complete blade-edge profile from a narrow-bladed axe was recorded on pile 1236. This blade was curved and 55mm wide (Fig. 5.1A), and had been used to hew away some of the weakened wood in the plane of the finished surface. A second axe type with a straight-edge and a blade width of greater than 100mm was also recorded on the same pile as an incomplete blade profile (Fig. 5.1B). These axes with wider blades were not always straight-edged as some piles had been shaped with wide blades with a curved edge. The tool signatures were not at right-angles to the blade edges, therefore the tools used could not be adzes.

When originally recorded in 1982 these piles were all assumed to have come from the same structure. As 1307 was the first to be recorded, the remaining piles were compared with it. Although the piles came from two different structures and had been hewn by different generations of treewrights, the point shapes were indistinguishable. The majority of these multifaceted piles were well shaped, but not symmetrical pointed with between five and ten sides. The accuracy of the superimposed axe marks suggests that the majority of the axe users had the skill to make regular points with all facets equally wide, or squared points with regular chamfered corners, but they did not impose precise symmetry on their work. It was clear that at least two

<table>
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<tr>
<th>Context</th>
<th>Axe type</th>
<th>Description of axe work</th>
</tr>
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<tbody>
<tr>
<td><strong>Structure 8184</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1152</td>
<td>Broad axe</td>
<td>9-sided point, straight edged axe blade could be same work as 1307</td>
</tr>
<tr>
<td>1235</td>
<td>Broad axe</td>
<td>10-sided point broad axe cuts at 45 degrees across the surface, different workmanship than 1307</td>
</tr>
<tr>
<td>1307</td>
<td>Broad axe; Narrow axe</td>
<td>10-sided, very finely worked dimpling at 45 degrees to surface signature 120mm of straight edged blade survive without either end.</td>
</tr>
<tr>
<td>1319</td>
<td>Unclear</td>
<td>10-sided well pointed surfaces regular but not smooth</td>
</tr>
<tr>
<td><strong>Bridge 2909</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1158</td>
<td>Broad axe</td>
<td>7-sided point, irregular fluting.</td>
</tr>
<tr>
<td>1183</td>
<td>Broad axe</td>
<td>8-sided point irregular not circular cross-section broad-axe cuts at 45 degrees across the surface.</td>
</tr>
<tr>
<td>1216</td>
<td>Unclear</td>
<td>8-sided point well shaped this piece was top trunk as centre forks</td>
</tr>
<tr>
<td>1236</td>
<td>Broad axe; narrow axe</td>
<td>Very flat wide sides, cut from a larger timber, no chamfers at the corners, rough hewn with curved edged axe &gt;10cm wide. Very roughly shaped, several irregular weakening cuts, complete axe mark 55mm wide</td>
</tr>
<tr>
<td>1271</td>
<td>Broad axe</td>
<td>7-sided point rough hewn with broad axe</td>
</tr>
<tr>
<td>1285</td>
<td>Broad axe</td>
<td>6-sided point oversize with some previous damage</td>
</tr>
<tr>
<td>1295</td>
<td>Unclear</td>
<td>9-sided point flat sides no tool marks</td>
</tr>
<tr>
<td>1296</td>
<td>Unclear</td>
<td>8-sided point tool marks at 45 degrees roughly finished.</td>
</tr>
</tbody>
</table>

Table 5.2 Tool marks and details of shaping on the piles

134
different people had shaped the piles from the bridge. The tool marks on two piles 1236 and 1271 were rough; these must have been shaped by a less willing or skilful tree wright.

**Building 0734: earth-fast oak staves**

**Fig. 5.2**

**Growth rate**

The timber evidence for the earth-fast stave construction of building 0734 comes from the bottom 0.1m of these staves surviving in situ in the foundation trench or post-holes. The preservation improved towards the base. The timbers were rectangular sections at least twice as wide as they were thick in cross section, with flat ends and made from large trees with a minimum of 0.6m diameter (estimated from the convergence of the medullary rays). In some cases the timber cross-sections were incomplete and the tree diameters could not be estimated. The growth rate of the timbers (Table 5.3) all averaged less than 2mm annual ring width per year except for 1938, with an average of 2.4mm. The slower growth rate is consistent with a ‘high forest’ source. All identified timbers were oak (P. Murphy, pers. comm.).

The timbers shown in Figure 5.2 have not been drawn to scale as they were converted from trees of different diameters. The heavy lines represent the splits, the fine lines the final shape of the timbers after shaping with axes. To produce section A, the trunk would have been split radially into quarters before being split tangentially into an outer and inner tangential section. To produce the blank for B, an outer tangential split would have been split tangentially before being dressed to its final shape. C would be hewn from a radial eighth of a tree that had been dressed into a rectangular section. In D the medullary rays indicated that the timber had been converted from an outer tangential split from a smaller half a trunk. E was a half round as split and F was a quarter round. Hewing from solid or sawing (not a Saxon option) would both have left the tree centre in some of these pieces. The absence of tree centres confirms that primary conversion was by splitting.

**Tool marks**

The stave bases were cut flat across. The exception was 0739, which was only flat across part of the base. It had a second face at one corner that was angled with a clear narrow bladed axe mark on it. The grain at the angled part of the base had a ripple in it and the individual annual rings
widened and curved outwards near the outside of tree, a grain pattern which occurs in the buttressing at the base of the tree, suggesting the angled cut was consistent with a felling cut. This tool mark indicates that narrow-bladed axes were also used for felling large trees.

Joint evidence
The excellent preservation at the base of the post-holes showed that the staves were positioned on the base of the holes without timber packing or post-pads.

Growth rate
Building 1094 differed from 0734 in that most of the surviving timbers in the post-holes were left as split, as part-round shapes (Table 5.4; Fig. 5.2). The trees used in this construction were all small trunks between 0.2 and 0.35m diameter. Their growth rate was slow but only oak tree growth rates were recorded. The two ash lengths were too fragile to provide growth patterns or clear cross-sections. The only carefully dressed timber from this building was 1019, a small rectangular post.

Tool marks
No clear tool marks survived on these timbers but the tangentially-faced rectangular stave/post had been shaped.

The remaining timbers
Growth rates
The fourth set of timbers from the site comprised the unstratified boards and cleft sections of timber. These were mainly from trees over 0.15m diameter, but the three cleft sections of wood less than 150mm diameter were also well enough preserved to have recordable growth rates (Table 5.5). There was a convenient medieval division of wood from timber where wood was less than c.0.15m diameter and trees above that size were counted as timber. The former equates to wood that is cut on a short rotation of three, five, fifteen or even twenty years, and the latter to wood which would be left for future generations to use as timber.

Most of these pieces had the same slow growth rate (less than 2mm annual ring width per year) as the timber used in the building construction, suggesting a similar source. This rate is not typical of underwood from a managed coppice, where vigorous growth occurs, suggesting that the wood was grown in crowded conditions or very poor soils. The exceptions were post 5811, which was growing very fast, and board 5817 — these pieces indicate that a second timber source was also being used.

Unfortunately this group of roundwood and cleft roundwood was recorded in 2003 when it was already very desiccated. This meant that most pieces had dried out so much that it was impossible to identify their growth rate. The few for which the growth rate could be identified are included in Table 5.5.

Further information about the wood used came from the burnt daub, in which the wattle impressions indicate that sails of 16 to 32mm diameter were being used uncleft, with rods of 7 to 25mm diameter woven between them. This suggests careful size selection of rods. Without the evidence from ring counts this does not indicate whether cutting was done by age or whether size was selected from the produce of a cut panel or by draw felling.

Table 5.3 Building 0734: the cross-sections, dimensions, growth rate, and conversion with an estimate of the trunk size from which they were made

<table>
<thead>
<tr>
<th>Context</th>
<th>Width (mm)</th>
<th>Thickness (mm)</th>
<th>Average ring width (mm)</th>
<th>Tree diameter (m)</th>
<th>Conversion before hewing</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>0739</td>
<td>280</td>
<td>110</td>
<td>1.25</td>
<td>0.6</td>
<td>Radial then tangential</td>
<td>A</td>
</tr>
<tr>
<td>0740</td>
<td>100</td>
<td>40</td>
<td>0.93</td>
<td>0.6</td>
<td>Radial</td>
<td>C</td>
</tr>
<tr>
<td>0741</td>
<td>130</td>
<td>70</td>
<td>1.11</td>
<td>?</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td>0748</td>
<td>220</td>
<td>60</td>
<td>1.30</td>
<td>0.8</td>
<td>Radial then tangential</td>
<td></td>
</tr>
<tr>
<td>0750</td>
<td>200</td>
<td>60</td>
<td>Not clear</td>
<td>?</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td>1935</td>
<td>110</td>
<td>70</td>
<td>1.30</td>
<td>?</td>
<td>Radial</td>
<td></td>
</tr>
<tr>
<td>1936</td>
<td>100</td>
<td>40</td>
<td>1.00</td>
<td>?</td>
<td>Tangential then tangential</td>
<td></td>
</tr>
<tr>
<td>1938</td>
<td>260</td>
<td>50</td>
<td>2.40</td>
<td>0.8</td>
<td>Tangential then tangential</td>
<td>B</td>
</tr>
</tbody>
</table>

Table 5.4 Building 1094: the cross sections, dimension, growth rate, and conversion with an estimate of original trunk size

<table>
<thead>
<tr>
<th>Context</th>
<th>Width (mm)</th>
<th>Thickness (mm)</th>
<th>Average ring width (mm)</th>
<th>Tree diameter (m)</th>
<th>Conversion before hewing</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>1019</td>
<td>100</td>
<td>30</td>
<td>1.00</td>
<td>0.30</td>
<td>Tangential</td>
<td>Oak</td>
</tr>
<tr>
<td>1036</td>
<td>200</td>
<td>110</td>
<td>2.06</td>
<td>0.20</td>
<td>Half-round</td>
<td>Oak</td>
</tr>
<tr>
<td>1037</td>
<td>150</td>
<td>90</td>
<td>2.30</td>
<td>0.35</td>
<td>Quartered</td>
<td>Oak</td>
</tr>
<tr>
<td>1056</td>
<td>110</td>
<td>70</td>
<td>1.30</td>
<td>?</td>
<td>Radial</td>
<td>Ash</td>
</tr>
</tbody>
</table>
had been used to flatten them. Where peg-holes survived within 50mm of the ends of the boards, they occurred in pairs and must have been used to peg the board to another timber. The absence of metal nails and nail holes suggests that pegs were the main method of fixing structural timbers together. The surviving boards were all less than 0.2m wide, and indicate the use of four distinct auger sizes, 12mm, 18mm, 20mm, and 22mm.

The only surviving peg is an ash peg 5807 with a large squared head (Fig. 5.3). Although large-headed pegs were relatively common on other sites they were not usually as regularly shaped, so this one may have been the decorative end of a plank. The head was 38mm long and tapered regularly on all four sides, and the shank of the peg had not been rounded.

The most interesting of the pegged joints was 5868, where two pieces were joined edge to end by three pegs of approximately 20mm diameter. Unfortunately these pieces were fragmentary and only one piece could be drawn (Fig. 5.3).

A pair of 18mm diameter peg-holes were present near the end of an oak board 6339 (Fig. 5.3). This piece had been recut to a shorter length leaving the original peg-holes on the off-cut. The rebate on the face of this board suggests that it may have been part of a box rather than a wall plank.

One charcoal fragment of ash board survives from burnt layer 8155 (Phase 2.1). It had been heavily attacked by woodworm, indicating that it remained inside for a long time. It is an example that other less durable species than oak were being made into boards. This one only survived because it became charred.

**Discussion**

*Woodland resources used on the site*

There were four sets of timber data and one small set of wood data:

1. Dressed cleft sections of trunk of oak trees that were over 0.6m diameter from building 0734.
2. As-split sections of trunks of oak and ash of between 0.2 and 0.35 m diameter from building 1094.
3. Unstratified radially-faced oak boards up to 0.2m wide made from trunks of more than 0.4m diameter.
4. Three ash wood stakes.
5. Two sets of trunk lengths of oak of approximately 0.3m diameter from the causeway and the rectangular structure 8184.

Most of the timber or wood from these groups had annual ring widths that were on average less than 2mm wide. This slow growth rate is typical of, but not exclusive to, dense woodland that has not been managed by either intentional or unintentional thinning. It was not the product of woodland with widely spaced trees, as in the medieval system of coppice with standards. Although there were faster grown trees in each group these were the exception. The only group that stands out is the trunks from the 7th-century structure 8184; these are discussed below. It should be noted that a few pieces from the unstratified timbers were also faster grown. With a 10mm annual ring width, 5811 was a very fast grown oak, typical of oaks growing in open conditions even in the Breckland. One board, 5817, was also fast grown; at 4mm annual ring width this growth rate is typical of that found in modern

<table>
<thead>
<tr>
<th>Context</th>
<th>Description</th>
<th>Hole diam.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5686</td>
<td>two through-holes near end of board</td>
<td>20mm</td>
</tr>
<tr>
<td>5740</td>
<td>fragment of charcoal board</td>
<td>22mm</td>
</tr>
<tr>
<td>5817</td>
<td>fragment of board</td>
<td>12mm</td>
</tr>
<tr>
<td>5868</td>
<td>three blind dowel holes transverse to length joined to the end of another board</td>
<td>20mm</td>
</tr>
<tr>
<td>6339</td>
<td>offcut board end, two through-holes near to re-cut end</td>
<td>18mm</td>
</tr>
</tbody>
</table>

Table 5.5  The growth rates of the unstratified timbers (all oak unless otherwise stated)
coppice with standards, but could also have come from a dominant tree in dense woodland.

The evidence from the two groups of trees used in these structures was that relatively small trunks with a maximum diameter of 0.32m had been selected. The growth pattern of the timbers from these two structures was distinct. That from the 7th-century structure was typical of trees growing in conditions where the growth rate improved after an initial slow growth rate. This could be explained by the trees beginning life within the dense coppice under-storey of a woodland and only beginning to grow well when that was cut and they were left to become standards.

The Late Saxon/early medieval bridge timbers showed the reverse, with the tree beginning to grow reasonably fast at 2–4mm annual ring width per year then after 20 to 30 years suddenly slowing to a growth rate of less than 2mm. This slow-down is called suppression and happens when the canopy closes in and young trees have to start fighting for light. The use of suppressed timber indicates that the timber resource was dense woodland.

The size of trees represented by the bridge piles, of between 0.25 and 0.32m diameter, is the size of timber which would have been sourced from managed woodland in the later medieval period. The fact that this resource was not being used here may point to the lack of managed wood in the vicinity. This suggests that the management indicated by the growth pattern of the earlier timber structure was either not continued, or the timber for the bridge was sourced from a different woodland.

In structure 0734 the evidence was different, as the surviving pieces were small sections of large trunks that would have been over 0.6m diameter and approximately 200 years old. Most of these oak timbers were from trees which were slow grown with annual rings less than 2mm wide; this growth rate indicates that the trees were growing in dense stands similar to high forest. Only one timber, 1938, had a growth rate more typical of timber from a managed resource, but it could also have come from a dominant tree in dense woodland.

While oak trees growing in managed woodland, in coppice with standards, have a relatively short trunk length, oak growing in high forest often has trunk lengths up to 10m, and in exceptional cases twice that long. These trees grow slowly and evenly for several hundred years, reaching diameters of up to one metre. So the minimum diameter of the trees estimated from the convergence of the medullary rays of 0.6m was not exceptional.

Although the lengths of the posts used in this building are not measurable, they were probably about three metres long. As all of the surviving staves or posts were made from less than an eighth of the trunk diameter, and a 10m-long trunk could have been cut into two or three lengths before it was split into eighths, thus a single tree from high forest could have been converted into either sixteen or twenty-four similar wall staves.

Timber split from the same tree would have similar growth patterns. These trunk lengths exhibited distinct bands of suppressed timber, which should have been seen on a number of timbers if they were from the same few trees. The fact that this was not noted suggests that the trees were not being felled and converted for this specific structure.

Figure 5.3 Timber artefacts, including a reconstruction of pegged board 5868 (1:4; peg 5807 scale 1:2)
Evidence for the conversion techniques
In building 0734 the surviving cross-sections were shaped from either radial sections (e.g. 1935) or tangential sections (e.g. 1938 or 0739). The radial timber was consistent with being shaped from an eighth of radial split and both 1938 and 0739 have been shaped from a quartered trunk length that was then split tangentially. The author has demonstrated this technique works and has converted a quartered trunk into eight tangential parallel-sided boards 2.4m long.

The timber remains that were found at the base of post-ghosts had similar cross-sections more than twice as wide as they were thick. These cross-section shapes were similar to the post-ghosts on other stave-built Middle Saxon sites such as Cowdrey’s Down and Yeavering (Millet 1983; Hope-Taylor 1977). Thus they provide evidence for the type, quality and section of timber used in the construction of these stave buildings. These timbers provide the best evidence we have for the use of sections of oak from large trees in the construction of stave buildings.

These slow-grown oak trees lay down an annual ring each year, but form very little dense summerwood. This means that the timber is both lighter and easier to hew than faster-grown oak. The selection and cleaving of large trunks would have produced split blanks that were easier to shape up into their final rectangular shape than hewing smaller trees.

Building 1094 was made from lengths of trunk 0.3m in diameter, most of which had not been hewn into rectangular baulks, but had in some cases been split into halves. This suggests that there were some buildings in which the finish of the timber supports was not as important. This building also differs in that ash timbers were used in the construction. The difference in shaping of the timbers in these buildings does not necessarily suggest a difference in construction method but a difference in the visual impression of the structure and a possible difference in the expected life of the building. Building 1094 was similar to the less formally laid out Anglo-Saxon buildings such as those found at Catholme (Losco-Bradley and Kinsley 2002).

Life expectancy of the timbers
Timber protected by a roof decays at ground level. It is not possible to predict how long individual timbers will survive as part of a structure, but it is possible to say that all the timbers supporting the structure will have become weakened after a specific time. Timber species can be divided into very durable, durable, non-durable and perishable. Roundwood oak stakes up to 100mm in diameter (mostly sapwood) and all diameters of ash and hazel are classed as perishable timber. This means that they lose all structural strength within a few years of being placed in the ground.

The use of a combination of oak and ash timber in the construction of 1094 means that after five years the ash would no longer have functioned as posts. A few perishable ash posts may not affect the life of a building if most of the posts were oak. As many structures have posts in them that become redundant when the structure is complete, it may be that these were used knowing that they would have served their purpose before they decayed.

The piles used in the construction of the bridge would have an average life expectancy of c.25 years at ground level or water level. The slow-grown oak timber from 0734 might be expected to have a much longer life expectancy as old growth timber does not decay as rapidly as that from young trees.

Tool use
Excellent tool marks of both broad axes and narrow-bladed axes were visible on the piles. It is likely that the wider axes were T axes as these are the only broad-bladed axes found in Saxon contexts. These T axes were used at an angle across the timber in a manner illustrated on the border of the Bayeux Tapestry, although the dress code was optional. It is likely that the narrow-bladed axes were also used for felling, as one blade mark was seen on the base of 0734 in a position that was consistent with felling.

Most tree wrights accurately shaped the timber into functional piles without producing completely symmetrical points. Two pile points were made by someone who was strong but either unwilling or unable accurately to superimpose their axe blows. There was no distinction between the 7th-century pile points and the 9th-century pile points.

The following tools were identified from tool marks on the timber: narrow bladed axes with a blade width of 55mm; broad axes with blade widths of more than 100mm; and augers with diameters of 12mm, 18mm, 20mm and 22mm.

Construction techniques and joints
Timber walls were built using earth-fast posts in both post-holes and trenches, using rectangular staves, and roundwood posts. Where post bases survived, although the preservation improved towards the bottom of the posts there was no evidence of a separate pieces of timber being placed beneath the post that would have raised the post to a pre-determined height.

Boards survive with two peg-holes near their ends, 6339 and 5686. Although these were only 0.15m wide they were similar to the oak clapboards found in London (Goodburn 1994) where they were held in place by willow-headed pegs. The peg-holes at the ends of the boards plus the absence of nail-holes indicates that the peg was the preferred method of fixing boards in position. The edge-pegged joint was a rare example of the use of pegs to join two thick boards on edge at right angles.

III. Window glass
by Rosemary Cramp

Introduction
Compared with most British sites which have produced window glass datable to around the late 7th to late 9th centuries, this is a substantial collection (Cramp 2000, 105; 2001, 69). Excluding the 1,827 fragments from Jarrow and the 302 fragments from Wearmouth which are exceptional in both the range of colour and of shapes (Cramp 2000; 2006), the 185 or so fragments from Brandon can be compared with other contemporary sites such as Beverley, Yorks (c.20 fragments from early phases; Henderson 1991, 126–7), Dacre, Cumbria (22 fragments; Newman and Leach forthcoming), Glastonbury, Somerset (19 fragments; Evison 2000c, 190–1), Flixborough, Lincolnshire (c.17 fragments; Cramp 2009), Repton (c.30, Cramp and Heyworth forthcoming) and with Whithorn, Dumfries and Galloway (132 fragments; Cramp 1997, 138). Other sites
such as Escomb, Durham, or Brixworth, Northamptonshire (Hunter 1977, 104–7) have produced only a handful of sherds. Quantitative comparisons are not very meaningful however since fragments can be of various sizes and many of the Brandon fragments are very small. Also it has not been considered useful to calculate the total area which the identified shades of colour could have occupied. Moreover the most significant items in any assemblage, which are the complete or re-constructible quarries, are very limited at Brandon. Nevertheless an assemblage such as this presents an opportunity to consider in new ways how one might group and interpret such material.

**Colour**

Pl. 5.1

This glass had been initially grouped into shades of colour by Professor Vera Evison and her terms and most of the sherds have been retained within the same groupings. In comparison with the strongly coloured glasses from other sites (Cramp 2001, 81–2), most of this glass can be considered as ‘colourless’. As such it was suitable to transmit light into buildings, which is a characteristic particularly praised in contemporary Anglo-Saxon literature. For example, between 669 and 671 St Wilfrid had his church in York glazed and, as his biographer Stephanus noted, ‘by putting glass in the windows he prevented the birds or the rain from getting in, although it did not keep out the rays of light’ (Colgrave 1927, 35), and around 690, Aldhelm described Abbess Bugga’s church at Withington, Gloucestershire where the sun illuminated the interior through the glass of the windows with a limpid diffused light (Dodwell 1982, 263), whilst in the 8th-century Northumbrian poem De Abbatibus, the poet describes the long walls of the church which ‘the shining sun illuminates through glass windows, diffusing soft light in the bright church’ (Campbell 1967, 50). These references are all to churches, and it is important to note this since the sites with the strongly coloured glass noted above are all ecclesiastical (with the possible exception of Flixborough), and the strongly coloured glass from Brandon is minimal. Thick bluish fragments (sf3847 and sf4678; Pl. 5.1) have high sodium and low potassium levels like Roman and Early Anglo-Saxon glass. The only other strongly coloured fragment, sf4177, is flashed with a yellow amber and very thin, less than 1mm, and, where grozed, as on edge (e.g. sf6572), of green, which can be roughly divided visually into a distinctive dark olive green through lighter olive and a light green shading to a very light green. There is also a blue-green, green-blue shading to nearly colourless, which is a much more common tone in other English deposits. The olive green glass forms a distinctive group at Brandon, and although there are odd examples from sites such as Beverley or Jarrow it is not found in such quantity elsewhere. It is markedly thin, often very shiny and uniform in thickness, c.1mm, and, where grozed, as on two edges of sf2550 (Pl. 5.1), the grozing is very fine. The olive greens have also been distinguished in the analyses as being of a mixed alkali type with a strong calcium component.

**Physical composition**

All of the glass tested is of the soda lime/silica type with a high sodium component and this conforms to the normal compositions of western window glass in the 7th to 9th centuries (see Henderson 1985 and Brill 1999). On the whole the glass is durable and free from surface degradation, the only exception being the triangular quarry, sf6628, which is markedly degraded. This could be of the mixed alkali or potash type which starts to appear in Europe after that period (Wedepohl 2001 for a recent survey). The analyses have however revealed some differences in composition in the assemblage, which could be significant, for example the olive greens are high in calcium and magnesium and a high calcium content has been noted as characteristic of glasses of the type intermediate between the natron and mixed alkali type. None have a high lead content, as one might expect in later glass.

The flame-rounded edges on sf2129 and sf2057 (Pl. 5.1), and the many examples of elongated rather than round bubbles indicate that most of this is cylinder blown, although the light blue-green fragment, sf2058, could be a crown rim. On the whole this glass is very well made, being markedly free from impurities and bubbles. Most of the glass is very thin (under 2mm thick) although a small group of green-blue, blue-green (sf2231, sf3847, sf6252, Pl. 5.1) is thicker, more like Roman glass, but this type of pale bluish-green glass is also, as noted above, the most common on other early medieval sites in Britain. In average thickness this Brandon glass is more like the Flixborough assemblage than those from the documented monastic sites, perhaps because it draws on a different tradition and possibly is a later type.

**The shapes of the quarries and their setting**

Several of the fragments are finely grozed into shape, and there are also many examples of cut edges. Some of the cuts appear to have been made when the sheets of glass were warm, but other edges have been formed by marking out with a sharp tool and then breaking along the line. This is sometimes apparent from the fine stress marks along the edge (e.g. sf2711), and on some examples there are apparently changes of plan and an earlier marking out line has been left, as in sf2205. In two cases (sf5087 and sf2588; Pl. 5.1) it is difficult to know whether the deep parallel lines are stress cracks or some form of incised decoration (see Newton et al. 1981).

The glass does seem to have been shaped into geometric forms: for example sf2223 (light green), and sf5662 (light green) seem to be rectangles, and some, such as sf5283 and sf5319, have rounded or chamfered corners. A group of eleven olive green fragments, sf5677, contains both rectangular and triangular quarries, and there are other examples of triangles such as sf5021, sf2230. A few quarries may have been cut into more complex rhomboidal shapes, such as sf5546, whilst others, such as sf2711 (Pl. 5.1) or sf4326, have been grozed or cut to a curved shape. Although most geometric quarries for this period, from Wearmouth/Jarrow to the more elaborate Carolingian glasses such as Paderborn or San Vincenzo al Volturno (Dell’Acqua 1997; Gai 2001), probably were
composed into a coloured mosaic of decoration, the sizes of the Brandon quarries are similar to the more varied and stronger coloured examples and the different tones of greens could have been decorative as well as functional.

How were the panes of glass held and set in these wooden buildings? The lines where the glass has been held are particularly notable in this assemblage where it is possible to see a straight strip, about 4mm wide, of dulled but unscratched or un-weathered glass which runs along the edge of the fragment, for example sf2223, sf5677, sf5474 (Pl. 5.1), sf5302, sf5546. The obvious answer is that each small quarry was set in lead cames and the whole then held in wooden frames. Evidence for the use of lead cames is not abundant in Europe for the 7th/8th centuries, and the earliest seem to belong to the latter half of the 8th century at sites such as Rouen and Mustair (Le Maho 1994, pl. 2; Goll 2001). Whitehouse, who has reviewed the various ways of setting early window glass in grilles of stone or plaster, and the origins of lead cames, considered that leaded windows were widespread by the 9th century, but ‘were neither large nor numerous’ (Whitehouse 2001, 39). Evidence for the use of lead cames on British sites of the 7th to 9th centuries is sparse also and this could, as elsewhere, be explained by their recycling, some evidence of which has been found at Jarrow (Cramp 2006). Here some fragments of leading have survived, including some short straight leads, of a type which also occurs at Flixborough (Cramp 2009). There is apparently no evidence for lead cames of this early date at Brandon — those which survive having been identified as post-conquest (Cowgill in archive); nevertheless it is difficult to see how curved shapes such as sf4326 could have been set except in leads. An alternative means of fixing for the geometric shapes could however have been in wooden strips, as has been suggested for the timber buildings at Whithorn (Cramp 1997, 329), and this idea is further supported by the evidence of the nicks and nail holes that survive on the edges of a number of the fragments. This

Plate 5.1 Selected examples of window glass
feature is not commonly discernable in the glass from other British sites but could indicate here that the glass was tacked into place in wooden frames.

This of course presupposes that the glass was used in buildings on the site and not transported to the site as cullet for re-manufacture. Certainly all the glass shows evidence of its use. The pale greens can have very dull surfaces and there is no doubt that much of the lighter green glass has been weathered in windows before it has been broken, since one face is markedly more pitted and weathered than the other. On the other hand some of the olive greens such as sf5495 (Pl. 5.1) are strikingly shiny and fresh, but this could distinguish two imported batches as opposed to different building histories. At a site in which the upper layers are disturbed or re-deposited it is difficult to be certain that the distribution of the unstratified specimens is meaningful, and even in the stratified layers or features no clear pattern of deposition is apparent, as when windows are destroyed in situ. Such a situation has been postulated for Whithorn (Cramp 1997, fig. 10.23; Cramp 2006, figs 16.35–36). There are however some groups of the light olive sherds, for example sf5677 or sf2223, and some of the light greens, which could be relatively undisturbed deposits, whilst the very light greens and blue-greens were most frequently recorded as single specimens, but it is impossible to say whether this had a chronological significance. In broad terms the glass appeared in two undifferentiated major clusters: one in the north of the site along the waterfront and a cluster further south which seems to be associated with a building group (Fig. 4.67). No cluster is specifically associated with the early church and cemetery and it is possible that glass was introduced during the later occupation phases of the site, when the church seems to have been moved and rebuilt.

The significance of the glass assemblage

The fact that most of the glass is ‘colourless’ need not, in the light of textual sources quoted above, mean that the fact that most of the glass is ‘colourless’ need not, in the light of textual sources quoted above, mean that the significance. In broad terms the glass appeared in two undifferentiated major clusters: one in the north of the site along the waterfront and a cluster further south which seems to be associated with a building group (Fig. 4.67). No cluster is specifically associated with the early church and cemetery and it is possible that glass was introduced during the later occupation phases of the site, when the church seems to have been moved and rebuilt.

IV. Ceramic building material

by Sue Anderson

Introduction

Over 4000 fragments of CBM (more than 380kg) was collected during the excavations, of which approximately three-quarters was of Roman date. The remainder was medieval, late medieval, post-medieval and undated and details of this assemblage are included in Chapter 11.II. Five fragments of mortar and a piece of opus signinum were also collected. A full quantification by context, fabric and form is included in the archive, along with more detailed discussion of fabrics and forms.

Summary of the Roman assemblage

Eighteen basic fabric groups were identified amongst the Roman assemblage (Anderson in archive). Fabrics were assigned based on coarseness of the matrix and main inclusions. Most fabrics contained a background scatter of the inclusions which occur commonly in local Roman and later ceramics, notably small ferrous particles, mica, small flint fragments and quartz pebbles, chalk, occasional burnt-out organic materials, glog and clay pellets. The wide variety of fabrics present suggests that the CBM used at the site was from more than one source. Some of the fabrics present in the Roman group had equivalents in the post-Roman CBM assemblage, presumably indicating a fairly local source for these.

The assemblage includes sixty fragments of flanged tegulae representing a maximum of forty-eight tiles, forty-two fragments representing thirty-eight imbrices, 279 fragments (c.271 tiles) of box-flue tile, and thirty-six examples of probable bipedalis. Several fragments of bipedalis showed signs of wear, indicating their use as floor tiles. Unlike other forms, the majority were in a distinctive fabric, which appeared to have been used almost exclusively for this form. This probably indicates that the tiles were collected from a structure which had only one phase of flooring. They varied in thickness from 29 to 75mm, the majority between 47 to 56mm. Other Roman tile was not identifiable to specific types. The 2762 fragments represented a maximum of 2286 tiles, although it is likely that fragments of single tiles were widely spread and the total represented was probably much lower. Thicknesses of otherwise unidentifiable tiles may provide a clue to the original function. Table 5.7 shows the numbers of measurable tiles in ranges of thicknesses, with suggestions of types. However, the quantities form a normal distribution, and those in the mid-range in particular could belong to several types.

Other dimensions could be measured for three tiles. Seven fragments from a single tile, from building 8115, measured 480 x 290 x 31mm, towards the top end of the range of sizes quoted for a lydion or wall-brick (Brodribb 1987, 40). This tile had curving lines in the surface, a
Chapter 11.II, it is possible that some of this material had post-Roman material which occurs in this area (see being carried out here. In view of the large quantity of to line hearths, and there were no industrial processes required any CBM in their construction, except possibly fragments of tile. Two other hotspots occur in the halls just to the north-east of this area which produced several between ditches 6848 and 8150, again possibly as a result 2920. Another fairly large concentration occurred close proximity, could perhaps indicate the presence of a bank curving around the north, east and south of building 2920. Another fairly large concentration occurred to line hearths, and there were no industrial processes being carried out here. In view of the large quantity of post-Roman material which occurs in this area (see Chapter 11.II), it is possible that some of this material had been recycled once again and was redeposited along with the later rubble.

**Features**

The majority of CBM from features appears to have come from ditches, features of uncertain type and spreads. Pits, hearths and ovens also produced relatively high numbers, although the total quantities are all small and the assemblage is very thinly spread through many features. CBM does not appear to have been commonly or deliberately used for post-hole packing at this site, thirty-one pieces occurring in only ten of these features, with an average weight of 137g.

The features containing CBM show a generally similar distribution to the overlying hotspots in the 2.5m squares. Pits and hearths/ovens were mainly located at the waterfront, and the ditches containing tile were largely in the central area. Several features in the 1m square area also produced CBM. Very few features outside the grid squares contained CBM, although a very small quantity of Roman and post-Roman tile was present in layers and ditches associated with the causeway. This may be due to machining of the upper layers of features in the non-grid areas, or simply due to less intensive activity (A. Tester, pers. comm).

A comparison of the total quantities of Roman tile types between the grid squares and the features suggested that there was no significant difference in proportions between the two assemblages.

Only very small quantities of post-Roman material were intrusive in Middle Saxon features, and there is always a chance that these may have been misidentified given the similarities in red-firing fabrics.

**The waterfront**

If the waterfront is defined as the area to the north of ditches 8149 and 6854, the CBM collected from this part of the site amounted to 1572 fragments of Roman tile (182,135g) and 229 fragments of post-Roman CBM (6503g), plus ten unidentified fragments (68g). This includes material from 2.5m squares, layers and features. It is almost 50% of the total Roman assemblage from the site, and about a third of the post-Roman. Most of the post-Roman material came from the upper layers and was probably deposited as hardcore in the post-medieval period; it will not be discussed further.

Although the largest proportion of CBM came from contexts assigned to Phase 2.2 of the waterfront, average fragment weight is fairly consistent throughout the phases and there is no particular evidence for residuality in later periods, suggesting that tile use continued throughout the life of the waterfront.

Particular hotspots within the 2.5m grid squares were located adjacent to hearth 5443 (Phase 2.3), and over ‘post-hole concentration’ 8179 (Phase 2.2) just to the south-east of the hearth. The hearth itself produced only one piece of Roman tile. Material from the squares above included several large fragments, so although the weight was high, the high spots represent only a few pieces of tile. However, the size of these fragments suggests that they had not moved far from their position of use and they are most likely associated with the hearth. Several fragments showed signs of burning.

Another concentration was present in the 2.5m squares over structure 8114 and ‘square of tile’ 5776. Structure

<table>
<thead>
<tr>
<th>Thickness</th>
<th>No.</th>
<th>Possible type</th>
</tr>
</thead>
<tbody>
<tr>
<td>10–14mm</td>
<td>6</td>
<td><em>Imbrex</em></td>
</tr>
<tr>
<td>15–19mm</td>
<td>45</td>
<td><em>Imbrex</em> or flanged <em>tegula</em></td>
</tr>
<tr>
<td>20–24mm</td>
<td>59</td>
<td><em>Flanged tegula</em></td>
</tr>
<tr>
<td>25–29mm</td>
<td>143</td>
<td><em>Flanged tegula?</em></td>
</tr>
<tr>
<td>30–34mm</td>
<td>309</td>
<td><em>Floor/wall brick</em></td>
</tr>
<tr>
<td>35–39mm</td>
<td>153</td>
<td><em>Floor/wall brick</em></td>
</tr>
<tr>
<td>40–44mm</td>
<td>68</td>
<td><em>Floor/wall brick</em></td>
</tr>
<tr>
<td>≥45–49mm</td>
<td>20</td>
<td><em>Floor/wall brick</em></td>
</tr>
<tr>
<td>50–54mm</td>
<td>8</td>
<td><em>Bipedalis</em></td>
</tr>
<tr>
<td>55–59</td>
<td>5</td>
<td><em>Bipedalis</em></td>
</tr>
<tr>
<td>60+</td>
<td>2</td>
<td><em>Bipedalis</em></td>
</tr>
</tbody>
</table>

Table 5.7 Thicknesses of RBT and possible types

so-called ‘signature’. Two tiles from oven 5418 could be reconstructed from fragments and had widths of 260mm and over 296mm. These could also be *lydion* bricks.

At least 463 fragments of Roman tile, 14.5% of the total assemblage of this date, showed evidence of burning, usually in the form of partial or complete reduction and/or vitrification. Of the identifiable burnt tiles, two were *bipedalis*, forty-four were box flue tiles, four were flanged *tegulae* and one was an *imbrex*. Roman tiles were often reused in Anglo-Saxon hearths and ovens, and they were probably brought to site from various sources for this purpose. Features of this type at Brandon produced only 116 fragments of Roman tile, but it is unusual to find this material *in situ*. For comparison, Hacheston, a small Roman town in south-east Suffolk with some Early Anglo-Saxon activity, produced a small quantity of Roman tile which was thought to have been redeposited on the site from structures outside the excavated area. Of the 599 fragments, 15.4% showed signs of burning (Caruth 2004, 130), and some tiles were found *in situ* in late Roman hearths.

**CBM distribution by feature and phase**

**Squares and layers**

Approximately 66.6% of the Roman assemblage was recovered from 1m and 2.5m squares, and other layers. The densities of Roman material from the 1m and 2.5m squares were plotted using Vertical Mapper. The largest concentrations of Roman tile (Fig. 4.65) are associated with features in the waterfront area (see below). Further south, there are several areas of high density which are probably related to midden deposits, although one of these is curvilinear and, if it is not simply several middens in close proximity, could perhaps indicate the presence of a bank curving around the north, east and south of building 2920. Another fairly large concentration occurred between ditches 6848 and 8150, again possibly as a result of middening, although there was a hearth (4493/4494) just to the north-east of this area which produced several fragments of tile. Two other hotspots occur in the halls area. It seems unlikely that these buildings would have required any CBM in their construction, except possibly to line hearths, and there were no industrial processes being carried out here. In view of the large quantity of post-Roman material which occurs in this area (see Chapter 11.II), it is possible that some of this material had been redeposited along with the later rubble.
8114 (Phase 2.2) produced 122 fragments and thirteen pieces were collected from 5776. Only two pieces in this group were burnt, and the majority of fragments were quite small; they appear to have been used in a make-up layer rather than as a surface. The structure is thought to be connected with dyeing or preparation of textiles.

To the south-west of this feature, in an open area just beyond the extent of layer 5025, another high density area within the 2.5m squares might perhaps indicate a midden or an area of surface metalling.

Oven feature 5418/5353 (Phase 2.2) and its associated contexts produced fifty fragments, but there was no concentration in the grid over these features. Instead, debris seems to have been located just to the south-west, over layer 6776, pit 6779 and depression 6767, which also contained fragments of tile, some of them burnt. The fragments from the feature itself represented a maximum of nineteen tiles and included pieces of tiles for which width measurements could be taken (see above), suggesting that large pieces were chosen to line it or to create a surface.

Forty-three fragments were collected from building 8115 (Phase 2.2), which had a smaller concentration overlying it. Material from the feature included seven pieces from a lydion or wall-brick, which formed part of a probable hearth or oven 6044. The latter also contained eight burnt fragments.

Pit 0045 (Phase 2.1) contained forty-five fragments of tile and a large chunk of opus signinum. The material from this feature was thought to have been dumped from the adjacent oven 0006 (Phase 1.2), although this feature produced no CBM.

One other relatively large collection of CBM from the waterfront was from contexts in burn layer 8155 (Phase 2.1.1), which underlay the sand islands. Several fragments in this layer had been burnt so perhaps it was the debris from an earlier structure which had been burnt down, or from a dismantled oven.

Discussion

The assemblage from Brandon is very large compared with other groups from Anglo-Saxon sites. However, most do not include the material from the overlying layers, and the quantity from features and layers is comparable with the group from Carlton Colville (Anderson 2009a). However, the CBM quantities at the latter were dwarfed by the very large fired clay assemblage, despite the presence of Roman activity on the site, and flat slabs of opus signinum could be taken (see above), suggesting that large pieces were chosen to line it or to create a surface.

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towards a simple rim, were identified in layers close to the waterfront (5247, 5551 and 5563). There were no residues which might give a clue to function, and the pieces were not over-fired like crucibles. They may perhaps be related to some of the 'industrial' processes which were being carried out close to the river.

Structural pieces
A large quantity of daub was identified, much of it located in two concentrations within the 2.5m squares. In total, these groups amounted to 7672 fragments (116,009g), almost half of the total fired clay assemblage.

A large area of fired clay, 9370, occurred in squares 9052, 9152, 9053 and 9153 (contexts 6670–6, 6682, 6686–8, 6728–31, 6733–5, 6737–9, 6744–6, 6748–50, 6752–3 and 6757), a total of 6085 fragments (77,156g). Layer 6778 in this area added a further 200 fragments (4160g). This assemblage was dominated by daub fragments in a hard, medium sandy, dense, brown fabric containing moderate flint and chalk pieces. The pieces were generally well-preserved, large and with sharp edges, although a few fragments of grog or flint-tempered pieces were abraded. Outer surfaces were roughly smoothed over and relatively flat, and there were impressions of woven wattles running both parallel and at right-angles. Diameters of wattles varied from 12mm to 25mm, and there were occasional impressions of larger roundwood up to 37mm in diameter. This large spread of daub was deposited over an area of the site in which relatively few features occurred. It could possibly represent deliberate deposition of material as hardcore for levelling, or it may have been an upstanding heap during the life of the settlement, thus preventing activity in the area. However, it overlay patches of unfired clay which may be related to a specific activity (A. Tester, pers. comm.) and could perhaps indicate that a building was present in the area.

Another large spread occurred in squares 9355, 9454, 9455, 9554 and 9555, located over and south of the large enclosure ditch 9128. The 2.5m squares in this area (contexts 8743–50, 8752, 8754–7, 9090, 9094–9113, 9115–6, 9119–21 and 9123–5) produced 684 fragments (16,304g) of fired clay. There were two main types of daub, a heavily abraded group in a fine sandy fabric with voids and a much better preserved group in a medium sandy flint-tempered fabric. Both types showed evidence for woven wattles 13–22mm in diameter, and one fragment had a flat timber impression c.50mm wide. This assemblage is very similar to a group from context 9127 in building 8927 (443 fragments, 12,738g), which was deposited in a line running northwards from the entrance, and a further 210 pieces came from layer 8837 (4092g) in the same structure. The building was cut by ditch 9128; it is possible that the daub fragments were redeposited in the bank associated with the ditch and later ended up on the surface of its fill. The ditch itself produced only fifty fragments (600g), most of which were abraded and undiagnostic. The fragments may represent a partition within building 8927, but their position might also suggest that pieces were used as hardcore to infill a channel which had built up through wear just inside the doorway. This theory is given more weight by the presence of two distinct types of daub, one heavily abraded, within the group. One post-hole and a pit in building 8927 also produced fifty daub fragments (1559g), which might suggest that the material was deposited following the demolition of the building.

Small quantities of daub were identified in a few other features, including two small fragments from a post-hole in building 8139. Bank 9144 and ditch 9147 produced small quantities (21 fragments, 1392g) which were probably related to the large group surrounding the enclosure ditch.

Only three fragments, all from layer 5352, were identified as possible render. These were flat, thin fragments with a stepped corrugated appearance to the underside, suggesting that they might have been pressed against cut timbers.

Material which could be positively identified as hearth lining or oven dome was not common in this assemblage, although it is likely that large quantities of the undiagnostic material probably fulfilled this role. Fragments of fully or partially vitrified hearth lining were found in no particular concentrations from features all over the site. They generally consisted of flat or slightly concave fragments with smoothed surfaces and rough, knobbly undersides, the latter suggesting that they had been pressed against soil. Partially vitrified pieces had white, powdery surfaces, and vitrified pieces were generally grey or green in colour. Only thirty-one fragments of this material came from hearths (4493 and 4494), the rest being redeposited in layers, spreads, ditches, pits and post-holes. Very little was from the 2.5m squares, which may suggest that it was less likely to be deposited in middens, or perhaps simply that it was less easy to identify from these contexts. A few oven dome fragments were identified on the basis of roughly smoothed convex outer surfaces. The largest group was from pit 0156 and was in a dense, chalky fabric; this type of material was commonly used for oven domes in the medieval period.

Uncertain function
Approximately half of this assemblage was not identifiable to function. Included amongst this were fragments which showed signs of smoothing and/or wattle impressions, but which could not be positively attributed to daub. There were also convex pieces which were not certainly loom-weights or oven domes.

One type which must have had a distinct function was found in several contexts. These fragments were generally flat, smoothed on one or both surfaces, and have been described as ‘slab-like’. There were roughly 200 fragments of this type. They had the appearance of tiles and may have been an attempt to make copies of Roman tiles for use in a similar function. In this case, they would probably have been used as hearth linings, but few show signs of excess burning. Fragments like these were relatively common at the slightly earlier site of Bloodmoor Hill, Carlton Colville (Anderson 2009b), where they were made in a fine sandy micaceous fabric and were often fired brick red and partially vitrified. At that site, several were recovered from Saxon oven/hearth features, where they were presumably used as a lining directly onto the ground. Hearth fragments were found collapsed into several SFBs at West Stow, and some pieces with wattle impressions were interpreted as a fire-back against the gable wall (West 1985, 120). Most fragments from Brandon were found in layers, ditches and pits, although several pieces were from feature 6044, which
was a hearth-like structure and also contained several Roman tile fragments.

**Fired clay by feature and phase**

**Squares and layers**

Approximately 69% of the fired clay by weight was recovered from squares and layers. The densities of fired clay from the 1m and 2.5m squares were plotted using Vertical Mapper (Fig. 4.66). This showed two marked concentrations of daub towards the centre of the site (9370) and over building 8927, as discussed above. There was a U-shaped concentration to the south of the waterfront, and also a smaller concentration of CBM in this area. Most of the fired clay from this part of the site was undiagnostic, but the identifiable fragments seem to have been hearth lining rather than daub. Large quantities of pottery and animal bone also occurred in this area, so it may simply represent a midden.

**Features**

For feature types with more than fifteen fragments, the average weights were generally higher than those for grid squares and layers. The main exceptions to this were fragments from ovens and hearths, which have relatively low average fragment weights considering they were probably the main source for much of the non-daub fired clay. The same was not true of the CBM, as pieces from ovens and hearths had some of the highest average fragment weights.

The majority of fired clay from features was from ditches and spreads, with a sizeable proportion also coming from pits. The distribution across the site conforms very closely to the high density areas seen in the grid square plots. In particular, these include features on the waterfront, between and around the central band of ditches (6848, 8150) running through the narrowest part of the site, and features including and south of the large enclosure ditch 9128. Outside the gridded areas, some of the site, and features including and south of the large ditches (6848, 8150) running through the narrowest part of the waterfront, between and around the central band of ditches (6848, 8150) running through the narrowest part of the site, and features including and south of the large enclosure ditch 9128. Outside the gridded areas, some of the site, and features including and south of the large

A few ditches produced relatively large quantities of fired clay. In particular, 0047 (component 6849) was noted as having a large quantity towards the ‘top of the hill’ (\?west end), and there was a slight concentration at this point in the 2.5m squares. Over 9kg came from ditch 8135, running east–west to the south of the hall area, and may be related to the general spread south of enclosure ditch 9128.

Only a small quantity of fired clay came from hearths and ovens. This is in contrast with the CBM assemblage from features, a relatively high proportion of which came from fire-related features. This may in part be due to removal of the fired clay oven dome during demolition, but retention of the hearth floor in situ.

Ten buildings contained deposits of fired clay in one or more contexts, totalling 1014 pieces (22,458g). Of these, three-quarters were fragments of daub from building 8927, as discussed above. Table 5.9 shows the quantities from buildings.

Interestingly, fragments of daub came from the earliest and latest phase buildings, but not those in the middle phases. However, the assemblage from buildings other than 8927 is relatively small and this pattern may not be significant.

**The waterfront**

The fired clay assemblage collected from the waterfront area consisted of 2232 pieces weighing 28,233g, representing approximately one tenth of the total fired clay assemblage. Of this, 369 fragments (3992g) were collected from 2.5m squares, and 1591 fragments (21,303g) from layers and spreads. There were 241 fragments (2496g) from features, the remainder being unstratified finds. Identifiable fragments from this part of the site included several pieces of loom-weight and oven dome, although pieces of hearth lining formed the bulk of the group. Only five pieces of daub were identified, all from 2.5m square 3198.

Like the CBM, the greatest quantity of phased material came from features and layers in Phase 2.2. In fact the quantities show a normal distribution throughout Phase 2, which may well indicate an increase in activity towards the middle of the phase and a decrease towards the end. Average weights seem to fall slightly after Phase 2.1.1, however, and may indicate some residuality.

A plot of the 2.5m squares which just takes into account the waterfront area — so that it is not skewed by the larger quantities to the south of the site — gives a better idea of the distribution here. It should be noted, however, that the quantity of material from the squares in this area was quite small. Groups around features 6767, 6776 and 6779 correspond with a density of CBM around these features, and the same is true of building 8179, but there is no marked concentration of fired clay in the area to the west of hearth 5443, where a large amount of CBM was found. Other groups were concentrated around feature 5369, similar in position to one of CBM south of 5025, and

<table>
<thead>
<tr>
<th>Phase</th>
<th>Building</th>
<th>No.</th>
<th>Wt/g</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 / 1.2</td>
<td>8137</td>
<td>10</td>
<td>115</td>
<td>Fragments of possible daub similar to pieces from 9370.</td>
</tr>
<tr>
<td>2.1</td>
<td>8139</td>
<td>2</td>
<td>68</td>
<td>Fragments of daub similar to pieces from 9370.</td>
</tr>
<tr>
<td></td>
<td>7098</td>
<td>15</td>
<td>408</td>
<td>Irregular lumps of grog-tempered clay from a slot.</td>
</tr>
<tr>
<td></td>
<td>8832</td>
<td>1</td>
<td>19</td>
<td>Small abraded fragment.</td>
</tr>
<tr>
<td>2.2</td>
<td>0734</td>
<td>42</td>
<td>505</td>
<td>Includes 9 fragments of hearth lining from a posthole, and 3 of daub from a layer.</td>
</tr>
<tr>
<td></td>
<td>1095</td>
<td>30</td>
<td>392</td>
<td>Fragments of hearth lining from a posthole.</td>
</tr>
<tr>
<td></td>
<td>4886</td>
<td>84</td>
<td>1215</td>
<td>Abraded pieces from layers.</td>
</tr>
<tr>
<td></td>
<td>8131</td>
<td>1</td>
<td>6</td>
<td>A heavily abraded fragment from a posthole.</td>
</tr>
<tr>
<td></td>
<td>8138</td>
<td>14</td>
<td>520</td>
<td>Fragments of hearth lining from a posthole.</td>
</tr>
<tr>
<td>2.3</td>
<td>2921</td>
<td>40</td>
<td>255</td>
<td>Irregular lumps of grog-tempered clay from a slot.</td>
</tr>
<tr>
<td></td>
<td>8927</td>
<td>775</td>
<td>18955</td>
<td>Daub fragments from a spread inside the door, a posthole and a pit.</td>
</tr>
</tbody>
</table>

Table 5.9 Fired clay from buildings by phase
building 4886 which also produced CBM. The highest density, though, is between ditch 6854, fence line 8149 and large pit 3596. The patch tails off slightly in a U-shaped deposit, running south, then east and north-east. There may be a connection with two pits which are covered by part of this (3587 and 3588), and which contained ashy deposits. However this area, as noted above, contained many finds and probably represents a general middening area, either for the waterfront itself or for the structures to the south.

Discussion
Although the range of fabrics at Brandon was slightly different from Carlton Colville (Anderson 2009b) in terms of inclusions, the main types were the same: a soft fine version and a harder medium-coarse version. These seem to have been the basic requirements and could be used in a wide range of functions. It has been noted elsewhere in this report (see Chapter 9.IX) that the main daub fabrics were also the main loom-weight fabrics at Brandon. Local clays were presumably being treated in reasonable quantity and perhaps left to weather before being mixed with organic and mineral fragments using the same basic methods as would be carried out for potting clay or CBM manufacture. The resultant heaps of clay could then have been used for whichever purpose was required at the time.

The largest proportion of fired clay from this site was daub, and most of it appears to represent the remains of two main structures. The most likely use of the material scattered around building 8927 would seem to be for partitions, and there must have been at least two of these, perhaps consecutive to each other rather than contemporary, based on the high degree of abrasion seen on fragments in one of the fabrics. The deposit 9370 is largely in one fabric type, hard and well fired, and it may represent a single structure. The quantity is not enough for a complete building however, so the nature of the structure is uncertain. It is possible that this group belonged to the latest phase of site use. In contrast, Carlton Colville produced significantly less daub because the settlement there flourished slightly earlier than Brandon. The majority of fired clay there appeared to consist of hearth lining material, and there was also a large quantity of flat, slab-like pieces which have been interpreted as crude tiles for use in hearths and oven bases.

Fired clay from the waterfront area does not represent such a significant proportion of the assemblage as does the Roman CBM from this area. Even if the amount is taken as a proportion of the non-daub clay, it still only represents less than a third of the total. This suggests that fired clay had a less specialist purpose than CBM and was just as likely to be used in the domestic as the manufacturing areas of the site.

VI. Iron structural fittings
by Nicola Rogers
Fig. 5.4

**Nails**
Nails were found in quantity across the site, and have been listed rather than individually catalogued. One nail (sfc9942; 2.5m sq.) appears to have been plated: although the plating has not been analysed, it is likely to be tin-plating, as this is known to have been used on nails from the Middle Saxon period (Ottaway 1992, 613), and continued in use into the medieval period (Ottaway and Rogers 2002, 2828).

**Hinges**

**Pinned hinges**
A pinned hinge is formed from a pair of straps that turn on a common pin, and it would most likely have been used on a door, cupboard or chest. Brandon produced two fragmentary pinned hinges (sfc2472, sfc9704) but Saxon examples are generally uncommon, the form being more typically found in the medieval period. A pinned hinge fragment was, however, found at Flixborough (Ottaway 2009a).

*Illustration*
sfc2472 Pinned hinge fragment, comprising central pin and parts of both hinge plates, each with two rivet holes and apparently symmetrical. Layer 0709 (Building 0734), Phase 2.2

**U-eyed hinge straps**
This is an alternative form of hinge with a U-shaped eye and a pair of straps or strap with terminal (Ottaway 1992, 637–9), of which five possible examples, all very fragmentary, were found. Also used with hinge pivots, these straps were typically used on doors or window shutters (Ottaway and Rogers 2002, 2837–8, fig. 1415), becoming common from the late Anglo-Saxon period onwards (Ottaway 2009a); none of the examples from Brandon is from a phased deposit. Two finds also contain other objects of structural ironwork, namely wall hook fragments (see Wall hooks below).

**Hinge pivots**
Three hinge pivots were recovered, though none was found in a phased Anglo-Saxon deposit. These L-shaped objects have a shank for setting in a door-frame and a guide arm on which the U-shaped eye of a hinge strap pivoted (see U-eyed hinges below). Hinge pivots appear generally very scarce in contexts earlier than the 9th century. At 16–22 Coppergate, York for example, only...
seven out of thirty-seven hinge pivots from Anglo-
Scandinavian contexts could be dated before c.925
(Ottaway 1992, 635–7), and a similar scarcity of hinge
pivots was identified in Middle Saxon contexts at
Flixborough (Ottaway 2009a). They appear to become
more frequently used by the Late Saxon period however,
with Thetford producing eight examples (Goodall 1984,
89, fig. 129, 138–45).

Chain links and rings
Chains were made in a range of sizes, depending upon
their functions. A chain comprising links such as sf2476
which measures over 100mm in length, could have held a
considerable amount of weight, and could have had a
variety of uses, including suspension of cooking pots over
the fire, or buckets over wells, as well as for holding open
gates or doors. Some of the smaller rings — for example
sf2416 with a diameter of only 23.5mm — may also have
been parts of chains, or used for suspension of personal
items such as keys, while larger rings such as sf3453 with
a diameter of 65mm could have been ring handles.

Illustration
sf2200  Ring fragment, of sub-rectangular section. Pit 0201, Phase 2.

Wall hooks
Wall hooks are typically L-shaped, with a shank which
would have been driven into a wall or wooden beam, and a
hook at the other end. Sf2582 differs in having a looped
eye at one end, suggesting it may have been nailed or
stapled to a beam. These hooks would presumably have
been used for suspending domestic items such as cooking
pots, clothing etc.

Illustration
sf2582  Hook, with looped eye at upper end, shaft of square section,
lower half of shaft bent at 90°. Context 1071, 1m square.

Miscellaneous hook
The original form of the hook sf2462 is unclear, but it may
have been S-shaped.

VII. Stone
A large weathered sandstone block (sf1829), with signs of
sooting, was recovered from a double post-hole 1534 in
building 2921 (Phase 2.3) and has been interpreted as a
hearthstone re-used as post-hole packing material.
Chapter 6. Household Objects

I. Introduction
This chapter covers items which would have been used largely, though not necessarily exclusively, in household or workshop settings. This includes pottery and other vessels (wood, glass), implements such as flesh hooks and spoons, keys and locks, and box or chest fittings.

II. Pottery
by Paul Blinkhorn

Introduction
The pottery from Brandon is one of the largest and most stratigraphically secure assemblages of one of the most important types of pottery from the Middle Saxon period, Ipswich Ware. Only the group from the production centre in Ipswich, which comprises around 50,000 sherds, is larger, and that assemblage was gathered from a number of excavations in different parts of the town. The Ipswich material is also considerably more disturbed. Unlike the settlement at Staunch Meadow, Ipswich continued as a living settlement from the Middle Saxon period to the present day, with much subsequent disturbance of the Middle Saxon strata, particularly by intense pitting in the Late Saxon and medieval periods. Consequently, most of the Ipswich Ware from the eponymous centre was either redeposited in later features, or stratified in isolated pits or ditches with no stratigraphic relationships with other contemporary deposits.

Ipswich Ware has by far the widest distribution of any native pottery type of the period, occurring in eastern England from Yorkshire to Kent, with the river valleys such as the Ouse, Nene and Thames showing the greatest penetration of the ware inland. The Thames Valley appears to be the southernmost limit of its distribution, apart from a few finds in northern Kent. Most finds of Ipswich Ware outside East Anglia are from high status deposits.

In East Anglia, Ipswich Ware appears to have functioned as the ‘local’ pottery for the whole kingdom, despite appearing to have been made only at Ipswich itself. Certainly, at sites as far west as Ely (e.g. Blinkhorn 2005), Ipswich Ware is — a few sherds of hand-made material and the odd continental import aside — the only Middle Saxon pottery found at sites of the period.

At Brandon, the large deposits of Ipswich Ware in the occupation horizons, ditches and islands meant that the site presented a unique opportunity to examine large groups of stratified pottery to see if there were typological traits which could provide refined chronological information, and also, with the areas of different function at the site being so clearly defined, to look for any status-related patterns in the use and deposition of the material.

Analytical methodology
The pottery was initially bulk-sorted and recorded on a computer using DBase IV software. The material from each context was recorded by number and weight of sherds per fabric type, with featureless body sherds of the same fabric counted, weighed and recorded as one database entry. Feature sherds such as rims, bases and lugs were individually recorded, with individual codes used for the various types. Decorated sherds were similarly treated. In the case of the rimsherds, the form, diameter in mm and the percentage remaining of the original complete circumference were all recorded. This figure was summed for each fabric type to obtain the estimated vessel equivalent (EVE).

The terminology used is that defined by the Medieval Pottery Research Group (MPRG 1998) and recording was carried out to their minimum standards (MPRG 2001). Ipswich Ware rim typology follows West (1964). Statistical analyses were carried out using a DBase package written by the author, which interrogated the original or subsidiary databases, with some of the final calculations made with an electronic calculator. All statistical analyses were carried out to the minimum standards suggested by Orton (1999, 135–7).

The assemblage
The post-Roman pottery assemblage comprised 21,817 sherds with a total weight of 651,532g. The estimated vessel equivalent (EVE), by summation of surviving rimsherd circumference was 522.73. Of this, 21,507 sherds (647,329g) were of Saxon date. Information on later material is summarised in Chapter 11.II and a full quantification is available in archive. Table 6.1 summarises the quantification by fabric.

Early/Middle Saxon (E/MS) hand-built wares (F1), AD 450–850
Hand-built wares with a wide range of fabrics were made primarily at a domestic level in most areas of Anglo-Saxon England.

A variety of fabrics was present, although the majority of sherds were tempered with fine to medium sand and contained few other inclusions apart from sparse flint. Some granite-tempered sherds were present and a few had organic inclusions, whilst one was tempered with coarse shell. Fragments were mainly plain body sherds, although the fragment of a pedestal base, a few rimsherds with simple profiles and two tiny sherds with decoration were also recorded. It should be noted, however, that the presence of Iron Age pottery on the site makes certain identification of E/MS hand-built pottery extremely problematic. Iron Age vessels do occur in a sandy fabric which is very similar to that of the E/MS pottery (see Chapter 3.IV); certainly, the same clays and technology were used in both periods, and it is only feature sherds such as rims, bases or decorated examples which allow certain identification to a period. It is a common problem with the pottery of the two periods in Suffolk. In the case of the Brandon material, there was a degree of subjectivity involved in the dating of hand-built sandy pottery. The fact that relatively large groups of hand-built pottery occurred near the building which produced the 7th-century radiocarbon date (Chapter 2.II) is encouraging, but that...
Sherds comprised a total EVE of 3.94, of which just 0.34 (Blinkhorn 2005), the Ipswich Ware assemblage of 220 handful of sherds. For example, at West Fen Road, Ely and at the few other sites which have produced more than a vessel form, a pattern which is repeated in Ipswich itself, Jars were by far the commonest type of Ipswich Ware Fig. 6.1 Jars Vessel types analysis suggests that they are made from the same clay. which are characteristic of this group, and chemical the same groundmass but lack the larger quartz grains them quite rough to the touch. However, some sherds have prominent feature is a scatter of large quartz grains (up to 2.5mm) which either bulge or protrude through the surfaces of the vessel, giving rise to the term ‘pimply’ Ipswich Ware (Hurst 1959, 14). This characteristic makes them quite rough to the touch. However, some sherds have the same groundmass but lack the larger quartz grains which are characteristic of this group, and chemical analysis suggests that they are made from the same clay. 

Vessel types
Jars
Fig. 6.1 Jars were by far the commonest type of Ipswich Ware vessel form, a pattern which is repeated in Ipswich itself, and at the few other sites which have produced more than a handful of sherds. For example, at West Fen Road, Ely (Blinkhorn 2005), the Ipswich Ware assemblage of 220 sherds comprised a total EVE of 3.94, of which just 0.34 (8.6%) were vessels other than jars. At Brandon, jars represented 95.8% of the Ipswich Ware assemblage. As is usually the case, decoration was absent, other than burnishing and finger-grooving on the shoulders, with the former limited to large jars. The mean rim diameter of the Ipswich Ware jar assemblage was 148mm (SD = 28.76mm).

<table>
<thead>
<tr>
<th>Description</th>
<th>Fabric</th>
<th>No.</th>
<th>Wt (g)</th>
<th>EVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early/Middle Saxon hand-built wares</td>
<td>F1</td>
<td>152</td>
<td>1582</td>
<td>1.23</td>
</tr>
<tr>
<td>Ipswich Ware Group 1 (‘sandy’)</td>
<td>F2</td>
<td>11801</td>
<td>350181</td>
<td>296.72</td>
</tr>
<tr>
<td>Ipswich Ware Group 1 (Buttermarket type)</td>
<td>F72</td>
<td>104</td>
<td>3982</td>
<td>5.41</td>
</tr>
<tr>
<td>Ipswich Ware Group 2 (‘gritty’)</td>
<td>F3</td>
<td>8382</td>
<td>274991</td>
<td>195.90</td>
</tr>
<tr>
<td>Ipswich Ware Group 2 (Buttermarket type)</td>
<td>F73</td>
<td>119</td>
<td>5152</td>
<td>10.7</td>
</tr>
<tr>
<td>Maxey-type ware</td>
<td>F97</td>
<td>4</td>
<td>188</td>
<td>0.20</td>
</tr>
<tr>
<td>‘North French Blackwares</td>
<td>F10</td>
<td>12</td>
<td>267</td>
<td>0.19</td>
</tr>
<tr>
<td>Tating Ware</td>
<td>F11</td>
<td>27</td>
<td>408</td>
<td>0.48</td>
</tr>
<tr>
<td>Badorf Ware</td>
<td>F12</td>
<td>14</td>
<td>300</td>
<td>0.08</td>
</tr>
<tr>
<td>‘Wavy line’ ware</td>
<td>F13</td>
<td>23</td>
<td>385</td>
<td>-</td>
</tr>
<tr>
<td>Thetford Ware</td>
<td>F4</td>
<td>817</td>
<td>8692</td>
<td>9.79</td>
</tr>
<tr>
<td>Ipswich Thetford-type ware</td>
<td>F5</td>
<td>3</td>
<td>77</td>
<td>0.11</td>
</tr>
<tr>
<td>St Neots Ware</td>
<td>F100</td>
<td>20</td>
<td>125</td>
<td>0.24</td>
</tr>
<tr>
<td>Lincoln Kiln-type ware</td>
<td>F101</td>
<td>12</td>
<td>247</td>
<td>0.16</td>
</tr>
<tr>
<td>Stamford Ware</td>
<td>F205</td>
<td>12</td>
<td>323</td>
<td>0.12</td>
</tr>
</tbody>
</table>

Table 6.1 Saxon pottery quantification by fabric

area of the site also produced Iron Age pottery and features. There is no question that some of the hand-built pottery is Anglo-Saxon; the decorated sherds and the pedestal base are evidence of that, but it is possible that some of the small, plain sherds may have been misidentified, so a degree of uncertainty must remain.

The hand-made wares include three possible crucible fragments recovered from Phase 2.2 church 8851 (contexts 7858 and 7859, the latter a spread of charcoal) and a 2.5m grid square (3251) in the waterfront area.

Ipswich Ware, AD 720 to mid 9th century
Ipswich Ware is a Middle Saxon, slow-wheel made ware, manufactured exclusively in Ipswich. There are two main fabric types, although individual vessels which do not conform to these groups also occur.

Group 1 (F2): Hard and slightly sandy to the touch, with visible small quartz grains and some sherds of mica. Frequent fairly well-sorted angular to sub-angular grains of quartz, generally measuring below 0.3mm in size but with some larger grains, including a number which are polycrystalline in appearance.

Group 2 (F3): Like the sherds in Group 1, these are hard, sandy and mostly dark grey in colour. Their most prominent feature is a scatter of large quartz grains (up to c.2.5mm) which either bulge or protrude through the surfaces of the vessel, giving rise to the term ‘pimply’ Ipswich Ware (Hurst 1959, 14). This characteristic makes them quite rough to the touch. However, some sherds have the same groundmass but lack the larger quartz grains which are characteristic of this group, and chemical analysis suggests that they are made from the same clay.

Illustrations

- B5: Group 1 fabric, few visible inclusions. Jar. Light grey with variegated darker grey and orange outer surface. Spot-find 4874, from layer 4840 in building 4886, Phase 2.2.
- B9: Group 1 fabric, few visible inclusions. Light grey fabric with darker surfaces. Small jar. Thin and patchy sooting on outer surface. 2.5m sq. 5373, Phase 2.3.1.
- B11: Group 1 fabric, few visible inclusions. Small jar. Uniform grey fabric. Patches of sooting on outer surface. 2.5m sq. 5356, Phase 2.3.1.
- B12: Group 2 fabric, moderate sub-rounded quartz up c.1mm. Small jar. Outer surface completely smoke-blackened. Inner surface progressively more blackened up the body, base-pad clean. Pit 1231, unphased.
- B14: Group 1 fabric, few visible inclusions. Small jar. Pale grey fabric with darker surfaces, a few small patches of sooting on the outer surface. 2.5m sq. 6962, Phase 2.3.1.
- B16: Group 1 fabric, few visible inclusions. Small jar. Uniform dark grey fabric, a few small patches of sooting on the outer surface. 2.5m sq. 6776, Phase 2.3.1.
B18 Group 1 fabric, few visible inclusions. Small jar. Light greish-brown fabric with darker outer surface. Evenly smoke-blackened on outer surface above the waist. 2.5m sqs 5365 and 5372, Phase 2.3.1.


B21 Group 2 fabric, moderate sub-rounded quartz up to 2mm. Jar. Light grey fabric with brownish-grey surfaces. Evenly smoke-blackened on outer surface above the waist. 2.5m sq. 4330.


B25 Group 2 fabric, moderate sub-rounded quartz up to 1mm, rare flint up to 2mm. Light grey fabric with reddish-brown margins and darker outer surface. Patches of smoking on outer surface, although they respect the sherd-breaks and seem likely to be post-breakage. Ditch 3816 (comp 8168), Phase 1.2.

Illustrations

LV1 Group 2 fabric. Light brown fabric with darker surfaces. Patchily sooted externally on lower half. Diameter of perforation 10mm. 2.5m sqs 5239 and 5361, Phase 2.3.1.

LV2 Group 2 fabric. Light to mid grey inner core with clear pale orange/light brown external margin. Diameter of perforation 12mm. Slight external sooting around the rim area. Layer 5215, peninsula 6005, Phase 2.1.1.

LV3 Group 2 fabric. Reddish brown fabric with light grey core and dark grey external surface. Worn internally. Applied vertical lug with diameter of perforation 13mm. Spot-find 5820, 2.5m sq. 4680, Phase 2.3.1.

Bows

Bows, as is usually the case with any Ipswich Ware assemblage, were rare. Just seven bowl rims were noted, one of which was an extremely unusual, and probably unique, oval vessel in a Group 1 fabric with a type II.K rim form. The other six vessels had a total EVE of 0.66, of which four were in Group 1 fabrics, and all had type I.A rims (EVE 0.42), and the other two were Group 2 fabrics, one with a type I.A rim (EVE 0.10) and the other type II.K (EVE 0.14). They all fell in the 140–180mm diameter range, with a mean diameter of 163mm.

Only two occurred in phased groups, and thus very little can be said about their significance.

Pitchers

A stamped pitcher was noted with a somewhat unusual ‘double step’ longitudinal blind lug. A near complete stamped pitcher from Lurk Lane, Beverley had a similar form, although the second ‘step’ of the lug was missing (Blinkhorn 1991). It is associated with a coin hoard of the mid 9th century, so it is possible that this may be a late form. Another example is known from Wakerley in Essex (Hurst 1976, fig. 7.8), but such vessels are generally rare. The vessel from Brandon was from an unphased context (5883).

Another, perhaps unique, pitcher was a spot-find (Fig. 6.2, IP2). The vessel was not only completely oxidised, but had a pouring shield running backwards and upwards from the area of the rim behind the spout, at an angle of about 45 degrees. A small number of Ipswich Ware pitchers are known with internal flanges (e.g. the Wakerley example, Hurst 1976, fig. 7.8), but these are usually attached below the top of the rim, not running up from it like this example.

Illustrations

B41 Group 2 fabric, moderate sub-rounded quartz up to 2mm, moderate silver mica. Large baggy pitcher. Light grey fabric with dark grey, lightly burnished outer surface. Ditch 3816 (comp 8168), Phase 1.2.


Generally, lugged Ipswich Ware jars were larger than the majority of vessels without such features. Past work, and also the evidence from this site, has indicated that jars only had the lugs mounted on the rim, with the longitudinal, body-mounted lugs being the sole preserve of pitchers.

Jars with pierced rims and lugged vessels

Fig. 6.2

Thirty jar rimsherds were noted with pierced rims. Usually, the holes were pierced with a round-profile object before firing, but a single example was noted with a hole which had been made by a square-sectioned tool, and another which had been drilled through after the vessel had been fired.

It is presumed that a hole was made on either side of the vessel to allow suspension, but no vessels were found which were complete enough to confirm this. The two examples of sherds with a post-firing hole, when joined, did not have a corresponding hole on the other side of the break, showing that the holes were not made to allow broken vessels to be rejoined with wire or lead rivets.

If the vessels were pierced to facilitate carrying or suspension, they show differences in both fabric and form to the vessels with rim-mounted lugs. The pierced vessels occurred in similar quantities in terms of fabric (Group 1 EVE 2.21, Group 2 EVE 2.33). Lugged vessels, however, were mainly in Group 2 fabrics (Group 1, EVE 1.43, Group 2 EVE 4.56). A chi-squared test suggests that this difference is not significant. However, based on vessel size, pierced vessels showed significant differences to the lugged vessels. The pierced vessels had a mean rim diameter of 167mm (SD = 22.46), compared with the lugged vessels, which had a mean diameter of 213mm (SD = 31.80). This shows that the jars with pierced rims had a much more restricted size range than the lugged vessels, and that, generally, it was average-sized vessels which were pierced, and not the largest or smallest examples in the Ipswich Ware jar size range. On average, the pierced and lugged vessels were slightly larger than other jars.

The reason for piercing vessels for suspension, rather than applying lugs, would therefore seem to be vessel size. The vessels with applied lugs were generally larger than those which were simply pierced, so it would seem that lugs were applied to strengthen the point of suspension, to lessen the chances of the rim breaking at the suspension point due to the weight of the pot and its contents.
Lid
One lid was identified (EVE 0.38), occurring in three contexts (2.5m sqs 3535 and 3478, and unstratified 3808). It is in the Group 2 fabric.

Lamps
Fig. 6.2
Twelve rimsherds (EVE 2.04) and five base fragments which are likely to have been from lamps were noted. It is not certain that these vessels were used for that function, but their unusual form and the presence of thick burnt residues on the interior of them makes it the most likely interpretation. The vessels are basically splayed bowls with a thick, heavy slab base, which would make the vessels extremely difficult to knock over, and they would also sit securely on an uneven surface, both of which would perhaps be desirable for vessels containing a naked flame in a timber and straw building. Some of the vessels also had thick, burnt residues on the inner surface, with no sign of sooting or scorching on the outer, indicating that they had not been placed on a heat source. This is a pattern usually seen on lamps from other periods.

None of the lamps was in a well-phased context, so it is difficult to draw any conclusions about any chronotypological significance that they may have.

The rim diameters fell in the range 100–180mm, with most in the 140–160mm range (mean 145mm). All but three were in Group 1 fabrics. Most had type I.A rims, although one each in types I.C, II.F and II.K were also noted.

Illustrations
L3 Group 1 fabric. Uniformly brown/grey with internal sooting/residue and slight external sooting. Base almost flat, chamfered consistently around the bottom edge. Layer 5732, peninsula 6892, Phase 2.

Buttermarket-type wares
Fig. 6.3
Manufactured at a kiln in the heart of Ipswich, Buttermarket-type ware comprises a range of jars, jugs and highly-decorated bottles which are of quite different forms to ‘standard’ Ipswich Ware (Blinkhorn 1990), but have the same basic fabrics (recorded here as F72 for Group 1 and F73 for Group 2) and are assumed to have a similar chronology.

Brandon has produced the largest assemblage of Buttermarket-type Ipswich Ware outside the production centre. The group, as with ‘standard’ Ipswich Ware, is dominated by jars (EVE 10.65), with pitchers (EVE 1.08) and bottles (EVE 4.38) making up the rest of the assemblage.

The Buttermarket-type jars are different in form to the standard Ipswich Ware examples, tending to be squatter and wider, with a mean rim diameter of 156mm. The Buttermarket vessels also show other form differences,
with generally shorter rims and bases which sag much less, to the extent that some appear flat, and have wire marks where they have been cut from the potter’s turntable with a ‘cheese wire’, which is a common occurrence on Late Saxon Thetford-type wares. They also tend to have slightly different decoration — whereas Ipswich Ware is often horizontally finger-grooved above the shoulders, Buttermarket-type jars tend to have horizontal lines which are usually much thinner, and often deeper, and appear to have been cut with a tool rather than the potters’ fingers. The bottles and jars also show evidence of their construction; on the inner surface there is usually a sharp angle and smoothing, where a coil of clay to form the neck and rim was luted to the body.

The decoration of the bottles and pitchers from this site shows no major differences to that on the vessels of the production centre. Most have groups of multiple horizontal cordons, while a very few have swags and vertical and horizontal schemes, again combed (Fig. 6.3).

Buttermarket jars also appear to have upright lugs more often than is the case with standard Ipswich Ware; an EVE of 10.65 Buttermarket jars were noted, of which an EVE of 1.6, or 15.0% were lugged. In the case of the standard Ipswich Ware assemblage, of an EVE of 476.61, just 5.81, or 1.2%, had upright lugs.

Illustrations


B3  Group 1 fabric, few visible inclusions apart from rare flint and red ironstone up to 2mm. Buttermarket bottle. Light grey fabric with greyish-brown surfaces and orange margins. Vertical combing on the shoulders. 2.5m sqs 3330, 3370 and 3374.

B4  Group 1 fabric, few visible inclusions except for sparse, fine silver mica. Body sherd from Buttermarket jug or bottle. Pale grey fabric with brick red margins and dark grey outer surface. Outer surface lightly and evenly burnished and decorated with combed diagonal slashes and horizontal cordons. Spot-find 5486, layer 5417 (peninsula 8116), Phase 2.2.


Fabric and form typology and vessel use

Figs 6.4–6.6

The basic Ipswich rim form and vessel typology was established many decades ago (Dunning et al. 1959; West 1964). A previously unknown type, Buttermarket-type Ipswich Ware, was discovered along with the kiln in which it was made, in the late 1980s (Blinkhorn 1990). However, any chronological significance that the various vessel forms may have is, as yet, unknown, simply because there has never been a suitable assemblage to carry out such work. Brandon now offers an opportunity.

As noted above, jar forms are by far the commonest vessel type, comprising 95.8% of the assemblage by EVE, with bowls (0.1%), pitchers (2.6%), bottles (0.9%), lids (0.1%) and lamps (0.4%) making up the rest of the assemblage.

Table 6.2 shows that there does seem to be some correlation between fabric and rim form. Jars with type I.A rims, one of the commonest forms, are mainly in Group 1 fabrics; 91.8% of such rims occur in those fabrics. The opposite is true of type II.K rims. In this case, 88.5% of vessels with such rims occur in Group 2 fabrics. These data appear significant. The mean diameter of vessels with I.A rims is 139mm, whereas that of the vessels with II.K rims is 172mm. The rim diameters of the two fabric groups for the vessels with I.A rims are approximately the same, with both groups having a mean rim diameter of just over 139mm, but in the case of the jars with type II.K rims, the mean size of the small number of Group 1 vessels is larger than average at 161mm, but the Group 2 vessels are larger still, having a mean diameter of 174mm. This would suggest that the Ipswich Ware potters tended to favour Group 2 fabrics for the manufacture of large vessels.

Generally, Group 2 vessels have larger rim diameters than Group 1 examples, with the mean diameter being around 13% larger. In almost every case, the mean rim diameters for Group 2 jars are larger than those for Group 1 in the corresponding form class, and in some cases the difference is extreme. The best example of this is rim type II.G, where the Group 2 jars have a mean rim diameter of 189mm, compared with 138mm for the Group 2 vessels.

This is also demonstrated in Figure 6.4, where 81.9% (EVE 236.88) of the Group 1 assemblage has rim diameters of 140mm or less, whereas the figure is only 51.2% (EVE 95.95) for jars in Group 2 fabrics.

This is further supported by the data for the lugged jars. Such vessels are generally larger than jars without lugs (Fig. 6.5), having a mean rim diameter of 213mm. The total EVE for such vessels at Brandon is 5.81, of which 4.57 is in Group 2 fabrics, and just 1.24 are Group 1. This means that around four times as many lugged jars
occur in Group 2 fabrics than Group 1, despite the fact that Group 1 jars are much more common, comprising over 60% of the jar assemblage.

There seems little doubt, therefore, that Ipswich Ware consumers at Brandon preferred larger vessels in Group 2 fabrics, and it appears likely that the potters themselves made a conscious selection, as they could not have been unaware of the different properties of the two fabrics. On the whole, Group 2 vessels appear to be harder than Group 1 vessels. The protruding grits show that the clay shrank fairly dramatically during firing, resulting in a denser, less porous fabric. This would make such clays more suitable for the manufacture of vessels intended for the long-term storage of liquids in particular, a common use for large jars in most cultures at most times (Rice 1987, 208–10), but such vessels were also ideal for cookery. Certainly, the vessels with opposed upright lugs on the rim, which were mainly large and in Group 2 fabrics, would have been ideal for suspension over a fire, and many of the vessels of this type at Brandon are indeed sooted.

Further evidence is suggested by the fabrics chosen for pitchers. The pitcher rims from the site have a total EVE of 12.39, of which 5.23 are in Group 1 fabrics, and 7.16 are Group 2 fabrics (Table 6.3). Once again, Group 2 vessels are more common, despite vessels in Group 1 being in the majority at the site overall. This is further evidence that Group 2 fabrics were known to be less porous than Group 1, and thus preferred for vessels for containing liquids.

Finally, the data for burnished sherds merits consideration in this area. Burnishing, the act of polishing leather-hard pottery with a pebble or similar, is known to help reduce porosity. Here, 15,217g (69.6%) of Group 2 sherds showed evidence of burnishing, but only 4,488g of Group 1 sherds. This is despite the fact that a proportion of the Group 2 sherds have large protruding quartz grits, leading to a much less evenly burnished surface, and thus a less aesthetically pleasing (to our eyes) finish. The fact that such an uneven proportion of Group 2 sherds were burnished suggests that, rather than aesthetics, the makers and users were concerned with reducing the porosity of Group 2 vessels as much as possible, which again suggests that they were primarily used for the storage of liquids. Certainly, the mean rim diameter of burnished jars (both fabrics combined) at Brandon is 176mm, which is considerably larger than the average for jars at the site.

The reverse of this is the fact that small jars tend to be in the more porous Group 1 fabrics, suggesting that such vessels were not intended for liquid contents, or if so, they only held their contents for a short time. This would suggest that they had a multiplicity of uses, including the consumption of individual portions of food and drink.

The evidence from the analysis of organic residues in over fifty samples of Ipswich Ware suggests that vessels of all sizes seem to have held a similar range of contents (Blinkhorn forthcoming a). Some vessels produced no residues at all, suggesting they were used for storing or consuming liquids, others produced evidence of meat fats,
Figure 6.4  Ipswich Ware rim diameters, jars, both fabrics, all periods (EVE)

Figure 6.5  Ipswich Ware rim diameters, lugged jars, both fabrics, all periods (EVE)

Figure 6.6  Ipswich Ware rim diameters, Buttermarket jars, all periods (EVE)
and a very few yielded evidence of once having held beeswax and leafy vegetables, suggesting storage and cookery. Size did not seem to be a factor, with the obvious interpretation being that the large vessels were used for storage and cookery, and the small vessels for consumption.

Many jars of all sizes and fabrics show smoke-blackening above the waist.

Summary

- Vessels in Group 1 fabrics are more common than in Group 2
- Vessels in Group 2 fabrics are generally larger than those in Group 1
- Pitchers are more numerous in Group 2 fabrics than Group 1
- Burnished vessels are far more common in Group 2 fabrics than Group 1
- Type I.A rims are mainly limited to vessels in Group 1 fabrics, and vessels with such rims tend to be smaller than average
- Type II.K rims tend to occur on larger than average vessels, with those in Group 2 fabrics, on average, being larger than those in Group 1
- Type II.G rims tend to occur on very large vessels in Group 2 fabrics, but smaller ones in Group 1 fabrics
- Lugged vessels are four times as likely to be in a Group 2 fabric than a Group 1 type

Buttermarket-type Ipswich Ware

Figure 6.6 shows the rim diameter distribution for Buttermarket-type jars. The presence of a secondary peak in the 161–180mm category suggests that there may have been two favoured sizes of vessel. Lugged Buttermarket jars had a mean rim diameter of 180mm, whereas the unlugged sherds had an average mean diameter of 153.06mm. This generally reflects the trends for standard Ipswich Ware (see above), but there are, pro rata, considerably more lugged vessels, and it is these which appear to be causing the secondary peak in the data.

Vessel consumption by phase

The data in Table 6.4 show the pattern of Ipswich Ware vessel consumption at Brandon by phase. It suggests that jars were the only vessel type in use at the site during Phases 1.1 and 1.2, and that pitchers, large jars and bottles represented larger proportions of the assemblage in Phase 2.1. After that, small jars gradually became more common again. Large jars are those with a rim diameter of 180mm; previous studies by the author (Blinkhorn forthcoming a) suggest that vessels of that size and above were consumed at a rate which suggests they had a different function than smaller jars.

The data also suggest that Ipswich Ware pitchers were not manufactured during the early part of the life of the industry, or at least were not consumed at Brandon. However, the relatively small size of the earlier Ipswich Ware assemblages means that this cannot be said with certainty.

Maxey-type ware (F97)

The exact chronology of this ware is uncertain, but it is generally dated c.AD 650–850 (e.g. Hurst 1976). It is wet-hand finished with reddish-orange to black surfaces, and the fabric is soft to fairly hard, with abundant Jurassic fossil shell platelets up to 10mm. Vessels are usually straight-sided bowls with simple rims, and/or ‘bar-lugs’.

Fabric and forms suggest that the vessels from Brandon are from both south-east Midlands and Lincolnshire sources; the three body sherds that were present were in non-Jurassic limestone fabrics, whereas the only feature sherd was a bar-lug with a Jurassic limestone temper. The latter is typical of the Midlands tradition.

Middle Saxon imported wares

Table 6.4 Ipswich Ware vessel consumption, by phase, % of EVE

<table>
<thead>
<tr>
<th>Phase</th>
<th>Jars (%)</th>
<th>Bowls (%)</th>
<th>Pitchers (%)</th>
<th>Large jars (%)</th>
<th>Bottles (%)</th>
<th>Total EVE</th>
</tr>
</thead>
<tbody>
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<td>1.1</td>
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<td>0</td>
<td>0</td>
<td>4.9</td>
<td>0</td>
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<td>8.5</td>
<td>3.2</td>
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</tr>
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<td>0.2</td>
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<tr>
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<td>96.58</td>
</tr>
<tr>
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<td>0</td>
<td>0</td>
<td>0</td>
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<td>0.61</td>
</tr>
</tbody>
</table>

Illustration

Tating Ware (F11)
These wheel-thrown sandy wares have a fabric, form and finish very similar to North French Blackware, and are dated 8th–9th century. The vessels are distinguished by having lozenge-shaped or linear pieces of tin- or, very rarely, gold-foil decoration glued to the outer surface in geometric patterns. The tin has usually degraded, leaving just the whitish glue behind (Hodges 1981, 65). Variation in fabric suggests a number of sources, some in the Rhineland, others possibly in France (Blackmore 1989, 87). The ware was divided into three groups in the 1950s (Hodges 1981, 65), based mainly on form and fabric colour, but more recent finds suggest that this is not a satisfactory classification.

Tating Ware, with the exception of the large assemblage known from the trading port of Dorestad at the mouth of the Rhine, is extremely rare at sites in western Europe, although it does occur frequently in Scandinavia (Slowikowski 1991, 130). This can be put into perspective by the fact that the only finds from Britain other than at the wics are from Old Windsor, Jarrow, North Elmham, Wharram Percy, Winchester, Wicken Bonhunt, Bedford, Terrington St Clement, Middle Harling and Maidenhead. Most of the known vessels are jugs, but a small jar was noted at Lake End Road, Maidenhead (Blinkhorn 2002), and a bowl occurred in Ipswich (Wade 1988, fig. 55.5). Most of these sites were places of some importance in the Middle Saxon period. Old Windsor was a royal centre, North Elmham, Jarrow and Winchester had important ecclesiastical centres, and the other sites seem to have been either production centres or ‘gathering places’, i.e. perhaps seasonal fairs or markets.

Here, most of the assemblage appears to be sherds from a single jug (Fig. 6.7, TW1), which occurred in a number of contexts, most of which were close to the medieval enclosure ditch.

This is one of the most complete Tating Ware vessels ever found in Britain; most of the others are represented by just a few sherds, with the overall form and scheme of decoration unclear. For example, a vessel from Old Windsor (Dunning et al. 1959, fig. 24) appears to be largely a reconstruction, although the site is not yet published and this is therefore uncertain, and the North Elmham vessel was represented by just a handle (Wade 1980, fig. 228.8).

Illustration
TW1 Tating Ware vessel. Grey fabric with black surfaces, outer burnish, applied tinfoil decoration, although most has decomposed, leaving only the glue. Spot-finds 3542 (grid sq. 9057), 2407 (2.5m sq. 4164), 4697 (grid sq. 9157), and linear feature 3942.

Badorf Ware (F12)
A fine to coarse, white/buff to orange sandy fabric, sometimes with volcanic rock inclusions. Vessels are usually pitchers or large amphorae with applied strips and/or rouletting. Produced at a number of centres in the Rhineland, around Cologne, Mayen and Badorf, the chronology remains uncertain, but is likely to be early 8th–late 9th century.

Most of the pottery of this type from Brandon was from a single vessel (Fig. 6.7, BW1), a fine rouletted pitcher, most of which was unstratified.

Illustration
BW1 Jar with rouletting. sf2396, unstratified 0001.

‘Wavy line’ ware (F13)
A number of sherds were noted from Middle Saxon contexts which do not fit easily into any known ware group, but have a range of characteristics which suggest that they are imports:

A relatively large group of the unprovenanced material comprised sandy wares from globular vessels with rows of incised wavy line decoration (Fig. 6.7, WL1 and 2). The fabric has many similarities with the North French Blackware group, comprising fine, sparse to moderate quartz and sparse red and/or black iron oxide, and the vessels are generally wheel-thrown, although the walls are rather thick, up to 5mm, whereas imported Blackwares are usually much thinner. These vessels were generally grey with orange surfaces, although a few fully reduced sherds
were noted. They were, unlike the continental vessels, all unburnished. The forms were difficult to ascertain as no complete vessels were noted, but the body sherds suggest a generally globular form, possibly pitchers or bottles, with the latter perhaps more likely as rims, handles and spouts were completely absent.

No parallels for this material could be found in the published assemblages from Middle Saxon sites with fairly large imported assemblages such as London (Blackmore 1988; 1989), Southampton (Hodges 1981), Fishergate, Norwich (Ayers 1994) or Fishergate, York (Mainman 1994). There are some similarities with Buttermarket-type Ipswich Ware in terms of form and the lavish decoration, but the fabric of the Buttermarket vessels is considerably sandier, and shows clear throwing rings on the inner surface. In addition, iron oxide is extremely rare in the fabric of Buttermarket-type ware, and decoration is generally angular rather than curved; none of the vessels from the kiln site had wavy line decoration in the style of these vessels. The Buttermarket vessels are also usually highly burnished.

The closest parallels, in terms of form and decoration, are some of the wheel-thrown bottles known from 6th- and 7th-century graves in England (primarily Kent) and the Continent (Evison 1979). Some of the ‘Frankish’ type were still in use in the 8th century (Evison 1979, 31) However, there are again major differences. Most of the vessels of that type are thin-walled, with reduced fabrics and burnished and/or rouletted surfaces. Wavy line decoration like the examples from Brandon is rare. Vessels with wavy line decoration have been found in England at Asthall, Wingham, Howletts, Strood and Sarre (Evison 1979, fig. 10), and unprovenanced vessels with such decoration are held by the museums in Cologne, Bonn and Laon (Evison 1979, figs 29–30) and another occurred in grave 53 at the cemetery at Bergeyk in Holland, but these are by no means identical; the wavy lines are combed rather than comprising a single line, all but one of the vessels is burnished, and most are reduced rather than oxidised. Again, the sherds from Brandon show too many differences to be regarded as part of this tradition.

Their provenance must therefore remain a mystery; stylistically, and in terms of fabric, they are closest to North French vessels, but are considerably cruder. It is possible that they are an English imitation, but the fabric and lack of parallels rule out production at Ipswich or any of the other major Middle Saxon centres of the period.

Illustrations

Late Saxon pottery

Thetford Ware (F4)
A range of reduced, wheel-thrown and hand-finished fabrics mainly comprising quartz sand up to 1mm. Produced at many centres in eastern England (e.g. Hurst 1976), although most of the Brandon examples appear to be the products of the eponymous Norfolk centre (Rogerson and Dallas 1984).

The range of vessel types is largely what would be expected from a Late Saxon site in the region. It is dominated by jars (92%, EVE 9.01), with small quantities of bowls (1.4%, EVE 0.14), jugs (3.3%, EVE 0.32) and storage jars with applied thumbed strips (3.3%, EVE 0.32).

Ipswich Thetford Ware (F5), ?AD 850–1100
Similar to the Thetford type, although generally a smoother, finer fabric. Vessels tend to have flat rather than sagging bases, and rouletting is extremely rare, with vessels usually having finger-grooving on the shoulders. A single jar rim with an everted profile was noted. It is typical of the tradition.

St Neots Ware (F100), AD 900–1100
The fabric comprises moderate to dense finely crushed fossil shell, with varying quantities of quartz and/or ironstone, usually purplish-black, black or grey, with fairly fine, dense inclusions. The main forms are small jars with sagging bases, although a few lamps are known.

Denham (1985) defined four different fabrics, each of which has a different chronology.

Four rimsherds were noted, all of which had a rim diameter of 180mm or greater. The earliest St Neots Ware jar forms tend to be smaller, and this, and the range of fabric types present, suggest that the material was not arriving at the site until after the beginning of the 10th century. The earliest fabric type defined by Denham is not present at this site.

Lincoln Kiln-type ware (F101), late 9th–late 10th century
A wheel-thrown shelly ware, with common fine red iron ore and rare quartz grains (Miles et al. 1989), in the full range of Late Saxon vessel types. The assemblage from this site comprised a rimsherd from a large jar (340mm diameter), a fragment of a lamp, and a single rouletted body sherd. Such pottery was made throughout the life of the industry.

Stamford Ware (F205), c. AD 900–1200
A wheel-thrown white, pink, buff or grey fabric, usually with sparse to dense quartz up to 0.5mm, occasional black or red ironstone up to 1mm. The typical forms of jars, bowls, Pegeaux pitchers, cups, crucibles and candlesticks are often glazed with yellow, pale or sage green glaze (Kilmurry 1980).

The assemblage comprises mainly body sherds from glazed vessels, with just a single rimsherd (Fig. 6.7, ST1), from a jug. Such pottery is typical of the products of the industry during the late 10th–12th centuries.

Illustration
ST1 Stamford Ware jug rim. sf5618, 2.5m sq. 5051, Phase 2.3.1.

Pottery by site phase
The pottery occurrence by weight per stratigraphic phase is shown in Table 6.5. The Maxey, Lincoln Kiln and St Neots Ware sherds were all from unphased contexts, so are not included.

The data for the occurrence of the different Ipswich Ware fabrics show a somewhat erratic distribution. In the earliest phase of the site, Phase 1.1, Group 1 (F2) fabric dominates, but in the next, Phase 1.2, the reverse is true, with Group 2 (F3) fabric by far the commonest. Over time, Group 1 fabrics then gradually increase once again as a
proportion of the assemblage, until they again are by far the commonest type in Phase 2.4.

Buttermarket-type wares (F72/F73) are completely absent from the earliest phase of the site, and peak in Phase 2.1, where they represent 6.1% of the assemblage. This shows that the Buttermarket manufactory must not have started production until after the beginning of the industry, although an absolute chronology is not yet forthcoming. Originally, Buttermarket-type wares were thought to be of 9th-century date (Blinkhorn 1990), but recent analysis of the excavation has shown that there was an error in the numismatic dating of a cemetery which preceded the pottery manufactory, and the kiln can now only be said to date to the 8th century or later (Scull 2009, 257–70).

Thetford Ware (F4) occurs in small quantities in Phases 2.2 and 2.3, with the material likely to be intrusive. It is only during Phase 2.4 that it represents a significant proportion of the pottery assemblage, and then only 8.6%.

The data in Table 6.6 show the Ipswich Ware rim form occurrence over time, by fabric types, in EVE, for small jars, i.e. jars with a rim diameter of 180mm or less. This exercise was not carried out for the other Ipswich Ware vessel types as the assemblage sizes were too small to produce meaningful results.

The data show that there is no clear pattern to the consumption of the various different rim forms, although there is fluctuation over time. For Group 1 fabrics, types I.A and I.C are generally the most common, with the former being in the majority in Phase 1.1, and then from Phase 2.2 to the end of the site. Type I.C rims are the most common in Phases 1.2 and 2.1. The other, minor forms show reasonably even representation. The absence of some types in the earliest and latest phases may have typological significance, but the assemblages from those phases are very small, and so the vagaries of archaeological sampling may equally likely be the explanation.

The data for the Group 2 small jars show a similar lack of coherent patterning as that for Group 1. Type I.C rims are common in the earliest and latest sub-phases, whereas type II.K are common from Phases 1.2–2.3. Type III.H rims show a considerable variation in occurrence in each phase. The small assemblage size is again doubtless a factor in the earliest and latest phases.

It would appear therefore that the rim forms on small Ipswich Ware jars do not show any coherent chronotypological patterning, although the observed variations are not random. The obvious traits, such as type I.A rim forms being amongst the commonest on vessels with Group 1 fabrics, but rare on Group 2 vessels, with the reverse for type II.K forms, show that some forms can be strongly linked to a particular fabric, and the fact that there is such a limited range of rim forms on Ipswich Ware vessels shows that the potters were working within a framework which allowed them only limited choices, but these cannot be ascribed to mere ‘fashion’. It is possible that the forms represent the variations of the output of individual potters or schools of manufacturers, the correlation with fabric type reflecting the potter’s preferred use of a clay source. Evidence from elsewhere has shown that it is not uncommon, in other manufactories at different times, for potters to have their own ‘signature’ rim-forms while working within the confines of a tradition (J. Hudson, pers. comm.).

Stratigraphic analysis
No clear picture emerged in the analysis of pottery by site phase. To attempt to perhaps eliminate problems of residuality and/or intrusiveness, this section will

<table>
<thead>
<tr>
<th>Phase</th>
<th>F1</th>
<th>F2</th>
<th>F3</th>
<th>F72</th>
<th>F73</th>
<th>IMP</th>
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</table>

Table 6.5 Pottery occurrence per stratigraphic phase (% weight), as a percentage of the phase assemblage

Table 6.6 Ipswich Ware occurrence, small jar rim forms, both fabrics, percentage of EVE

Stratigraphic analysis
No clear picture emerged in the analysis of pottery by site phase. To attempt to perhaps eliminate problems of residuality and/or intrusiveness, this section will

<table>
<thead>
<tr>
<th>Rim</th>
<th>Group 1</th>
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</tr>
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<td>Total</td>
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</table>

Table 6.6 Ipswich Ware occurrence, small jar rim forms, both fabrics, percentage of EVE

160
both Norfolk and Suffolk. A number of Middle Saxon pottery occurred in contexts which did not produce any hand-built pottery. For example, a sherd from ditch 1384 (Phase 2.2) was dated to the later 5th or earlier 6th century. It was decorated withbossed decoration. If this is the case, it appears likely to date to the later 5th or earlier 6th century. It was redeposited in a Late Saxon context. The second sherd, from ditch 1384 (Phase 2.2), is very small (7g), but may be a fragment of a vessel withbossed decoration. If this is the case, it appears likely to date to the later 5th or earlier 6th century. It occurred in a Middle Saxon context however, and is thus redeposited. In addition, there was a fairly large sherd from a hand-built vessel with a pedestal base. Such vessels were exclusively Early Anglo-Saxon, and can be as early as the mid 5th century, although later examples are known. This sherd cannot be dated accurately, other than to say it is a good indicator of Early Anglo-Saxon activity.

Anglo-Saxon pottery of the 5th–early 7th century was sometimes decorated with incised, applied or stamped decoration, and all combinations thereof (Myres 1977), but this practice seems largely to have stopped around the time of the arrival of Christianity in Britain. After this time, hand-built pottery was generally undecorated. However, a lack of decorated sherds amongst an assemblage of hand-built pottery is not evidence of a 7th century or later date; in the Early Anglo-Saxon period, decorated pottery is rare in the domestic context. For example, at sites such as West Stow in Suffolk (West 1985) and Mucking in Essex (Hamerow 1993), both of which were abandoned early in the Middle Saxon period, decorated sherds represented just 3–4% of the pottery.

Here at Brandon, just two sherds of hand-built pottery were decorated. The first, from context 0709, had a fragment of an incised line, and may therefore be either 5th or 6th century in date, as the technique was common throughout the Early Anglo-Saxon period. It was redeposited in a Late Saxon context. The second sherd, from ditch 1384 (Phase 2.2), is very small (7g), but may be a fragment of a vessel withbossed decoration. If this is the case, it appears likely to date to the later 5th or earlier 6th century. It occurred in a Middle Saxon context however, and is thus redeposited. In addition, there was a fairly large sherd from a hand-built vessel with a pedestal base. Such vessels were exclusively Early Anglo-Saxon, and can be as early as the mid 5th century, although later examples are known. This sherd cannot be dated accurately, other than to say it is a good indicator of Early Anglo-Saxon activity.

In all, 82 sherds (848g, EVE 0.15) sherds of hand-built pottery occurred in contexts which did not produce any Middle or Late Saxon pottery, suggesting very strongly that there was a ‘pre-Ipswich Ware’ phase of occupation at the site. These sherds also appear to form two major concentrations of hand-built pottery from major features which have stratigraphic relationships with others.

Fabric
All of the major components of the site were examined, and those with very small assemblages rejected. Six sequences were examined, looking at the weight of pottery per component. These were: 8135–8143, 6849–6848, 5353–8155–8156, 8118–8155–8156, 8114–8155–8156, 8119–8115–8119–8115 (Table 6.7). The general pattern appears to be that, in most cases, Group 1 (F2) fabrics become more common over time, but there are exceptions. For example, component 8135 is later than 8143, but Group 2 (F3) wares are more common in the later context. However, 8135 may have continued to be backfilled into the Late Saxon period, so it is possible that residuality is a factor. The same aberrant pattern was noted with 6849 and 6848, although the earlier of these two groups produced a sherd of Thetford Ware, so contamination may again be a factor. In the case of the sequence 8156–8155–8114, the latest component is largely Group 2 wares. It is true that the latest component produced a relatively small pottery assemblage, but it is larger than that from component 8119.

It would seem therefore, as with the rim forms, that it cannot be said with any confidence that the fabric of Ipswich Ware has chronological significance.

Vessel use
Comparison of the sequences based on EVEs of vessel types was of limited use. In most cases, the groups were too small to produce meaningful data; those that did produced no overall pattern.

Site chronology
Early Anglo-Saxon
The presence of hand-built Anglo-Saxon pottery shows that there was a phase of activity at Brandon which pre-dates the arrival at the site of Ipswich Ware. Hand-built pottery was common on Anglo-Saxon sites in East Anglia, until the flowering of the Ipswich Ware industry around the end of the first quarter of the 8th century. After that, the hand-built material became very rare, with Ipswich Ware the dominant pottery at sites in both Norfolk and Suffolk. A number of Middle Saxon sites in Norfolk were excavated as part of the Fenland Management Project, and in all cases, Ipswich Ware was far more common than hand-built pottery. For example, a site at Walpole St Andrew produced 96 sherds of Ipswich Ware and just five hand-built examples, and two of the latter type may well pre-date the arrival of Ipswich Ware. The picture appears similar here at Brandon. A total of 152 sherds of hand-built pottery occurred, but this compares with over 20,000 sherds of Ipswich Ware. It is therefore, in terms of the site’s chronology, important to ascertain the date of this material.

Table 6.7 Comparisons of pottery quantities by fabric in stratigraphically-related components (% of total weight). The stratigraphically latest contexts are at the top of each section, but note that 8155–8156 are included only once, although these components relate separately to 5353, 8118, 8114 and 8119–8115.
clusters. Fourteen sherds came from the east side of the northern part of the site, particularly the area covered by grid squares 83–86E/56–57N. A further twenty-four sherds came from a single context in grid square 89E/54N, while the majority of the rest of the hand-made pottery from Anglo-Saxon contexts came from the southern area of the site, with two possible clusters evident. One of these was between 95–96E/49–53N and the other between 89–90E/48–50N. The hand-made pottery from Middle Saxon or later features generally reflects this distribution, although they tended to have a more general distribution across the site. Unfortunately, most of the hand-made pottery is from contexts which were unphased. Only a handful of sherds were from Phase 1.1 contexts, with the rest from Phase 2.1 or later contexts.

Thus, in order to say that the distribution of the hand-made pottery is significant, and the clusters represent early occupation, we have to assume that all the hand-made pottery is early, and that which is in later features is redeposited. However, the spatial analysis (below) shows that the southern area of the site was very likely to have been occupied in the Early Anglo-Saxon period.

Middle Saxon
The main period of activity at the site is evidenced by the consumption of large quantities of Ipswich Ware. Recent work (Blinkhorn forthcoming a) has suggested a date of around AD 720–850 for the life-span of the industry. Ipswich itself has not produced a single primary sceatta, and coins only begin to appear in quantity in the third decade of the 8th century. In London, there are many finds of Ipswich Ware in association with coins, and again a date of around AD 720 for the arrival of the ware seems very solid. At Bloodmoor Hill, Carlton Colville, there is a good series of coins and other artefacts which suggests that the site ended sometime around AD 720, and there were just a handful of sherds of Ipswich Ware from the site (Tipper 2009). Overall, the evidence nationally indicates that there is certainly no reason to suspect that Ipswich Ware began before AD 700, and that c. AD 720, around the start of the secondary sceatta series, seems the most likely candidate for the start of the industry.

At this time, there is no evidence to suggest that Ipswich Ware carried on in use much beyond the mid 9th century. The two latest coin dates in association with the ware are both c. AD 855, one from Ipswich itself, from the Tower Ramparts site, and another from Flixborough (Blinkhorn 2009). Ipswich Ware was present in the late 9th–early 10th-century defences at Ipswich, along with Thetford Ware, but residuality is a major problem in the town, mainly due to the robust nature of Ipswich Ware pottery. For example, some late medieval (14th–15th-century) features in Ipswich have pottery assemblages which comprise around 20% Ipswich Ware.

Late Saxon
The presence of over 800 sherds of Thetford Ware at this site shows that there was still a level of activity in the Late Saxon period, but the quantity of pottery of this period suggests that Staunch Meadow was abandoned in the Late Saxon period, with the main focus of activity moving to the area of the nearby Brandon Leisure Centre site (BRD071; Chapter 11.III). A similar pattern is seen at Thetford, where the Middle Saxon settlement was abandoned in the mid 9th century, and the Late Saxon activity largely centred on what had been ‘greenfield’ sites in the Middle Saxon period.

BRD071 did produce Ipswich Ware, but just 65 sherds, compared with 1209 sherds of Thetford Ware, thirty-four sherds of St Neots Ware and eight sherds of Stamford Ware. This is actually a larger Late Saxon assemblage than that from Staunch Meadow, which produced 817 sherds of Thetford Ware, twenty sherds of St Neots Ware and twelve sherds of Stamford Ware. This certainly suggests that activity was more intense at the former than the latter during the Late Saxon period, as the BRD071 excavations were on a much smaller scale. Furthermore, at BRD071, just three sherds of Ipswich Ware occurred in features which did not have later pottery, suggesting that most was redeposited. This all suggests that activity at BRD071 began at end of the Middle Saxon period, and continued uninterrupted into the early part of the Late Saxon period, and probably beyond.

The abandonment of Middle Saxon settlements and the foundation of new sites nearby in the Late Saxon period is a phenomenon which is becoming more widely recognised. Generally, Late Saxon settlements are usually located near, but not on top of, their Middle Saxon equivalents. The Late Saxon town of Ipswich is the exception rather than the rule in that it is located on the same site as the Middle Saxon vicus. All the other comparable sites in the country, such as London, York and Southampton were ‘greenfield’ developments. On a smaller scale, the recent excavations of the Middle Saxon settlements at West Fen Road, Ely (Blinkhorn 2005) and Brandon Road, Thetford (Blinkhorn 2010) showed that the Late Saxon nucleus of the sites did not correspond with that of the Middle Saxon period, and all the major Late Saxon nuclei in the settlements in and around North Raunds in Northamptonshire were founded on ground which did not produce any evidence of Middle Saxon occupation, despite Middle Saxon sites being nearby (Audouy and Chapman 2009).

Thus, the ceramic evidence indicates very strongly indeed that the focus of activity at Brandon between c. AD 850–950, and probably beyond, was at BRD071, which had effectively been unoccupied during most of the Middle Saxon period. Staunch Meadow was all but abandoned when this change came, and never recovered other than perhaps as an outlier to the main settlement during the 10th and earlier 11th centuries.

Spatial distribution
Statistical analysis of the Ipswich Ware form distributions was confined to the minority vessels which could be said to have different functions (e.g. large jars v pitchers), due to the vastly disproportionate populations of the small jars. For the purpose of these analyses, the site will be divided into three areas which the distribution patterns suggested may be significant (above). These are as follows:

- Manufacturing area (waterfront): area of the site to the north of grid-line 610m north
- Halls area: the area of the site between grid-lines 560m north and 610m north, and to the east of grid line 870 east
contexts was residual. However, the mean sherd weights hand-built pottery from the Middle Saxon and later did not produce any later pottery. It is possible that the later features; just eight sherds were from contexts which two more northerly areas of the site was redeposited in the rest of the site. The answer would most likely appear to area had a very different functional and/or social regime to Ware settlement in the southern area, or the activity in that Ware, and suggests that either there was a pre-Ipswich 1, and a third, small one to the north-east of the causeway. Analysis of the Ipswich Ware assemblage by comparing quantities of vessel forms and fabrics using chi-square tests (data in archive) indicates that there were no significant differences in the distribution of any of the vessel types. They all appear to have been disposed of at broadly equal rate in all areas, suggesting that the ware, as a domestic pottery, did not have any degree of status, irrespective of vessel types. Similarly, the different fabric groups do not appear to have been of any great significance, with small jars consumed at broadly equal rates around the site. Other pottery types did however show differences when compared to some of the Ipswich Ware assemblages, namely the hand-built wares, the continental imported pottery and the Thetford Ware.

The hand-built pottery mainly occurred in the southern area of the site, particularly at the southern extremity, below the 510m north gridline, with one cluster around the building which produced the 7th-century radiocarbon date, another around the church and cemetery 1, and a third, small one to the north-east of the causeway. This area of the site produced relatively little Ipswich Ware, and suggests that either there was a pre-Ipswich Ware settlement in the southern area, or the activity in that area had a very different functional and/or social regime to the rest of the site. The answer would most likely appear to be chronological. Most of the hand-built pottery from the two more northerly areas of the site was redeposited in later features; just eight sherds were from contexts which did not produce any later pottery. It is possible that the hand-built pottery from the Middle Saxon and later contexts was residual. However, the mean sherd weights of hand-built pottery appear fairly consistent: from contexts with only hand-built wares it is 10.3g; from Middle Saxon contexts it is 10.9g; and from Late Saxon contexts it is 12.2g.

The distribution of the imported pottery shows that the vast majority of it was used in the halls enclosure, with very little found in any other areas of the site. If this area, with its church and cemetery, was the power centre of the settlement, and thus used primarily by persons of status, then they, at the very least, had control of its use. It may not be coincidence that the vast majority of the imported pottery, mainly Tating Ware but also a few sherds of Badorf and the ‘wavy line’ pottery, came from two grid squares immediately to the south of cemetery 2. Tating Ware has long been thought to have had a liturgical use, and many of the finds are associated with royal and religious settlements (see above). The nature and location of the ware at this site can only offer support to that idea. It should be noted that a proportion of the imported pottery could not be related to a particular location on the site; all the Badorf Ware was unstratified, and ten sherds of the wavy line decorated vessel and one sherd of Tating Ware could not be located in a grid square.

The reasons for the difference in the distribution of Thetford Ware are perhaps more complex. Certainly, there is, pro rata, very little deposited in the waterfront area at the northern extremity of the site, suggesting that this area had all but fallen from use by that time; only one rimsherd was noted in the most northerly 20m of the site. The halls and southern areas of the site produced the most vessels, but the numbers are small. The Thetford Ware seems to be concentrated in two areas. The most northerly was over the site of the Phase 2.2 smithy which also contained other rubbish including Ipswich Ware. The second was in a separate heap and was above an area of clay that is included in Phase 2.4. This heap lacks all other rubbish, which may suggest it represents a short period of activity, or even a single event, such as the disposal of a few vessels rather than normal middening.

Cross-fits
The assemblage was examined for cross-fitting sherds in an attempt to ascertain the refuse disposal regimes in use at the site, and to gain a clearer understanding of the site

<table>
<thead>
<tr>
<th>Form</th>
<th>Group</th>
<th>Waterfront</th>
<th>Halls area</th>
<th>South</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Small jars</td>
<td>1</td>
<td>897</td>
<td>47.8</td>
<td>804</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>479</td>
<td>43.4</td>
<td>432</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1376</td>
<td>46.2</td>
<td>1236</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>367</td>
</tr>
<tr>
<td>Large jars (rim diam &gt;180mm)</td>
<td>All</td>
<td>77</td>
<td>38.1</td>
<td>96</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>29</td>
</tr>
<tr>
<td>Buttermarket jars</td>
<td>All</td>
<td>33</td>
<td>50.0</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Pitchers</td>
<td>1</td>
<td>19</td>
<td>44.2</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>24</td>
<td>28.2</td>
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<td></td>
<td>Total</td>
<td>43</td>
<td>33.3</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Lugged jars</td>
<td>All</td>
<td>12</td>
<td>34.2</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Lamps</td>
<td>All</td>
<td>3</td>
<td>25.0</td>
<td>6</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Imports</td>
<td>-</td>
<td>3</td>
<td>5.5</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Handmade</td>
<td>-</td>
<td>3</td>
<td>2.1</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>120</td>
</tr>
<tr>
<td>Thetford</td>
<td>-</td>
<td>7</td>
<td>10.3</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>23</td>
</tr>
</tbody>
</table>

Table 6.8 Distribution of forms and fabrics by area (percentages are of the form/fabric assemblage)
The clay sources in and around the town, chemically and likely that Ipswich was the single source of Ipswich Ware. It seems highly that the workings of the Ipswich Ware pottery industry in terms of excavated physical remains. It appears that the changes in the proportions of the different Ipswich Ware fabrics over time is mainly a reflection of clay sources, and the choices made by potters rather than consumers. At this time, next to nothing is known about the workings of the Ipswich Ware pottery industry in terms of excavated physical remains. It seems highly likely that Ipswich was the single source of Ipswich Ware. The clay sources in and around the town, chemically and petrologically, give us no grounds to suppose otherwise (Blinkhorn forthcoming a).

There is evidence from Brandon, however, that the potters were aware of the physical differences between the clays used in Group 1 and Group 2 fabrics. Generally, the clays which were the source of the latter fire harder, shrink more and appear less porous than those used for Group 1 pots. This is reflected in several ways, in relation to vessel function. In the main, at Brandon, vessels in Group 2 fabrics are larger than vessels in Group 1. Generally large vessels would have had a use as storage vessels, so, particularly in the case of the storage of liquids, a harder, less porous fabric would mean less loss through seepage through the clay. In the case of liquid storage, a certain amount of seepage through the fabric is desirable as, in hot weather, the resultant evaporation of the liquid from the outer surface of the vessel keeps the contents cooler, and thus fresher. Preferential use for storage of liquids is perhaps confirmed by the fact that Group 2 fabrics were far more commonly used for pitchers than Group 1 clays, despite vessels in Group 1 fabrics being generally more common at Brandon. Finally, burnishing, which seals the clay of a pot and makes it less porous, was again far more common on vessels in Group 2 fabrics than Group 1 examples, and also more common on large jars than smaller ones, again suggesting that functionality was a major factor in fabric selection by the consumer, and, more than likely, by the potter as well. The fact that some Group 2 vessels had protruding grits may even have been a visual signal which enabled the consumer to recognise that a pot was made from a clay which was far more suited to containing liquid than one which did not, and the same applies to burnishing.

The converse of this is that certainly the consumers of Ipswich Ware at Brandon did not consider porosity, or the lack of it, to be important for small vessels, indicating that if they were used for containing liquids, it was only for a short time. It is possible that the two different fabrics meant that small jars had functionality dictated by fabric type; Group 2 vessels for drinking or heating liquids, Group 1 vessels for other tasks. A programme of organic residue analysis carried out on a large sample of Ipswich Ware from Brandon and elsewhere suggested that, where residues occurred, jars of all sizes and fabrics held a similar range of contents, suggesting that large vessels were used for storage and preparation and smaller ones for consumption (Blinkhorn forthcoming a).

<table>
<thead>
<tr>
<th>No.</th>
<th>Type</th>
<th>Contexts</th>
<th>2.5m squares</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Buttermarket bottle</td>
<td>3370, 3374, 3330</td>
<td>90/58, 90/59</td>
</tr>
<tr>
<td>2</td>
<td>Bottle</td>
<td>3469, 3554, 3838</td>
<td>90/57, 90/56</td>
</tr>
<tr>
<td>3</td>
<td>Pitcher</td>
<td>3406, 3408</td>
<td>90/60</td>
</tr>
<tr>
<td>4</td>
<td>Pitcher</td>
<td>4155, 4158, 4395, 4540</td>
<td>91/57</td>
</tr>
<tr>
<td>5</td>
<td>Pitcher</td>
<td>4683, 5793</td>
<td>91/61, 90/63</td>
</tr>
<tr>
<td>6</td>
<td>Jar (V8)</td>
<td>4281, 4285, 4423</td>
<td>91/58</td>
</tr>
<tr>
<td>7</td>
<td>Jar (V18)</td>
<td>3409, 3410, 4281, 4462</td>
<td>90/60, 91/58, 91/61</td>
</tr>
<tr>
<td>8</td>
<td>Large jar</td>
<td>4155, 4391, 4395, 4396, 4398</td>
<td>91/57</td>
</tr>
<tr>
<td>9</td>
<td>‘Wavy line’ vessel</td>
<td>3478, 4232</td>
<td>90/57, 91/57</td>
</tr>
<tr>
<td>10</td>
<td>Tating Ware</td>
<td>3853, 4205, 4206, 4207, 4225, 4226</td>
<td>90/57, 91/57</td>
</tr>
<tr>
<td>11</td>
<td>Thetford Ware storage jar</td>
<td>6675, 6744</td>
<td>90/53, 91/52</td>
</tr>
</tbody>
</table>

Table 6.9 Cross-fits of distinctive vessels (Ipswich Ware unless otherwise stated)

Summary and conclusions

**Ipswich Ware**

Although the results of this analysis suggest that Ipswich Ware does not show any real patterns which will allow it to be used as a dating tool other than in the broadest terms, the fact that it does not seem to possess any strong typological traits does perhaps give us an insight into the nature of pottery production and consumption at the time. A disappointment for those whose main interest is dating taphonomy. It was limited to highly decorated or otherwise easily recognisable vessels, as any more detailed work was beyond the scope of this project. Table 6.9 shows the cross-fits noted for eleven distinctive vessels; a number of other cross-fits were noted, but all within the same grid square.

Generally, most of the cross-fits came within the same square or adjoining squares, with one of the few exceptions being a pitcher (no. 5 in Table 6.9), a join between a feature on the northern edge of the halls enclosure and the westernmost peninsula on the waterfront, demonstrating that at least some of the refuse which was used to construct the latter originated in the former.

The large number of joining sherds noted in archaeologically different features and strata within the same or joining grid squares suggests that when refuse was disposed of, it was done in a single event, and in the same feature. The fact that very few of the highly-decorated vessels were fully reconstructable, despite virtually all the site being excavated, indicates that the majority of refuse, after being first middened, was disposed of away from the settlement area. Some was obviously used on site, for backfilling features or aiding the construction of the islands, but most was not.

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In terms of fabric type, it would appear that, generally, the changes in the proportions of the different Ipswich Ware fabrics over time is mainly a reflection of clay sources, and the choices made by potters rather than consumers. At this time, next to nothing is known about the workings of the Ipswich Ware pottery industry in terms of excavated physical remains. It seems highly likely that Ipswich was the single source of Ipswich Ware. The clay sources in and around the town, chemically and petrologically, give us no grounds to suppose otherwise (Blinkhorn forthcoming a).
The restricted range of Ipswich Ware rim forms (West 1964) still appears to hold good, but the rims do not appear to have chronotypological significance. There are however some relationships between rim form, fabric and vessel size amongst the Brandon assemblage. Type I.A rim forms are mainly limited to Group 1 fabrics, and vessels with such rims tend to be smaller than average, whereas type II.K rims tend to occur on larger than average vessels, and those with such a form in Group 2 fabrics tend to be larger than the vessels with the same rim form in Group 1 fabrics. The only other rim form which shows any sort of patterning is the type II.G form, which tends to occur on very large vessels in Group 2 fabrics, with Group 1 vessels with the same form being much smaller.

The Buttermarket-type Ipswich Ware also shows some trends which suggest fabric and vessel type were linked. Jars of this type tend to be of a somewhat different form than ‘standard’ Ipswich Ware, being squatter, with wider mouths and lugs being more common. As with the non-Buttermarket types, lugged vessels tend to have a larger rim diameter than unlugged vessels, but the largest Buttermarket vessels are smaller than the largest non-Buttermarket types. Generally, it would seem that the very large jars which were made by other potters in Ipswich were not part of the repertoire of the Buttermarket potters.

Imported wares
One of the many important aspects of the Brandon pottery assemblage is the imported pottery; not simply the presence of such wares, but also the range and amount. Imported Middle Saxon pottery is most commonly found in England at the wics, namely Southampton (Timby 1959), and the same is true of Lake End Road and

Tating Ware, such as the jug from this site, has been linked with liturgical activity in the past, with the argument based primarily on the fact that the vessels are mainly found at religious sites, and are known to have sometimes been decorated with cross motifs (Hodges 1981, 67). This may, however, once again simply be a reflection of the wealth of the consumer sites. For example, Tating Ware is known from Ipswich, but, as yet, there is no certain evidence of any sort of Christian activity in the wic, and the same is true of Lake End Road and Terrington St Clement.

Thus, the presence of imported pottery here at Brandon has implications for the nature of the site, but they are far from clear. One thing that links nearly all the sites from England that have produced imports is that they are of greater than normal wealth. While Brandon may well have been a high-status settlement, it must be remembered that there is nothing comparable in Middle Saxon East Anglia in archaeological terms of the level of preservation and the completeness of the excavation; what we may be seeing is simply a typical Middle Saxon settlement, albeit one which was more wealthy than most.

Pottery distribution
It was hoped that the pottery from this site would also be able to provide a clearer understanding of some of the activities which took place here by examining the spatial distribution, but the overall pattern suggests that with very few exceptions, all the different pottery types were disposed of in more or less similar proportions, irrespective of the status or function of the part of the site. The site was divided into three areas: the waterfront area to the north; the central halls area; and the southern area.

The results of statistical analyses of fabrics and forms showed that while the bulk of pottery deposition took place in the northern half of the site, there were no significant differences in the distribution of the various Ipswich Ware vessel and fabric types. However, the Early/Middle Saxon hand-built wares and the Thetford Ware both showed a significantly different distribution to Ipswich Ware. The distribution of the former suggested that Anglo-Saxon activity in the pre-Ipswich Ware period was mainly limited to the southern half of the site, and in the Late Saxon period, the waterfront area at the northern end had been all but abandoned.

The imported pottery was largely deposited in and around the halls enclosure, with the majority of the Tating Ware found immediately to the south of cemetery 2, suggesting that this is where it was used.
Chronology
Finally, there is the issue of chronology. Recent work on Ipswich Ware (Blinkhorn forthcoming a) suggests that it had a use-life of AD 720–850, and the analysis of the Brandon assemblage has produced little evidence to enhance that. All the mid to late 9th-century pottery types known in the region, such as Ipswich-Thetford Wares and early Stamford and St Neots Wares, are absent from the site. However the adjoining Brandon Leisure Centre site (BRD071) produced a much larger Late Saxon assemblage from a considerably smaller excavation, suggesting that the focus of settlement moved there in the second half of the 9th century, and that Staunch Meadow remained peripheral to the main Late Saxon settlement.

III. Iron vessels
by Nicola Rogers

A body fragment of a thick iron vessel, possibly part of a cooking pot or cauldron, was found in a 1m square (sf2511). Iron vessels of any form are rare from the Anglo-Saxon period, but a complete cauldron found alongside a trivet in a mid to later 8th-century well at the Royal Opera House site in London (Blackmore 2003a, 258, fig. 130) was thought to have been deliberately hidden (Blackmore 2003a, 159), while broad but shallow pans have been found in Winchester (Goodall 1990a, 819–21, 2544), and at 16–22 Coppergate, York (Ottaway 1992, 604, 3005). Iron vessels, are, however, well known from 9th–11th-century Scandinavia (Ottaway 1992, 604). Medieval cauldrons and cooking vessels were typically of copper alloy, being made of iron only in the post-medieval period (Goodall 2012, 297), which indicates that sf2511 is likely to be of Saxon date.

Sheet rivets such as sf2527 would have been used to attach repairs to sheet vessels — a large pan recovered from a 10th-century deposit at 16–22 Coppergate had been repaired in this way (Ottaway 1992, 604, fig. 250, 3005).

Three suspension fittings (sf5330, sf3174, sf3560) may have been used for the attachment of handles to wooden vessels such as buckets. Similar loops featured on a complete medieval bucket found at 16–22 Coppergate had been repaired in this way (Ottaway 1992, 604, fig. 250, 3005).

A second handle (sf2023) comes from a context of Phase 1.2 and conforms with Cook’s type A handle for a copper alloy-bound bucket (Cook 2004, fig. 5). It is incomplete but the lower ends splay transversely and were originally perforated. The central area is decorated with single ring-and-dot designs. Copper alloy-bound buckets were mainly in use during the 6th century, whilst iron-bound buckets predominate in the 7th century (Cook 2004, 43). As noted above, copper alloy-bound buckets reappear in the Middle Saxon period (Bailey 1974, 141–50).

IV. Copper alloy vessels and fittings
by Ian Riddler

Fig. 6.8; Pl. 6.1

Four distinct forms of vessel can be identified within the copper alloy and silver objects, although each survives only as a small fragment. The vessels include parts of a Byzantine bowl, a small cup, two handles, a bucket rim and a possible cauldron chain.

A part of the openwork base of a Byzantine bowl (sf2326; Fig. 6.8) belongs to Werner’s type B1 (Werner 1961; Harris 2003, fig. 13). Byzantine bowls have been found elsewhere in Suffolk at Badley, Needham Market, Sudbury, Sutton Hoo, Wickham Market, and there are examples also from Caistor-by-Norwich and Wymondham in Norfolk (West 1998, 301–2; Harris 2003, 164–5). All of these, with the exception of Sutton Hoo, are type B1 bowls, which belong to the first half of the 7th century, and this is likely to be the date of the Brandon fragment (Geake 1997, 85; Harris 2006).

The two copper alloy vessel handles from Brandon are of distinct sizes and types. A complete, undecorated handle (sf2012; Fig. 6.8) is circular in section but widens to a flattened, diamond-shape section at the apex. The ends are looped. It may stem from a copper alloy-bound bucket although the handle does not conform to any of Cook’s types (Cook 2004, fig. 5) and the majority of Early Anglo-Saxon buckets are 80mm or more in diameter whilst this handle, in its current state, has an internal width of just 70mm. The Hexham bucket is a salutary reminder, however, that the manufacture and use of buckets continued into the Middle Saxon period (Cram 1967, 17–18; Bailey 1974). The general shape of the handle is broadly similar to the larger example on the Oseberg bucket (Bailey 1974, pl. XXVb). It can also be compared with a handle from Lundenwic, which has a diameter of 55mm, and with a very similar example from Hamwic, with an internal diameter of 60mm (Blackmore 2003b, 269 and fig. 97; Hinton 1996, fig. 20.33/84). All of these handles presumably stem from small pails that may have resembled the Hexham example, albeit in a simpler form. Several examples of iron bucket handles are known, which were attached to wooden buckets entirely devoid of any further metal fixtures (Riddler 2006a, 24).

A second handle (sf2023) comes from a context of Phase 1.2 and conforms with Cook’s type A handle for a copper alloy-bound bucket (Cook 2004, fig. 5). It is incomplete but the lower ends splay transversely and were originally perforated. The central area is decorated with single ring-and-dot designs. Copper alloy-bound buckets were mainly in use during the 6th century, whilst iron-bound buckets predominate in the 7th century (Cook 2004, 43). As noted above, copper alloy-bound buckets reappear in the Middle Saxon period (Bailey 1974, 141–50).

Plate 6.1 Decorative disc sf2162, from a bowl
A curved section of undecorated copper alloy sheet (sf2017; Fig. 6.8), folded to a U-shaped profile, stems either from the rim of a copper alloy-bound bucket or the rim of a cup or drinking horn. Copper alloy mounts for horn vessels are known from Holywell Row, Little Wilbraham and Snape (Lethbridge 1931, 12 and fig. 14.1; Filmer-Sankey and Pestell 2001, 57). With a diameter of approximately 130mm, however, it is much more likely that this is a rim mount from a copper-bound wooden bucket, with small copper alloy nails set vertically into organic material; one of these nails survives. Wooden buckets with copper alloy fittings are reasonably common in East Anglia during the Early Anglo-Saxon period (Morris 1994, 32–3; Cook 2004) and — as noted above — there is good evidence to suggest that they continued into the Middle Saxon period.

The fragments of a small copper alloy cup (sf7389) were discovered adjacent to wood remains. The vessel has a simple, undecorated hemispherical form with a cut rim and its diameter was originally c.45–50mm. It may have served as a small and modest drinking cup, situated at the lower end of the scale from the elaborate Carolingian and Viking examples of silver (Wilson 1960; Graham-Campbell 1980, nos 63 and 325).

A long shaft of copper alloy (sf5895; Fig. 6.8) is twisted over most of its length with a broad hook at one end and a closed loop at the other. A U-shaped adjunct to this element has splayed ends with circular perforations and this is similar in shape to the U-shaped bands used to suspend girdle-hangers, as seen at Morning Thorpe, for example (Green et al. 1987b, figs 333Viii, 445d and 450Liv). The adjoining shaft may therefore have belonged to a chatelaine arrangement, although these were normally produced in iron and not copper alloy. There is a resemblance also with the iron element of a cauldron chain from Holborough, although that is twice the length of the Brandon shaft (Evison 1956, 101–4 and fig. 13) and simple pot hooks, like the example from Carlton Colville, are usually 190mm or more in length (Lucy et al. 2009a, 198). Evison notes the presence of a shorter iron example from Dorestad, however (Evison 1956, 102 note 109; Holwerda 1930, afb 62.92).

Figure 6.8 Copper alloy vessel fittings (1:1)
The survival of wooden artefacts on Middle Saxon sites is very rare, and comparative material for the Brandon pieces comes mainly from earlier and later Anglo-Saxon and even medieval sites. Documentary sources for the use of objects such as those found at Staunch Meadow include the Be Geacædwisian Gerefan (commonly contracted to Gerefa), an early 11th-century document appended to a manuscript of c.1100 (Corpus Christi College, Cambridge MS CCCCLXXXIII, f.102; Liebermann 1903, 453–5; Cunningham 1910, 571–5). It outlines the duties of a manorial reeve, including the tools, implements and vessels he should provide for the household. Many different vessels are named, and most of these were almost certainly made wholly or partially of wood. Of particular interest for the Brandon material are cups (cuppan) and buckets (cyflas).

Any Anglo-Saxon household, whatever its place in the social order, either secular or ecclesiastical, would have had a large range of wooden turned and stave-built vessels for storing, preparing, presenting and consuming food and drink, and for many other domestic purposes. Many vessels in Anglo-Saxon households at this time would have been made in one material, apart from perhaps drinking vessels. Different sizes of lathe-turned wooden bowls and cups and stave-built casks, buckets, tubs and smaller vessels appear to complement pottery jars, jugs and cooking pots (Section II above), metal cooking vessels (e.g. sf2511, Section III above) and glass vessels (Section VI below). Wood as a raw material for making vessels was not a cheap substitute for these other materials, and (along with other organic materials such as leather and textiles) would have accounted for all but a very small percentage of the material culture of the settlement. Artefacts which have survived in the greatest numbers (pottery, metal, glass and stone) should not be afforded a status disproportionate to the actual quantities of them used over the life of the site compared to wood. Hundreds of thousands of wooden vessels which would have been produced and used during the Middle Saxon period have not survived.

**Bowls and cups**

Nearly all circular one-piece open-topped wooden vessels at this period (bowls, dishes, cups etc.) were lathe-turned and would have been obtained from a specialist woodworking craftsman, whether resident or itinerant. The larger vessels were normally used as dairy and kitchen wares, whilst the smaller ones were used as tablewares. Sf5134 is an example of the latter and is part of the base and lower wall of a spindle-turned cup made on a pole-lathe, or even a bow-powered lathe (Fig. 6.9).

There are two basic ways in which the wood grain can be aligned during turning — perpendicular to the axis of rotation or face-turned, a method used for manufacturing small to very large bowls, and parallel to the axis of rotation or spindle-turned, a method for producing much smaller turnery such as cups like sf5134, handles, spindles etc. These two alternative methods of face- and spindle-turning require wood in different forms for their roughouts. Face-turning usually needs split half-sections of roundwood, whilst spindle-turning requires lengths of roundwood poles or split billets roughly shaped to cylinders. In both cases the diameter of the roundwood must be at least as great as the intended diameter of the vessel to be turned. The lathe-turning techniques used to

**V. Wooden vessels**

by Carole A Morris

Fig. 6.9

All of the wooden objects recovered from the sand/peat layers in the waterfront area are essentially domestic in nature (apart from the offcut sf5872) and although these layers are associated with textile working features, including flax processing, bleaching and dyeing, none of the wooden artefacts can be unequivocally identified as having been used for any of these processes rather than normal household use, although lathe-turned and stave-built containers could have been used in these processes, as could spatulae/stirrors or vessels which needed wooden lids (see below, Section VIII). Considering that most wooden objects would have been re-used or burnt as fuel when they were worn out or broken, the eight objects from Brandon which have survived must represent only the tip of an enormous wooden iceberg of artefacts which were made and used in the settlement over its 200 year occupation.

An elaborately decorated gilded disc (sf2162; Fig. 6.8, Pl. 6.1) stems from the lower part of a copper alloy bowl. The design is formed of an equal-armed cross with interlaced beasts at the end of each arm and roundel patterns in the interstices. One of the roundel patterns also includes a beast design. The size and shape of the disc, together with its central perforation, recall the lower disc on the Ormside bowl, which also has an equal-armed cross pattern (Cramp 1967, 18–20; Wilson 1984, 64–5 and pls 56–7; Webster and Backhouse 1991, 172–3). The interest in roundels echoes some of the panels on the Hedda stone, where beasts are entwined with spirals of foliage emanating from central stems (Plunkett 1998, fig. 65e). The beasts themselves are elongated and interlaced in the manner of designs of the second half of the 8th century, like the Ilkworth brooch (Plunkett 2005, 167). The surface of the disc is not speckled but that treatment tends, in any case, to be confined to silver gilt objects at Brandon.

**Illustrations**

sf2326 Ae. Byzantine bowl. Fragment of base with out-turned edge and stems of rectangular section forming a lattice pattern. Fractured and distorted. Unstratified.

sf2012 Ae. Handle. Two oval looped terminals, almost closed, leading to curved bar of flattened D-shaped section, widened at apex with triangular section and light medial rib. Undecorated. Unstratified 0001.

sf2017 Ae. Rim. Curved, rounded strip, folded over with nail at one end. Undecorated. Layer 0059, Period III.

sf5895 Ae. Possible cauldron chain. U-shaped hoop with flattened rounded terminals, pierced by single circular perforations. Looped shaft attached, square section, the metal twisted throughout, with a curved hook at the opposite end. Unstratified 0001.

sf2162 Ae. Decorative disc. Near-complete, lacking part of edge. Circular, lightly curved disc, perforated at centre. Decorated by impressed curved cross layout, beasts in profile at end of each arm, with interchange lying between them and the centre. Two beasts can be clearly seen, one is difficult to identify and other is covered in corrosion. One beast has oval head, long curving neck, elongated triangular body with curved chest and long front leg extending forwards. Second beast is more elongated version of same design, as is corroded beast. Final beast similar but head droops down and faces opposite direction. Plain outer band. Near-circular roundels between cross arms included profile back-turned elongated beast, interface with diagonal lines at centre and interfaced curved star-like pattern. Unstratified 0001.
produce spindle-turned cup sf5134 needed a high level of technical skill and are detailed elsewhere (Morris 2000, 2136–45).

Spindle-turned wooden cups are very rare in Britain on any site, all the surviving examples dating from the 12th century or earlier (Morris 1984, L17–35 and L219–22; Spearman 1995, figs 55–6) and the Brandon cup may well have been a prestigious rather than a common domestic item. They were made as early as the Roman period in Britain; two rare fruitwood examples were found in a 3rd–4th-century Roman well at Dalton Parlours (Morris 1990, 224, fig. 137, 58 and 60). There was a definite Anglo-Saxon tradition for making and using small lathe-turned wooden cups. Globular or vertical-sided wooden cups, often with combinations of decorative metal rim mounts, rim bands, rim clips and triangular vandykes have been found in high status 6th–7th-century Anglo-Saxon barrow burials such as Benty Grange (Bateman 1861, 28–33), Broomfield (Read 1895, 252), Sutton Hoo (Bruce Mitford 1972, pl. 4 and pl. 21, b–d), Taplow (Stevens 1884, 65, pl. L, 6–8) and more recently Prittlewell (Faulkner 2004, 431) among others (Morris 1984, 173–4, figs 122–3). An 8th-century mount for a wooden cup was found in a burial below the chancel of a church at Brougham, Cumbria (Bailey 1977). The rims of these vessels have diameters of 45–105mm and, as the base of sf5134 was approximately 50mm in diameter, its maximum diameter would have been greater and fits well in the series. The high degree of skill required for their manufacture, and the precious metals often used for rim mounts suggest that this type of vessel could have been a prestige item, although there is no evidence for whether the Brandon cup was decorated or not. A reference in the 10th-century ‘Will of Wynflaed’ to a gold-adorned wooden cup (OE goldfagen treowena(n) cuppan) and two wooden cups ornamented with dots (OE twa treowanan ges-plottode cuppan) (Whitelock 1930, 13 and 15) shows that the Anglo-Saxon tradition of making wooden cups continued in England and that they were valuable. They were still being made by Anglo-Saxon turners in York when Danish settlers arrived in the 9th century. Twenty-four spindle-turned wooden cups and the waste products from making them, dating from the 9th–11th centuries, have been found at the Coppergate site (Morris 2000, 2179–82, 2404 and figs 1031–2), the name of the street itself meaning ‘Street of the Cup-turners’ (Morris 2000, 2212–4).

Such small globular cups (in other media such as glass or metal) have been found in Anglo-Saxon graves (e.g. Prittlewell, Faulkner 2004, 434–5), on settlement sites such as Brandon (Section VI below) and on the Continent, for example the globular silver parcel-gilt cup found in 1850 in a hoard at Lejre in Denmark (Graham-Campbell 1980, 19, fig. 63). This cup was only 59mm in diameter, similar in size to the Brandon cup, and it has been suggested that this type of very small vessel (whatever the material) could have been used for consuming a very strong drink made of fermented fruit juices (Fell 1975). Roedahl (1982, 120) suggests the drink was björk, a sweet, strong, rare drink which was probably a strongly fermented cider. The small capacity of some of the wooden cups from Anglo-Saxon graves, Brandon and York etc. suggests they may have been used for the same purpose.

Stave-built vessels

Many different kinds of stave-built (or coopered) vessels would have been found among the large range of wooden containers and utensils used by the households in the settlement for domestic chores and the storage, preparation and consumption of food. These were made of narrow staves of wood bound together in a circular form, probably by wooden bands. Stave-built containers were also used for commercial purposes, especially the transportation of goods. There would have been no amateur coopers (Kilby 1971, 15). Coopering, like lathe-turning, is a skill acquired gradually by experience, so all pieces of stave-built vessels found at Brandon would have been made by resident or itinerant coopers.
Coopers have traditionally made three categories of stave-built vessels. Wet coopered casks were water-tight for fermented liquids. Dry coopered casks were made to hold dry goods or non-fermented liquids. These could be less watertight, more straight-sided than ‘wet’ casks, and less skill was involved in their manufacture. White coopered vessels were usually straight-sided, open-topped vessels such as buckets and tubs. Four wooden artefacts from Brandon are the products of cooperers such as these.

The staves sf5808 and sf5867 from Brandon are possibly from the same bucket which would have been an open-topped, straight-sided container with a handle joined to two opposed staves (neither of which survive) bound with wooden hoops, and with a separate one- or multiple-piece circular base. Staves sf5808 and sf5867 were made from thin radially-split boards of pine (and an unknown conifer, possibly pine), their edges cut and shaped with a broad shaping axe. Domestic buckets were usually bound with wooden hoops (or iron, but more commonly from the medieval period) which are structural parts of the vessel. Anglo-Saxon metal-bound vessels are known. SF5862 may be part of a bucket binding made of pliable hazel or alder roundwood.

Buckets like this were made in a large range of sizes and were probably the most widely used domestic stave-built vessel in Anglo-Saxon and medieval England, although most domestic buckets were made of oak staves, rather than the pine used here. Middle Saxon finds are very few, and the Brandon staves are a welcome addition. The tradition of making small and large stave-built buckets and tubs is well represented in the Early Anglo-Saxon archaeological record, however, in the form of well over 210 grave finds of small bronze bound buckets, over forty iron-bound larger buckets, and eight large tubs (Morris 1984, 128–37, C1–140), most dating from the 5th to 7th centuries, but wood does not survive in many of the examples. The Brandon staves, at approximately 250mm long, equate well with the size of some of the iron-bound bucket grave finds, comparative pieces from East Anglia including three 6th/7th-century buckets from Morning Thorpe, Norfolk (Green et al. 1987b), three from the 7th-century Sutton Hoo ship burial (Brock 1975, 442, fig. 161), and two from Ipswich (Layard 1909, 7). A 9th-century stave from Westgate Street in Gloucester is slightly larger than the Brandon staves at 339mm high (Morris 1979, 197), and other Middle Saxon domestic bucket finds include two iron handles and an escutcheon from 6th–8th-century deposits at Shakenoak, Oxfordshire (Brodribb et al. 1972, fig. 40, 178 and 184, fig. 41, 189) and two iron bucket handle fragments and an escutcheon from a 9th-century well pit at Portchester Castle (Cunliffe 1976, figs 131–2, nos 15–17).

There are no complete surviving buckets of the Middle Saxon period but later complete Anglo-Saxon, Anglo-Scandinavian and early medieval buckets have between six and nineteen staves depending on their stave widths (Morris 2000, 2228), and average ten to fourteen staves. Nearly all of the 10th/11th-century bucket staves found at Coppergate, York are oak, but three were made of yew, one of pine like Brandon and one of willow (Morris 2000, 2226 and fig. 1068).

SF6371 (Fig. 6.9) is part of a stave-built vessel head or base — either a semi-circular cant stave of a two-piece head/base, or a broken fragment of a one-piece head/base. Heads are used in double-ended casks, bases in buckets, but it is not possible without other associated evidence to tell whether sf6371 is one or the other. It represents the type of base which would have been used with bucket staves sf5808/sf5867 but was found in a different context.

VI. Glass vessels

by Vera Evison

The number of vessel glass fragments found at Brandon is 216. Few fragments of Roman glass had survived and no fragments clearly from the Early Anglo-Saxon period. They are mostly small, but distinctive pieces from rim or base allow attribution in many cases to one of the three most common forms in use in the Middle Saxon period, i.e. the series of palm cups which developed into funnel beaters, as well as globular beaters and bowls. Some wall fragments of palm cup/funnel beaker may be recognised from their cylindrical and outlet shape, while in contrast sherds from the lower body of a globular beaker are globular. Apart from these drinking vessels a few other forms are present. Inkwells are discussed in Chapter 8.IV, and linen-smoothers in Chapter 9.IX. Group numbers below refer to Table 6.10.

Palm cups/funnel beaters (Group 1)

Fig. 6.10

A common form of drinking vessel in the Middle Saxon period was the series of unstable types which began with the palm cup and developed into the funnel beaker (Ypey 1963, fig. 40; Evison 2000a, fig. 3, II, 8, 9, fig. 4, III, 205) and twelve fragments of these types were found at Brandon. Palm cups can be identified by deeply outfolded rims such as occurred on the latest graves of the pagan period, e.g. sf6385 which is the lower part of a deep outfolded rim, and sf2731 (Fig. 6.10), also outfolded but better preserved at the top with a hollow remaining. This type of rim does not seem to have continued long into the Middle Saxon period. SF5321 is a rim rolled inwards with a small hollow, sf5651 (Fig. 6.10) is thickened and flared (cf. Hunter and Heyworth 1998, fig. 8, 30/57). There are three examples of a rim rolled inwards with no hollow but with the contour slightly cupped, sf2061, sf5272 and sf5814 (Fig. 6.10) (cf. Hunter and Heyworth 1998, fig. 8, 26/335 and 39/116).

A development of the rim from the outfolded, hollow tubular form to the forms which are simply rounded or smoothed was suggested by the evidence at Hamwic (Hunter and Heyworth 1998, 56) and spanned the late 7th to early 9th centuries. More unusual colour is evident with sf2061, which is a vivid blue-green, and with sf5272, light green-blue decorated with white horizontal trails, and both were a funnel beaker shape with a rim diameter of c.100mm. There are no base fragments of the earliest palm-cup types with rims like sf2731 and sf6365, but some base fragments belonged to the taller palm cup or funnel beaker type, i.e. sf2212, sf2227, sf2689, sf4992 (Fig. 6.10) and sf8240 (cf. Hunter and Heyworth 1998, fig. 12; Evison 2000a, fig. 4, III, 3, 4).

This form occurred in north-west Europe and Scandinavia and could have been used as a lamp or a drinking glass.
Illustrations

2061 Vivid blue, 1.5-4mm thick. Rim rolled inwards and cupped. One inclusion, glossy, few bubbles. Diameter c. 100mm. Ditch 0111 (comp. 6850), Phase 2.2.

2689 Lt green-blue, 2–4mm thick. Cylindrical wall fragment from near base of tall palm cup. Bubbly. Unstratified 0001.

2731 Lt green, 2mm thick. Palm cup rim deeply folded outwards with hollow. Dull surface. Diameter c. 80mm. Unstratified 0001.

4992 Lt blue-green, 2–4mm thick. Base of tall palm cup, small bubbles. 2.5m sq. 4969, Phase 2.3.1.

5272 Lt green-blue, 1mm thick. Slightly thickened and cupped rim, eight white horizontal trails. Diameter c.100mm. 2.5m sq. 5363, Phase 2.3.1.

5651 Lt blue-green, 1–2mm thick. Slightly thickened and flared rim, small bubbles, glossy. Diameter c.100mm, funnel beaker. 2.5m sq. 5044, Phase 2.3.1.

8514 Lt blue-green, 1.5mm thick. Rim rolled inwards and cupped. Diameter c.80mm. Ditch 7843 (comp. 7057), Phase 2.3.

Figure 6.10 Glass vessels (1:2)
Globular beakers

Monochrome (Group 2)
Pl. 6.2
There is little evidence at Brandon of monochrome globular beakers which had been common in the 7th century, although some unidentified globular fragments may come into this category, e.g. sf2688, sf5096. The distinctive item sf3817 (Pl. 6.2) is blue and part of a globular beaker with moulded bosses, a pattern which can be traced back to Roman vessels in the form of a bunch of grapes (Isings 1957, form 91). Sf4609 is a fragment of a plain neck in the same colour, diameter 40mm, and these two fragments could have belonged to the same beaker (Evison 2000a, 80, fig. 14a). SF3817 came from the later infill of a Phase 1.2 ditch and sf4609, found in a Phase 2.3 inhumation, was no doubt redeposited. A similar fragment, dark olive green, has been found at Ipswich (IAS 4801/80). Further fragments of this type in various colours have been found on the Continent and in Scandinavia: in Germany at Paderborn, green-brown (Baumgartner and Krueger 1988, 83, no. 33), Hedeby, yellow-brown (Steppuhn 1998, 61, Taf 11, 4; Baumgartner and Krueger 1988, 83, no. 32), Birka, Sweden, dark green (Baumgartner and Krueger 1988, 81, no. 31). The Paderborn fragment is allocated to AD 778 and the Birka and Hedeby fragments to the 9th century.

Polychrome (Group 3)
Forty-one of the globular beakers are decorated with trails of a contrasting colour, mostly yellow and a few white, near the rim and on the neck. Four fragments, very light green, nearly colourless, with parallel yellow trails similarly spaced belong to the same globular beaker: two joining sf5660–1 (Phase 2) and sf0594a–b (Phase 2.3.1). There are several other colour combinations: one fragment is olive green with yellow parallel trails, sf5884 (Phase 2.3). A thickened rim fragment sf3355 is light blue-green with two parallel yellow trails and rim sf0719 is a light blue-green rim with a yellow trail (unphased).

There are examples of a light blue vessel with yellow trails sf2348, and sf3208 green-blue with white trails. Two fragments of vivid green-blue have white trails both parallel and as possible arcades, sf3248 and sf3418. Four brown fragments have yellow decoration, sf6208 (Phase 2.3.1), sf6212, sf6251 and sf7134. On sf5317 the trail is white.

Ten fragments which look black are decorated with yellow trails, although on one the trails are lost. SF2349 and sf5980 join and sf5152 is part of the same rim (Pl. 6.2; Fig. 6.10 5980). SF8265 and sf8605 (Fig. 6.10) are folded rims of different beakers. SF4996 and sf5620 are regarded as ‘black’ although they are of thinner glass so that dark olive colouring can be distinguished in transmitted light. Other fragments are sf1431, sf2605 and sf5605.

Eleven fragments are mostly opaque, marbled yellowish-red (rust) but swirled with translucent light green. Some of these fragments are decorated with unmarbled white trails, fine horizontal trails decorating the neck of the vessel, sf5322a–c, sf5683, sf5975 and sf5978, with thicker trails in a probable looped pattern on the body, sf5314 (Pl. 6.2) and sf5338. As the kick of the base, sf4846, and a folded rim sf5977 also remain, a reconstruction of the globular beaker is possible (Fig. 6.10 4846).

Two of the red fragments are rather different, although the inside surfaces look opaque rust red in reflected light.

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Note: for Group definitions see text, except Group 7 (inkwells, Chapter 8.IV) and Group 9 (linen-smoothers, Chapter 9.IX)
Table 6.10 Glass vessel groups and colours
Both (sf5645, sf5632), however, are a streaky blue–red in transmitted light, and they are decorated with decomposed, marvered ?white trails.

A different treatment of applied trails is evident in three distinctive fragments which belong to the same vessel. The glass is light blue-green with blue and red streaks and the trails are white, drawn into festoons and marvered. SF7176 joins sf7394, and sf7371 (Pl. 6.2) possibly joins sf7394. This type of decoration, which had continued from the earlier period, also occurred at York (Rogers 1993, 1338, fig. 648, 4650, 4654 and 4656), at Ipswich (IAS 3104/419), Jarrow (Evison 2006, 314–5) and Dorestad (Isings 1989, 234, fig. 157, 7).

The small rim fragment sf7368 (Fig. 6.10) is distinguished from the other vessels by its unusual colours of white and purple. It suggests a small, wide-mouthed globular vessel, diameter 40–50mm, similar to one found at Birka, Sweden (Grave 644 with a coin of AD 920; Baumgartner and Krueger 1988, 68, no. 11; Evison 2000a, fig. 4, IV, 1) which is a nearly colourless light blue beaker with an applied purple rim. The Brandon vessel is opaque white with translucent purple applied outside, possibly as a band of rim decoration. It was found in a Phase 2.3 ditch, possibly a drip gully related to building 8893.

White glass occurred as trail decoration at this period, but also as the main vessel colour itself. Some examples of white vessels with purple decoration have been noted as in England at Waltham Abbey, Essex, the rim of a white wide-mouthed globular beaker with horizontal purple trails (Evison 2000a, fig. 4, IV, 3, fig. 14h). One white fragment was found at Ipswich of a globular beaker which bears gold decoration (IAS 3104/153). In other countries, a white glass vessel with reticella decoration was found at Corinth in an 11th-century or later context (Davidson 1952, 83, fig. 7, 614). Dated examples of white glass are provided by coin weights from Syria where opaque white glass was one of the colours used for this purpose from the late 10th to 13th centuries (Kolbas 1983, 950).

The combination of a purple rim applied on a white vessel occurred at St Denis, France, allocated to the 11th–12th century (Foy and Sennequier 1989, 144, 60b). Also at St Denis was the rim of a vessel of the same shape and colours as from Waltham Abbey and another at Pavia, Italy (Nepoti 1978, 200ff, Avb 8, 225, fig. 57; 16; Baumgartner and Krueger 1988, 80, no. 29; Foy and Sennequier 1989, 147, no. 64; Evison 1989, 140; Evison 2000a, 90). This white glass must have been imported into England, probably from the Mediterranean area, and has been found mainly in 11th–12th-century contexts. However, this particular shape of globular vessel with an applied purple rim occurred as early as the first half of the 10th century at Birka.

While the polychrome beaker fragments are decorated by trails which are either yellow or white, the vessels themselves cover a range of as many as eleven colours, some of them — such as black and red — making their first appearance in Anglo-Saxon glass assemblages. The type of decoration of the lower globular part of these beakers is unknown, but may well have included reticella trails (see below). The diameter of the rims of the polychrome beakers ranges from 60 to 80mm.

Illustrations

sf4846 Yellow-white with white decoration, 1–2mm thick. Opaque marbled rim (sf5977), folded inwards with small hollow giving an outside bead and one horizontal trail melted in. Diameter 60mm. Base fragment (sf4846), mostly opaque, swirled with one patch of light green translucent. Pushed in with mark of chisel-ended tool. Ring of clipped surface of punty, diameter 16mm (Evison 1991, 87, 66v). Three body/neck fragments (sf 5314, sf5322, sf5683). Contexts 4712 (base); 6241 (rim); 5384, 5361 and unstratified 0001 (body). Phase 2.3.1 and unphased.

sf5980 (Pl. 6.2) Black with yellow decoration, 1–3mm thick, rim diameter 61mm. Large part of rim. Slightly outbent thickened rim of globular beaker, six unmarvered parallel trails, glossy. Neck fragment sf2349. Peninsula layer 6108 and unstratified 0001. Phase 2.2.

sf8265 Black with yellow decoration, 1–2.5mm thick, rim diameter 60mm. Rim folded out, opaque, dull surfaces. Five parallel channels containing decayed ?yellow trails. 2.5m sq. 6638.

sf8605 Black with yellow decoration, 1mm thick, rim diameter 80mm. Rim folded inwards leaving slight hollow. Five parallel trails to edge of rim. Opaque, glossy. 2.5m sq. 8751.

sf7368 White with purple decoration, 1.5mm thick, rim diameter 40–50mm. Opaque white rim overlaid by translucent purple. Ditch 7556 (8120), Phase 2.3.

sf7371 (Pl. 6.2) Light blue-green with red and blue decoration, 2–2.5mm thick. Globular. White marvered trails dragged upwards at intervals forming festoons. Red and blue streaks near the inner surface. Glossy, bubbly, black inclusions. 2.5m sq. 7629.

Reticella (Group 4)

Pl. 6.3

Decoration by twisted, bi-coloured rods, reticella, occurs on twenty-one fragments. In the Middle Saxon period they were used mainly on two globular forms: bowls and globular beakers. If the fragment is large enough it is possible to distinguish between the two forms because the trails on the bowls were more numerous and closer together (Baumgartner and Krueger 1988, 70, no. 12, cf. 73, no. 15). On this basis all the reticella fragments appear to belong to globular beakers, although the presence of three indisputable bowls is indicated by rim fragments which are decorated by simple horizontal trailing in the rim area: sf3679, sf4881 and sf5097 (see below).

There are nine fragments of light blue-green vessels with yellow twist rods. Amongst these three groups can be
Some of the smaller fragments from Brandon with horizontal yellow trails or reticella trails may have distinctively different appearances and state of decomposition, and their findspots are in different areas so that they are not likely to belong to the same vessel.

An especially colourful vessel is represented by two reticella fragments (Pl. 6.3; Fig. 6.10 5988), of which sf6192 is a kicked base with five radiating self-coloured and white rods. The colouring of the base vessel is a translucent blue-red swirled with light green, and the other fragment sf5988 (Phase 2.3.1) is the same red shading into green. Amongst the polychrome fragments are sf6189, two joining fragments of streaky blue-green shading into blue-red with a single yellow trail. Sf6191 is similar and sf5105 (Phase 2) is red, shading light to dark. Three of these come from the same peat layer 6217 (sf6189, sf6191–2). In view of this, the rarity of the colouring and the globular shape, it is probable that all five fragments are from the same globular beaker with reticella decoration.

In most cases the reticella trail contains a thread which is the same colour as the vessel on which it occurs, so that it is probable that the reticella trail was twisted by the same glass blower. An exception to this is the brown vessel sf2344 which has a reticella trail consisting of three different colours: light green, white and yellow. sf2344 is a strongly curving base fragment, also with brown and spreading yellow reticella. Sf9818 shows three chipped traces, one with yellow traces, which might correspond to the ends of three lost reticella trails. Brown fragments with single trail decoration were listed above (p.172, sf6208, sf6212 and sf6251), and these might have belonged to the upper part of a globular beaker with reticella trails on the body such as listed here.

There are three fragments of ‘black’ glass with reticella trails in self-coloured and yellow, sf5970 (Pl. 6.3), sf8608 and sf9867a. Although all three have threads spreading sideways from the rod there are differences in the appearance and state of decomposition, and their findspots are in different areas so that they are not likely to belong to the same vessel.

The appearance of a nearly complete globular beaker (Fig. 6.10) and these rods are light green with white threads alternating with spreading yellow threads. Sf5163 is a globular fragment with brown and spreading yellow reticella. Sf8211 (Pl. 6.3; Fig. 6.10) is a strongly curving base fragment, also with brown and spreading yellow reticella. Sf9818 shows three chipped traces, one with yellow traces, which might correspond to the ends of three lost reticella trails. Brown fragments with single trail decoration were listed above (p.172, sf6208, sf6212 and sf6251), and these might have belonged to the upper part of a globular beaker with reticella trails on the body such as listed here.

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belonged either to bowl forms or to globular beakers. There can be no doubt, however, about three fragments of folded rims, each with a diameter of c. 140mm. All have yellow trails inside. One, sf5097 (Pl. 6.4; Fig. 6.10), is light blue-green and sf4881 and sf3679 (Pl. 6.4) are light green. Of these three one is unstratified, but sf5097 is from Phase 2.1.1 and sf4881 is from Phase 1.2. The Valsgärde 6 grave was dated to c. AD 750, but an earlier date has been suggested. Fragments with reticella decoration have been found in England, France, Germany and Scandinavia (Evison 2000a, fig. 7; Evison 2008, map 2). Well-defined fragments of these bowls have been found at Dorestad (Isings 1980, fig. 154.6; Baumgartner and Krueger 1988, 71, nos 13–14), and a number have been found in England at Hamwic and elsewhere (Hunter and Heyworth 1998, 16–19, rims fig. 14, 169/3058, 169/3069, 15/446, 30/112 and a band of horizontal marvered reticella trails 118/1185).

Illustration
sf3679 (Pl. 6.4) Light green with yellow decoration, 1mm thick, rim diameter c.140mm, depth of rim 8mm. Horizontal trails up to the edge of the rim folded outwards with hollow. Unstratified 0001.

Claw beakers (Group 6) There are few fragments of blue glass from this site and three of them appear to be parts of claws. Sf2345 is part of a fully-blown rounded claw with a vertical dark streak (Fig. 6.10), the small fragment sf2613 is 2.5mm thick and strongly curved, and sf2707 is tubular, so that all three could be parts of the claws of a claw beaker. The rest are rim and wall fragments. There are two rim fragments of the same vessel, sf2054 (Fig. 6.10) and sf2064, but as the diameter of the rim is c.70mm it is too small to be from a blue claw beaker of the Wickhambreux type which began in the 7th century (Evison 1982, 70, pl. XIIIb). Of the other blue fragments two have matching horizontal trails, sf2046 and sf2609, and two are plain, sf2614 and sf4232, so that they could all belong to the same beaker which might have been of cone or bag beaker shape, although there may be no connection between the wall and claw fragments.

Sf3635 is the top part of a fully-blown olive green claw with drawing ridges and air pockets (Pl. 6.4; Fig. 6.10). Claw beakers with fully-blown claws in this colour occurred during the Early Anglo-Saxon period, but like the blue example may have continued later. Sf2074 is a small olive green fragment consisting of the top part of a claw applied on the wall of a vessel with horizontal trails. Sf2063, a light green-blue claw with a dark U-shaped vertical streak in the middle, is flat in shape similar to the claw beakers from Valsgärde in Sweden (Arwidsson 1932, pls XII–XIII). As there are two claws here with this variation of a dark streak (cf. sf2345 above), it would seem to be a definite part of the design plan to distinguish the claws by colour from the main body of the vessel, as was done with some other claw beakers with more or less pronounced effect. Claws on a 5th-century bowl from Couvrot, France, were similarly streaked with a second colour, and claws on 6th and 7th-century beakers were a completely different colour (Evison 2000b, 271–2, pl. 12B).

Sf2704 (Pl. 6.4; Fig. 6.10), sf4955 and sf5528 appear to be black in reflected light but can be seen to be very dark olive green in transmitted light. Sf5528 is the top part of a rather flat claw applied to a wall without trails, and sf4955 (Pl. 6.4; Fig. 6.10) is the long, lower part of a short claw, the tail end being turned back on itself and attached near the incurving base of a beaker. Claws in ‘black’ glass do not appear elsewhere except for one at Flixborough in a Middle Saxon context (Evison 2009, 107). A dark olive green claw was found at York Minster (Evison 1991, 146, fig. 108a (ii); Evison 1995, 481–2, fig. 169.2).

Apart from Brandon there is little evidence of claw beakers elsewhere at this time. One brown claw was found at Ipswich (IAS 4801/87) and one in potash glass (Evison 1982, 71, fig. 13). Only one possible part of a claw was reported from Hamwic, but the catalogue description does not support this suggestion (Hunter and Heyworth 1998, 14, 108, 24/570). From recent excavations at the Ascupart Street Project at Southampton there is a light green fragment with applied blob which is probably part of a claw (Item 132-SOU1176).

Phases are recorded for some fragments: blue sf2064 (Phase 2), olive green sf3635 (Phase 2.4), light green-blue sf2063 (Phase 1.2), ‘black’ sf5528 (Phase 2.3.1). There are, therefore, a minimum of four claw beakers from Brandon while they are rare on other Middle Saxon sites, just one at Flixborough and one yellow brown claw from Ipswich, with one claw of potash glass from an earlier excavation at Falcon Street. The blue, brown and olive green claws could be survivals or continuation from the 7th century, but the ‘black’ glass and flat claw 2063 did not occur before the 8th century (Evison 2000a, 82–3, fig. 4, III, 12).

Illustrations
sf2054 Blue, 1.5–2.5mm thick, rim diameter c.70mm. Rim, slightly thickened, five horizontal trails. Small bubbles and black specks. Unstratified 0001. Also sf2064, pit 0147, Phase 2.

Sf2345 Blue, 0.5–4.5mm thick. Top of a fully-blown claw attached to a thin wall, a dark, vertical U-shaped streak in the claw. Unstratified 0001.

sF3635 (Pl. 6.4) Olive green, 4mm thick. Top of full-blown claw with draw marks and air pockets. Glossy, few bubbles. Ditch/pit 3596, Phase 2.4

sf2704 (Pl. 6.4) Black, 1.5–2mm thick. Bottom of short, fully blown claw with deep hook mark folded back on itself and attached to fragment of wall curving in to base, no horizontal trails. Glossy. Unstratified 0001.

sf4955 (Pl. 6.4) Black, 1–4mm thick. Lower part of hollow-blown claw. Deep mark of the hook at the end of a length-wise groove resulting from the pulling action. Glossy. 2.5m sq. 4685.

Other forms (Group 8) Examples of fragments of a narrow-necked vessel or bottle are sf2127 and sf2611, which join. These light blue-green fragments are from a rim 30mm wide, the neck slightly incurved and the lip ground smooth. It compares in shape with a light green rim fragment from Ipswich, Suffolk, which is smoothed and narrower in diameter at 18mm (IAS 3104/429). The incurving of the neck of the Brandon vessel suggests a profile extension into a bulbous or globular body similar to some small flasks, e.g. from a probable Viking grave at Mullaroe, Co Sligo, Ireland (Harden 1956, 154, pl. XIXb), and Hopperstad, Norway in a grave which contained a Cufic coin of AD 738–9 but is thought to belong to the 9th century (Hougen 1968, 102, fig. 7b). A bottle rim found at Heddeby has been compared with this (Steppuhn 1998, 62, Taf 13, 2). However, a
possible example of a complete bottle of the 9th–12th centuries was found at Wiesbaden, Germany (Baumgartner and Krueger 1988, 83–4, no. 34; Evison 2000a, fig. 4, III, 10). This has a rim diameter of 24mm and a height of 25.2cm, so that the Brandon rim could have belonged to a bottle equally large. A more colourful example is from Jarrow, a vivid blue-green rim folded inwards, diameter 30mm, with separate fragments in the same colour of a tubular neck and globular body (GLV j = JA 76 CG7 and JA 73 VE2, Evison 2006, 314 and 317).

SF4166 is a long narrow neck of diameter 20mm (Pl. 6.4; Fig. 6.10). The rim is broken off and there is adjacent decoration by a yellow trail. A similar long, narrow incurved neck occurred on a 10th-century bottle from Trå, Ulvin, Granvin, Hordaland, Norway (Hougen 1968, 102, fig. 8) and this has been compared with a 9th-century bottle rim at Hededy (Steppuhn 1998, 62, Taf 13, 1). SF4166 was found in the medieval enclosure ditch 9128, and its colouring of light blue-green with yellow trails was common after AD 700.

Narrow-necked vessels for bottle forms were rare in the earlier period AD 400–700, and were probably limited to imported examples in the early part of that period (Evison 2000a, groups 40–1). So far the form has only occurred rarely in the Middle Saxon period, and it is significant that the examples quoted above are single finds and that no bottle forms at all were detected among the large number of fragments from Hamwic.

SF8501 is a fragment from the wall of a cylindrical light green-blue beaker bearing a vertical trail 10mm wide at the top and narrowing below and pinched into two projections (Pl. 6.4; Fig. 6.10). This type of decoration has not been noticed elsewhere in England, but it occurred in France at Doué-la-Fontaine and St Denis in contexts of the 9th–11th century.

Illustrations

<table>
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<th>Fragment</th>
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<td>sf4166</td>
<td>(Pl. 6.4) Lt blue-green, 1.5mm thick, rim diameter 20mm. Bottle neck fragment, broken-off rim. Yellow drop-on and horizontal trail. Enclosure ditch fill 9139, Phase 4.</td>
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<tr>
<td>sf8501</td>
<td>(Pl. 6.4) Lt green-blue, 1.5–2mm thick. Wall diameter c. 60mm. Cylindrical wall fragment with vertical applied trail 10mm wide at the top and narrowing below and pinched into two projections. Dark streaks in trail. Pit 7824, Phase 2.3.</td>
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Unidentified fragments (Group 10)

Sixty-four vessel glass fragments have no distinguishing features and cannot be identified as belonging to specific forms. These are fairly equally divided between the various colours which occur at Brandon, i.e. eight light green, fifteen light blue-green, one vivid blue-green, seven olive green, ten light green-blue, six light green-blue with streaks, three blue, six brown, five ‘black’, three colourless. Applied decoration occurs on sf2726 (two parallel self trails on ‘black’), sf5498 (three parallel trails on blue glass with a red streak) and sf5997 (one self trail on an olive green vessel). In addition there is a small ball of glass, sf2059, light blue-green, such as may be nipped off as excess metal during the process of working. It is unstratified, but the colour and quality matches that of the Middle Saxon vessels so that it could be interpreted as a possible suggestion of glass-working on the site.

Discussion

Glass vessels from Saxon graves which can be dated to the period AD 450–700 were mostly of natural, uncertain or dull colours containing bubbles and small inclusions. During the 7th century some shapes were made in a definite blue and the palette of the glass blower in the 8th century was further expanded to include more vivid and dark colours as at Brandon. The colours and the form types at Brandon are shown in Table 6.10. The most common is from jars here are blue-green, olive green, green-blue and ‘black’, a colour which in transmitted light can sometimes be seen to be very dark shades of colours, such as red, blue and green. As many as twenty-four fragments are in colours so dark that they appear to be black in reflected light, and the identified forms of these occur as the more elaborate types, claw beakers, inkwells and globular beakers, both polychrome and decorated with reticella.

A yellow-red or rust colour was a rarity in the Roman and Saxon periods but there are eleven fragments here which appear to belong to one globular beaker (Fig. 6.10). A blue-red colour is also present, appearing in combination with green-blue, sf5988, sf6192, sf6189, sf6191. The red colour and red streaking also appeared on the Continent occasionally, and crucibles containing red and green marbled glass have been found in Germany at Trier and Cordel and in France at the site of Quentovic (Evison 1988a, cat. 222–5). The intentions and expertise of the craftsmen in achieving these effects have been discussed (Hunter and Heyworth 1998, 35–6).

At Brandon there is a range of the more rare and distinctive colours, vivid blue-green, vivid green-blue, yellow-red, blue-red, black, colourless, white. Most of these colours are to be found also at other sites in England: Hamwic, Ipswich, Barking, Flixborough and York. They are mostly in the form of polychrome globular beakers which also had additional colours as applied white or yellow trails. Reticella trails at Brandon were only applied on four base colours, light blue-green, brown, black and blue-red/light green.

Table 6.10 shows that the form most often represented at Brandon is the globular beaker (sixty-four fragments). Compared with this there are only twelve fragments of palm-cup/funnel beaker type, in contrast to Ipswich where, although the total of all vessel fragments is similar, the total of the palm-cup/funnel beakers is much larger at ninety-one. Even more of a contrast are the finds at Southampton where a total of 1,735 fragments was recorded and 466 of these belonged to the palm cup/funnel beaker series. A few of the vessels regarded there as flasks or jars may presumably be included in the globular beaker category but this would not appear to affect the ratio substantially (Hunter and Heyworth 1998, 16). There are various possible reasons for differences in the totals of specific glass types at the two sites of Ipswich and Brandon, such as drinking customs requiring sitting or standing positions, to account for preference for stable or unstable drinking vessels. This is conjecture, however, and differences may have depended on availability of supply or movements of itinerant glass blowers. A preponderance of palm cup/funnel beakers also occurs at Dorestad, Holland.

Although Ipswich and Brandon are in the same county and not very far distant from each other, there is further difference in the types of glass fragments. Similar are the very small numbers of bottle and claw fragments. The bowl form at Ipswich, however, occurred more often, at least fourteen times and possibly more. Two forms at
Brandon are utensils rather than drinking vessels and there is no trace of either at Ipswich. Of these the presence of inkwells (see Chapter 8.IV) might indicate a scriptorium at Brandon only, but it is surprising that Ipswich inhabitants had no use for glass linen-smoothers (see Chapter 9.IX).

It can be seen that the greatest variety of colour occurred in the globular beakers. As may be expected the linen-smoothers which were used as tools were in only three common, natural colours. The other form of utensil, the inkwell, was also in natural colours, but some fragments were black and decorated with coloured trails.

Some of the types may be regarded as the work of glass blowers in England, such as the polychrome globular beakers which occurred in large numbers. Beakers and bowls decorated with reticella trails were, no doubt, also blown here (Evison 2000a, fig. 7). A few of the fragments, however, were imported into this country. The monochrome globular beaker, with its design of moulded bosses may be matched with similar single pieces from Ipswich, Paderborn, Hedeby and Birka, so that a Rhineland origin for these is likely.

The inkwell form has so far only occurred in small numbers at Brandon, Hamwic and Lurk Lane (Beverley) in this country, with one at Liège in Belgium. Their similarity in colours and decoration to globular beakers, as well as the absence of handles, suggests insular origin, but they may have been copied from Middle Eastern inkpots for there is close correspondence in shape, pattern and colours between them and Islamic work (Evison 2000a, figs 14d and I).

The rarity of opaque white glass and the fact that similar small numbers appear on continental sites also suggest import from outside the European area. The import of ready manufactured glass in slabs and chunks to be blown as fully fashioned vessels here and in other European countries shows that there was traffic with Middle East glass centres, and these connections were no doubt the source of the development of a new range of colours in the 8th century (Whitehouse 2003).

Few relics of Roman glass were found at Brandon and none at all of the Early Anglo-Saxon period. Middle Saxon glass then appeared in variety and numbers, but there is no evidence of continuation of glass vessels in the next two centuries. There are examples here of all of the varieties of Middle Saxon glass from the poorer quality and dull colours of utensils for everyday use to the bright colours and intricate reticella technique of splendid drinking vessels.

**Spatial distribution of the glass vessels**
by Andrew Tester

A plot of all the vessel glass recovered by the hand digging by 2.5m squares is included in Chapter 4, Fig 4.72. This shows a marked concentration over the waterfront with a lower background scatter over most of the remaining area. A slight bias is discernible towards the halls area but there were very few finds from the area of the two churches. The distribution pattern for the glass is something that would benefit from further study. The waterfront concentrations represent two stratigraphic levels that both produced finds: those directly over the peat and those in the overlying, and later, rubbish deposits at the surface. This would have implications for the dating of the material as well as its use on the site. It would also be of interest to carry out a cross-fit analysis and try and establish how far sherds may have travelled and what percentage of different vessels is represented.

**VII. Stone lamps**
by Sue Anderson

Fig. 6.11

Five limestone bowl-shaped vessels were found. Three of the pieces were from 2.5m squares (sf4999, sf2679 and sf2680), one was recovered during cleaning (sf1355), and one was from a burnt layer in Phase 2 (sf5959). The most convincing example is sf4999 (Fig. 6.11), which comprised fragments making up approximately half of the vessel, with an estimated diameter of 210mm. SF5959 was sooted and burnt, and comprised two fragments making up c.30% of the rim, which measured c.160mm. The other three pieces were in the same type of stone, but none showed any particular distinguishing features. Both sf2679 and sf2680 were burnt, weathered and showed signs of crystal growth. The objects were originally identified as mortars, and this would seem to be a possible use for them. However, in view of the sooting on one example (although this was from a burnt deposit) and their similarity to Ipswich Ware lamps, it is suggested that the objects may have been cresset lamps. Similar objects have been identified as lamps at Flixborough (Wastling 2009).

**Illustration**

sf4999 Fragment of limestone lamp. 2.5m sq. 4681.

**VIII. Utensils**

**Spoons**
by Ian Riddler

Fig. 6.12

All seven of the spoons are copper alloy, as is the combination of a fork and spoon (sf8230, Fig. 6.12). The fork and spoon combination has been published previously (Webster and Backhouse 1991, 86 no. 66(p)). There are three principal types of spoon, defined by the nature of the stem, which is either cast or sheet metal, or formed of a twisted rod. There are two spoons with cast stems, sf5648 (Fig. 6.12) and sf5654, and four spoons with sheet metal stems and bowls, sf2323, sf4739, sf6837 and sf9744 (all Fig. 6.12), as well as one fragment produced from a copper alloy rod (sf5485). Both of the spoons with cast stems are fragmentary, with the bowl entirely missing in one case and surviving in part with the other. The surviving bowl (sf5654) was originally oval and quite shallow, and a baluster moulding marks the junction with the stem, which is square in section with a rounded end. The same moulding recurs on the other cast stem (sf5648).

A similar moulding can be seen on the spoon from the St Ninian’s Isle treasure and on several spoons from Hamwic, as well as a spoon from Broome Park (Wilson 1973, pl. XXVIa and b; Hinton 1996, fig. 24.24/27 and 26/593; Speake 1989, fig. 38). One of the Hamwic spoons may, however, be a stylus (Hinton 1996, fig. 24.26/593). A square-sectioned stem occurs on a bone spoon from Winchester (Biddle 1990, fig. 247.2623). Both of these Brandon spoons come from stratified contexts of Middle Saxon date; they are the only spoons that can be securely dated.
The same characteristics of a square sectioned stem with baluster mouldings are repeated on the fork and spoon combination (sf8230). A three-pronged fork lies at one end and a thin, lightly curved oval bowl occupies the other, with dotted decoration around the perimeter. Webster has compared the object with the Sevington implement, which was buried with a coin hoard around AD 850, as well as with Hamwic examples, which have now been republished (Webster and Backhouse 1991, 86; Hinton 1996, 56). Another example has emerged from Beverley (Goodall, A. 1991, 148, 151 and fig. 115.616), its decoration suggesting that it is contemporary with the Sevington implement. Six tin-plated iron spoons have come from York, all of which originally had bowls at both ends (Ottaway 1992, 601–4; Morris 2000, 2269). These are smaller than the Brandon object although the thinning of their iron surfaces suggests that they were of some value (Ottaway 1992, 603). As a whole, the fork and spoon combinations may be confined to the 9th century, although a broader date range is also possible.

The sheet metal spoons have narrow stems of rectangular section, two of which (sf4739 and sf8637) are decorated with single ring-and-dot motifs, as is the perimeter of a bowl of this spoon type (sf2323). An oval bowl (sf9744) retains the vestige of a stem of sheet metal. It has been perforated at the junction with the bowl, possibly as a means of prolonging its use after the stem had fractured. A number of the Hamwic spoons have suspension loops on the ends of the stems and two of the sheet metal spoons from Brandon (sf4739 and sf8637) have folded ends, undoubtedly for the same purpose (Hinton 1996, fig. 24.4/37, 24/7 and 4). Several of the Hamwic spoons are also of sheet metal and further examples are known from Barham and Thetford (Hinton 1996, fig. 24.24/7 and 4; West 1998, fig. 6.54–5; Rogerson and Dallas 1984, fig. 112.48; Andrews 1995, fig. 67.31). One example has also come from West Stow, providing further substantiation of the idea that the site continued into the 8th century (West 1985, fig. 228.7). Sheet metal spoons are not seen before that date and the West Stow
example is very similar to one of the Brandon spoons (sf8637). Geake described a number of spoons from Early Anglo-Saxon graves, several of which are made of iron and all of which appear to be of later 7th- or early 8th-century date (Geake 1997, 97–8). She also identified two copper alloy ‘spatulas’, defined by the flatness of their bowls, and one of these represents an undecorated version of the Brandon sheet metal series, but of only half the size (Evison 1987, fig. 53.8).

The third type of spoon is represented by a single example (sf5485) with a twisted rod stem and a flattened, fragmentary bowl. A twisted rod stem occurs also on a spoon from Pevensey (Wilson 1964, no. 59), as well as a lead alloy spoon from Winchester (Biddle 1990, fig. 248.2625). Wilson dated the Pevensey spoon to the 11th century but subsequently suggested that it might be earlier (Wilson 1964, 61; 1973, 113). The Winchester spoon has been placed in the 11th to 12th century, although it came from a context of a slightly later date (Biddle 1990, 832–3). The Brandon spoon is unstratified and could be of 11th–12th-century date.

The initial publication of the bone and ivory spoons from Winchester stressed their ecclesiastical function, particularly for the double-ended form (Collis and Kjølbye-Biddle 1979, 378; Kjølbye-Biddle 1990, 830). Subsequently, a wide range of Middle and Late Saxon spoons have been discovered, occurring in a range of shapes and sizes, and the ecclesiastical interpretation has inevitably given way to a simpler, domestic function (Morris 2000, 2269; Riddler et al. forthcoming). The spoon and fork combinations are still a rare commodity, however, and the ecclesiastical argument is still compelling in their case, whilst the remaining spoons are undoubtedly household implements.

Illustrations

sf5648  Ae. Spoon with cast stem. Stem of square section with oval bulb and transverse mouldings to either side of it at end, leading to bifurcated terminal, largely missing. 2.5m sq. 5044, Phase 2.3.1.

sf8230  Ae. Fork and spoon combination. Oval spoon bowl at one end with ‘pecked’ dotted decoration along circumference and five dots forming an irregular cross pattern at the centre. Several dots pass through the metal. Collar with rounded edges lies between bowl and shaft of circular section. Two raised baluster mouldings on shaft with thin collars to either side. Towards lower end shaft becomes more rectangular with hatched lines to either side and three dots in pattern on upper face. Three prongs at this end, each slightly bent, narrow and tapering. MD find 6761.

sf4739  Ae. Sheet metal spoon. Incomplete with flat oval bowl, slightly angled from shaft, plain on both sides but with three single ring-and-dot patterns in a line close to junction with stem, and further motif closer to stem. Sheet metal stem of rectangular section, curled back on itself at the end. Decorated with an irregular line of single ring-and-dot motifs within thin, lightly incised single framing lines. Diagonal file marks are visible. 2.5m sq. 4695.

Figure 6.12 Copper alloy spoons (1:1)

179
The distinction between the two can often become blurred without genuine hollowing of the blade to form a bowl. Distinguished from spoons if they have a flat cross-section handle (whose functional end is missing). Spatulae are ideally suited for a particular task and easy to make from new or reusable timber. Most wooden pot-lids date from the 10th–12th centuries and were mentioned in medieval domestic inventories (Moorhouse 1978, 14) where they seem to have been used as early as the 4th century at Wijster (Van Es 1967, fig. 66, 2–3) and Feddersen Wierde (Haarnagel 1979, Taf. 41,1) on the Continent. Other comparative wooden pot-lids, some plain, some with central holes, have been found at various English sites including an 8th-century pot-lid with a hole from 2262–5, fig. 1098), 10th-century pot-lids from Brook Street, London (Morris 1984, fig. 77, M141), twelve wooden pot-lids from Coppergate, York dating from the 10th century onwards (Morris 2000, 2262–5, fig. 1098), 10th-century pot-lids from Brook Street, Winchester (Keene 1990, fig. 377, 4455), 10th/11th-century examples from Southgate Street, Gloucester (Morris 1984, M143), and Sudder Street, Durham (Carver 1979, 26) and a Late Saxon example from Milk Street, London (Morris 1984, fig. 77, M156). They are small circular or sub-circular discs with squared or rounded/squared edges just like sf5993 from Brandon. The shape and features of these wooden discs remained constant over a long period of time because they were ideally suited for a particular task and easy to make from new or reusable timber. Most wooden pot-lids date from the 10th–12th centuries and were mentioned in medieval domestic inventories (Moorehouse 1978, 14) where they were used for cooking and craftsmen’s recipes such as an early 15th-century recipe which instructed ‘see that you have a lid of tree upon the pot’s mouth well closed’ (BL Sloane MS 73, fo.138v).

SF5643 is broken and could be a spatula, stirrer or tool handle (whose functional end is missing). Spatulae are distinguished from spoons if they have a flat cross-section without genuine hollowing of the blade to form a bowl. The distinction between the two can often become blurred especially when items were homemade and intended for similar tasks such as stirring, scooping and spreading, but sf5643 is not a spoon. Very few comparable items survive from English sites, but there are four 10th-century Anglo-Scandinavian spatulae from York which vary considerably in shape and size, so were intended for different household tasks in cooking and food preparation (Morris 2000, fig. 1102, 8902–5).

Flesh hook

by Nicola Rogers

SF5256 comprises part of the tang and prongs of an iron flesh hook, used to extract meat from cauldrons. This form of flesh hook with two or three prongs has typically been recovered from 10th–13th-century deposits (see for example Ottaway 1992, 600, 2990; Goodall 1984, 95, 193–4; Goodall 1990a, 819, 2546–8).

IX. Keys and locks

Barrel padlocks

by Nicola Rogers

Fig. 6.14

Twenty-four fragmentary iron barrel padlocks were recovered at Brandon, but surprisingly not a single padlock key. Barrel padlocks comprised a U-shaped bolt which, when locked, was held in position by leaf springs on one, or occasionally two, arms or spines which pressed outwards at the end of the barrel shaped case. The other arm of the bolt — known as the free arm — sat in a tube which formed part of the case. To open the padlock, the key was inserted, the holes in the bit sliding over the leaf springs and compressing them, allowing the bolt to be slid out of one end of the case. Two types of barrel padlock were in use in the Anglo-Saxon period, the main difference between them being the position of the keyhole, which was either at the end of the case or in the cylinder itself (Ottaway 1992, 664–7, figs 284–5). Unfortunately, most of the padlocks from Brandon are too fragmentary to enable identification of the position of the keyhole: only sf2506 has an end plate with a certain keyhole, while sf3573 and sf5499 have possible keyholes in one end. None appears to have a keyhole in the cylinder.

Wooden utensils

by Carole Morris

Fig. 6.13

Some Anglo-Saxon woodworking was carried out on a do-it-yourself basis, and small wooden household utensils such as sf5993 and sf5643 were produced when needed if the wood and tools were available.

SF5993 is almost certainly a wooden pot-lid (Fig. 6.13). It was an unstratified find. Most pot-lids found on archaeological sites were homemade items utilising flat boards, staves or planks of riven oak etc. which happened to be available. They were wooden lids for ceramic vessels, especially storage jars and cooking pots. They could have been used on pottery storage jars and cooking pots with slightly rebated or everted lid seatings. Wood was probably considered the material best suited for making flat lids for jars, although pottery, stone and even parchment and linen were also used in the medieval period (Jope 1949, fig. 11, 1; Evans and Jarrett 1987, fig. 111, 15 and 17; Morris and Evans 1992, 190).

The Brandon lid is probably one of the earliest found on any British site, although pot-lids with or without holes seem to have been used as early as the 4th century at Wijster (Van Es 1967, fig. 66, 2–3) and Feddersen Wierde (Haarnagel 1979, Taf. 41,1) on the Continent. Other comparative wooden pot-lids, some plain, some with central holes, have been found at various English sites including an 8th-century pot-lid with a hole from Melbourne Street, Southamptom (Morris 1984, fig. 77, M141), twelve wooden pot-lids from Coppergate, York dating from the 10th century onwards (Morris 2000, 2262–5, fig. 1098), 10th-century pot-lids from Brook Street, Winchester (Keene 1990, fig. 377, 4455), 10th/11th-century examples from Southgate Street, Gloucester (Morris 1984, M143), and Sudder Street, Durham (Carver 1979, 26) and a Late Saxon example from Milk Street, London (Morris 1984, fig. 77, M156). They are small circular or sub-circular discs with squared or rounded/squared edges just like sf5993 from Brandon. The shape and features of these wooden discs remained constant over a long period of time because they were ideally suited for a particular task and easy to make from new or reusable timber. Most wooden pot-lids date from the 10th–12th centuries and were mentioned in medieval domestic inventories (Moorehouse 1978, 14) where they were used for cooking and craftsmen’s recipes such as an early 15th-century recipe which instructed ‘see that you have a lid of tree upon the pot’s mouth well closed’ (BL Sloane MS 73, fo.138v).

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IX. Keys and locks

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by Nicola Rogers

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Twenty-four fragmentary iron barrel padlocks were recovered at Brandon, but surprisingly not a single padlock key. Barrel padlocks comprised a U-shaped bolt which, when locked, was held in position by leaf springs on one, or occasionally two, arms or spines which pressed outwards at the end of the barrel shaped case. The other arm of the bolt — known as the free arm — sat in a tube which formed part of the case. To open the padlock, the key was inserted, the holes in the bit sliding over the leaf springs and compressing them, allowing the bolt to be slid out of one end of the case. Two types of barrel padlock were in use in the Anglo-Saxon period, the main difference between them being the position of the keyhole, which was either at the end of the case or in the cylinder itself (Ottaway 1992, 664–7, figs 284–5). Unfortunately, most of the padlocks from Brandon are too fragmentary to enable identification of the position of the keyhole: only sf2506 has an end plate with a certain keyhole, while sf3573 and sf5499 have possible keyholes in one end. None appears to have a keyhole in the cylinder.
In all instances where the free arm tube survived on the padlocks, it appeared to be directly attached to the case – see for example sf2770, sf3503, sf3573 (Fig. 6.14). This form has been found in Early Anglo-Saxon graves (Faussett 1856), and was used throughout the Saxon period, but probably not beyond the 12th century (Goodall 1990b, 1001).

Many of the padlocks have traces of non-ferrous metal on them, which was probably used as brazing in order to join elements such as the free arm tube and/or decorative strips to the case, but also covered the whole object, acting as a protection against corrosion, as decoration or as both (Goodall 1990b, 1002). Most of the brazing metals on the padlocks that have been analysed are composed of lead and tin (e.g. sf3503), sometimes also with zinc (e.g. sf2506): in one instance tin and arsenic were identified in the alloy (sf2202). It seems likely that, as with the bells (see Chapter 9.IV), the presence of these alloy coatings explains the relatively high number of padlocks that have survived on the site, compared to the numbers of other iron objects. Similarly, the lack of accompanying keys is probably due to the corrosive nature of the soil.

As noted above, the form of all the Brandon barrel padlocks dates from the Saxon period through to the 12th century, and most of the padlocks were found in either Period III contexts (fourteen examples) or 2.5m squares (five examples), and two padlocks were found in unphased layers (sf2469), and topsoil (sf2237). These include fragments of two padlocks (sf4008) that were found in a chest burial, presumably left over from the original use of the chest as a place of storage (see Chapter 7.II).

Illustrations

sf 2770 Barrel padlock, incomplete, comprising incomplete case, incomplete end plate and part of free arm tube running along top. There are traces of non-ferrous metal both internally and externally. Analysis of non-ferrous metal: copper with traces of lead, tin, zinc. Layer 5575 (peninsula 8117), Phase 2.3.

sf2202 Barrel padlock end plate with non-ferrous plating, and internal mechanism comprising two spines of rectangular section, one with three leaf springs, second at 90° angle to first and retaining tip of one spring. Analysis of non-ferrous metal: copper with traces of tin, arsenic. Layer 0010, Period III.

sf5979 Fragments (3), with traces of non-ferrous coating, all possibly part of a barrel padlock end plate and bolt. Peat layer 6100 (peninsula 6892), Period III.
Fixed locks
by Nicola Rogers

Two forms of fixed lock employing a sliding bolt were in use in the Saxon period, and fragments from each type were recovered at Brandon. Sf2247 is a bolt fragment from a lock with leaf springs which was operated by a slide key (see below): this sort of lock could have been used to secure a chest or box lid (Ottaway 1992, 660, fig. 282). When complete, the bolt comprised a plate perforated in the centre by a rectangular slot and at one end of the slot by a hole on each side of it. An arm projected from each end of the plate, and when in use the arms would have been held in place on the inner face of a chest by small staples: only part of one arm and staple survives on sf2247. Detailed accounts of the operation of such locks are made elsewhere (e.g. Ottaway 1992): briefly, to unlock, a key was inserted through the chest keyhole and twisted through 90º so that the teeth engaged in the holes at the head of the central plate. Once engaged, the key was pulled back slightly, thus releasing springs and enabling the bolt to be slid back to free the closing hasp. Although recovered from topsoil, sf2247 is likely to date from the Middle Saxon period, being part of a lock form in use in northern Europe possibly by the 5th century and certainly by the 7th century (Ottaway 2004, 112), but not after the Conquest (Rogers 1993, 5232; Goodall 1990b, 1005), and possibly obsolete by about AD 900 (Ottaway 2004, 112).

Sf7390 (Fig. 6.14) comprises fragments from the keyhole and case of a fixed lock which would have been used on a door or chest. In this lock form, the bolt was held in place by a tumbler rather than a spring (Ottaway 1992, 657–8), and was operated by a revolving key (Goodall 1990b, 1005, fig. 320). Typically, the bolts from these locks tend to survive more frequently than the lock cases, as at Thetford, where five bolts were found (Goodall 1984, 95, fig. 131, 174–8), but a complete lock mechanism in a wooden housing was recovered from Anglo-Scandinavian deposits at the Lloyds Bank site, Pavement, York (MacGregor 1982, 80, fig. 42, 430). Sf7390 was found in a 2.5m square.

Iron keys for fixed locks
by Nicola Rogers

All three iron keys found at Brandon were for use with fixed locks, and are of forms which possibly extend back into the late Iron Age (Manning 1985, 90), but were certainly known in the Saxon period (Rogers 1993, 674).

Sf2810 is a T-shaped key which was found in pit 0156 (Phase 2.2), and sf5958 is a fragmentary L-shaped key from a 2.5m square. The bit of sf2488 has been broken off, but its scrolled loop terminal is similar to those found on Viking Age L-shaped keys at 16–22 Coppergate (Ottaway 1992, 673–4, figs 288–9, 3654). Keys with T-shaped or L-shaped bits from the late Iron Age or Roman periods have been termed lift-keys (Manning 1985, 90, fig. 25, nos 1–3) or slide-keys (Wheeler 1930, 73–4, pl. XXXA, 1–4), and operated locks employing one or more tumblers (Manning 1985, 90). Perhaps confusingly, keys of identical form were used in the Saxon period to operate locks with sliding bolts and springs, such as sf2247 (see above). Both the phased Brandon keys could date from any time from the later Iron Age to the Middle Saxon period (Rogers 1993, 674), but perhaps are most likely to be contemporary within their phased contexts, while sf2488 is also likely to date from the Saxon period.

Copper alloy keys
by Ian Riddler

Fig. 6.15; Pl. 6.5

Two copper alloy casket keys (sf4316 and sf8331) have oval bows and short, partially hollowed stems (Fig. 6.15). The bow of one key is decorated on one side by single ring-and-dot motifs, in a similar manner to a fragmentary key from Whitby (Peers and Radford 1943, 66 and fig. 17.3; Wilson 1964, 200–1 and pl. XL.132). The bow originally included a suspension loop. A larger copper alloy key (sf0602) found in an occupation layer immediately to the south of the church has been published previously (Webster and Backhouse 1991, 86 no. 66q). It has an oval bow with a stepped cruciform pattern leading...
to a short stem and an L-shaped bit (Pl. 6.5; Fig. 6.15). A suspension loop is set transversely beyond the bow. Wilson has noted that this is an Anglo-Saxon characteristic that is seldom seen on the Continent (Wilson 1964, 57). A simplified version of the same design can be seen on a key from London and an unprovenanced key in the British Museum, and an openwork cruciform pattern lies within the bow of a key from Framlingham (Wilson 1964, 146 and 203, pls XXIII.40 and XL.132; Plunkett 2005, 157). Related designs occur on two keys from Dorestad, emphasising the Middle Saxon date of the object type (Roes 1965, pl. VI.52 and 57).

Illustrations

sf0602 (Pl. 6.5) Ae. Complete. Oval bow with near-circular suspension loop beyond, set transversely. Bow has cruciform openwork pattern with stepped cross at centre and thin arms of rectangular section. Arms have triangular arrows on lateral stems, which lead to square blocks and stepped square blocks on vertical arms. Bow widens to stem with incised crossing diagonal lines forming double collar. Oval stem, seemingly hollow but possibly with a core. Bit is L-shaped with long arm having two square cut-outs, sold lateral arm tapering in size, slight upturn. 2.5m sq. 7031.

sf4316 Ae. Solid cast, front of stem hollowed, simple bit with rectangular slot cut into it, oval bow decorated on one side by small single ring-and-dot patterns, broken suspension loop beyond. 2.5m sq. 4297.

sf8331 Ae. Small casket key with oval stem, front part hollowed, fragmentary bit of L-shape, simple broad oval bow. 2.5m sq. 6701.

**Antler key**

by Ian Riddler

An elegantly produced antler stem, sf4981, of flattened oval section widens at one end to a perforated circular terminal (Fig. 6.15). The object is highly polished. It can be compared with a similar object, albeit with a larger perforation, from Thetford (Rogerson and Dallas 1984, fig. 190.44). A related object of a similar size from Lundenwic has been interpreted as a large ring-headed pin.

![Figure 6.15 Copper alloy and antler keys (1:1)](image_url)
This interpretation is less likely for the Brandon and Thetford examples, both of which are too large to have served as pins. Similar, if more elaborate, objects of Roman date with broad circular terminals have been regarded as hand distaffs used in spinning wool (Mikler 1997, 53–4 and taf 39.8–9). These objects have circular shafts, however, which is not the case here. A related form of object of Roman date with a ring head was used as a hair pin, but the shafts of these objects taper to points (Gostenčnik 1996, 117 and taf 4.1).

Another possible interpretation is that the Brandon and Thetford objects form the stems and bows of antler keys. A resemblance can be noted with a bone or antler implement from London, which is thought to have been a key (Egan 1998, 88–9 and fig. 63). The London object is closely paralleled by an implement from Gorsium (Bíró 1987a, 166 and fig. 7.34). A better parallel for the Brandon object is provided by a second object from Gorsium, which includes a circular loop and ends in a decorated terminal (Bíró 1987b, fig. 28.242). The Brandon object could be considered, therefore, to be the stem of an antler key, with a simple axial bit at the terminal, which is now missing.

Illustration

sf4981 Undecorated antler stem of flattened oval section, tapering in profile and widening to a circular terminal, pierced by an oval perforation at the centre. Highly polished. 2.5m sq. 4970, Phase 2.3.1.

X. Box, chest or furniture fittings

Iron fittings
by Nicola Rogers
Fig. 6.16

Staples
Three types of staple were recovered at Brandon — rectangular (three examples), U-shaped (fifteen) and looped (four).

The rectangular staples range in width (from arm to arm) from 45mm (sf2239; Fig. 6.16) to 54mm (sf2777), and in length from 18mm (sf2239) to 46mm (sf2777). Both 2239 and 2777 have inturned arms.

The more numerous U-shaped staples exhibit broader ranges of width and length: in width, they range from 22mm (sf5605) to 47mm (sf2539), while in length, they range from 25.5mm (sf7401) to 79.5mm (sf2539). As with the rectangular staples, some have inturned arms (e.g. sf4268).

Looped staples differ from the other types of staple in that their arms converge in the middle, providing a loop at the head; sf4101 appears to be attached to a hasp fragment.

The use of staples
Staples serve a variety of functions, as the range in their sizes indicates. None of the Brandon staples is particularly large, and most were probably used to attach fittings to boxes, chests or other furniture, rather than acting to secure structural timbers. This is particularly true of the looped staples, found individually, but also present on hasps and a stapled hasp (sf4795, sf4844, sf2488 — see below), which would have been attached to chests. One of the looped staples (sf4101) was found in an inhumation, and could have come from a chest, but no other fittings consistent with a chest burial were recovered. Loopoed staples have also been found holding drop handles in place on boxes (Ottaway 1992, 623). The small rectangular staple sf2239 might be a dress fitting, such as a belt clasp: two similar objects were found in the waist area of a skeleton in an Anglo-Saxon burial at Yeavering, Northumberland (Hope-Taylor 1977, fig. 87.2).

Illustrations

sf2239 Rectangular staple, with short inturned arms, of sub-square section. Layer 0034, Period III.

sf2194 U-shaped staple fragment, one arm broken off, of rectangular section. Layer 0034, Period III.

Perforated fittings
This group of objects comprises strips and sheets of varying sizes with perforations and/or perforated terminals: they may best be described as fittings in that they are, or clearly were, all pierced at least once for attachment to wood. Most of these fittings are incomplete and many are fragmentary so that their original form and function is often unclear but some probably acted as bindings or strengtheners for boxes and caskets. Some of the strips may have been circular rather than rectangular: sf3626 for example, appears to have been attached originally to a curved surface. The extant terminals on most of the strip fittings are simply rounded, as on sf9899.

Figure 6.16 Iron staples and fittings (1:2), and copper alloy casket fitting (1:1)
(Fig. 6.16), or expanded as on sf3500 (Fig. 6.16). Some of the larger strips which have lost their terminals may be hinge strap fragments (see below).

Sf2340 has traces of brazing on it, and some fragments are slightly convex — for example sf2448 and sf2424: these may have been attached to vessels such as buckets or barrels.

Illustrations

sf3500 Strip, in three adjoining fragments, one end with flat rounded perforated terminal, strip broadening out slightly at other end which is incomplete, broken off just beyond a second perforation. 2.5m sq. 3473.

sf9899 Strip, one end broken across perforation, nail or rivet in situ close to other end which is rounded. 2.5m sq. 6737.

Corner brackets

Two corner brackets (sf4377, sf3486) would probably have been used to strengthen the corners of chests.

Hasps

Four hasps all take a similar form, of a roughly rectangular plate with a looped eye at each end. These would have been attached to chests via a looped staple into the lid, the other end having a loop through to fit over a staple in the side of the box (Ottaway 1992, 645). Two other hasps come from deposits dating to the Saxon phase (sf2446, sf5449), one derives from a 2.5m square (sf9713), and one (sf3556) was from an unphased deposit.

Illustration

sf2446 Possible hasp fragments (3), largest comprising plate of rectangular section, one end broken, tapering to other rounded end, which is bent round at c.90° and perforated. The other two fragments may be part of the same hasp, one comprising a looped up eye. Cleaning layer 3859, Phase 1.1.

Hinge straps

Seven hinge strap fragments with a looped eye at one end were identified. Most are very fragmentary, but sf2642 retains part of a linked strap within its eye. Six possible examples — also all rather fragmentary — of hinge straps with a U-shaped eye were also found. These straps could be used in conjunction with the end looped straps on chests and caskets, as seen on burial chests (see Chapter 7.11).

Copper alloy fittings

by Ian Riddler

Casket hinge

A casket hinge (sf5318) has two loops with a space at the centre and a rectangular plate with a tapered extension (Fig. 6.16). Traces of organic material are visible on the reverse. This type of hinge is related to those of iron that occur on wooden boxes largely belonging to the second half of the 7th century (Riddler 2006b, 20). The particular shape of the hinge is similar to those seen on a casket from Finglesham grave 95 (Speake 1989, fig. 26; Hawkes and Grainger 2006, 78–9 and fig 2.103). Copper alloy casket hinges were found with caskets from Cow Lowe, Finglesham grave 95 and Swallowcliffe Down (Speake 1989, 30). The similarities with the Brandon hinge suggest that it too is of late 7th or early 8th-century date.

Illustration

Sf5318 Ae. One part of a hinge with a rectangular plate tapering with curved sides. Originally secured by two small rivets. Two loops at the opposite end, folded back on to the plate. Charcoal layer 5116 (peninsula 5392), Phase 2.1.1.

Nails

Two small copper alloy nails (sf5274 and sf5312) with rounded heads and shafts of rectangular section were found in contexts of Phase 2.3.1 at the waterfront. Their size and shape suggests that they were used to fasten mounts or hinges on boxes or caskets.
Chapter 7. Cemeteries and People
by Sue Anderson

I. Introduction

This chapter brings together the evidence for burial as practised by the Middle Saxon population of Brandon, and the physical evidence for the people themselves. Cemetery 1 at Brandon is one of the few completely excavated cemeteries of this period, and provides us with an insight into the lives and deaths of the people who chose to be buried there. Cemetery 2 is assumed to be at least partly contemporary with Cemetery 1, based on Middle Saxon radiocarbon dates obtained for the former, but was not fully excavated. This means that, despite having a fully excavated cemetery, we do not have the complete population. Lack of absolute dating evidence for the first cemetery makes it difficult to assess the relationship of the two, but useful interpretations are still possible given the large size of the group.

The evidence for the people and their funerary practices is discussed in Chapter 12, Sections IV and VI.

II. Cemetery 1

Introduction

Cemetery 1 was located to the south-east of building 7098, which is interpreted as a church (Chapter 4.IV and Chapter 12.III).

The cemetery was first uncovered from the eastern side during a north to south machining programme. Several skulls and other bones were damaged as they were located above the level of the natural yellow sand, which was the usual machining depth in this area. Machining over the remainder of the cemetery was more circumspect but the occupation level was not clearly visible in this area and was removed over the bulk of the cemetery. Over much of the cemetery the intercutting graves destroyed the soil profile. The shallow depth of many of the burials meant few grave outlines could be easily distinguished and most inhumations were only recognised as the bones were uncovered. Levels were taken on skulls where possible, bodies without skulls were levelled at a position considered to represent an average depth for the main bones. There is some discrepancy between the two methods as skulls tend to be approximately 0.1m higher than the remainder of the skeleton. Planning was carried out at a scale of 1:20 and included all skulls and articulated bones. Other bones thought to be significant at the time of excavation were drawn where possible but the majority of disarticulated burials were found during bone analysis to belong to single individuals, reducing the number of articulated burials to 145. The number of individual skulls and left femurs found, however, places the true estimate of burials closer to 200 (see Section III).

Extent

Fig. 7.1

The cemetery was oriented approximately east to west and was 20m long by a maximum of 11m wide at the centre, tapering towards both ends (Fig. 7.1). Within this area there were gaps where few or no graves were dug, the most obvious being an approximately square area in the centre. The cemetery was not delimited by any features which had left a trace archaeologically.

The northern edge of the cemetery appears to have had an alignment very close to east–west, matching almost exactly that of the south wall of building 7098. However, north of this apparent edge were two burials, 8019 and 8015, extending the cemetery some 3.5m in this area. The arrangement of burials at the eastern edge could possibly indicate a curving boundary to this end, if not a straight line on an approximate north-west to south-east alignment. On the western edge the graves seem to peter out, suggesting a less clear boundary. The southern edge is very clearly defined as a south-east to north-east line, but again there are outliers to the main area.

The burials to the south of the main boundary (1773, 1780, 1802 and 1804) were approximately 3.75m away from the main group, but were placed on a similar alignment. It seems likely they were part of a southern extension beyond a pathway, which would explain the very precise separation and alignment of the burials. To the south-west of 1802 was a further burial, 1351, which also aligned with the main cemetery.

One other outlier to the cemetery must be mentioned. Some 4m north of burial 8015, 7m north of the more general northern edge of the cemetery, was a semi-articulated group of bones from a single individual, skeleton 8000. This redeposited burial was located on the northern side of ditch 8919. Although the burial was on a level of 4.53m OD, similar to those elsewhere in the cemetery, it was set in a dark loam soil which is interpreted as material upcast from ditch 8919. It seems highly likely that the body was disturbed when the ditch was excavated and unceremoniously placed below the bank. From its
Figure 7.1 Plan of cemetry 1
position, the burial may originally have lain within or just outside the east end of building 7098.

**Internal structure**

Fig. 7.2

As noted above, a central gap was evident within the cemetery. It measured approximately 4m east–west by 3.5m north–south. Only one burial, 3136, was located in the gap, to the northern edge; the burial contained pottery of 12th-century date, but this is likely to be intrusive. Leading into the centre from the north-west corner there is another gap which may indicate the presence of a NW–SE pathway. If so, again there was some encroachment from at least two and possibly four burials (3131 and 3132; 3110 and 3114). Less clearly defined gaps can also be seen to the north-east, another possible diagonal pathway containing only two burials (4039 and 4009, both with associated disarticulated remains), and to the south, a north-south aligned area containing three burials (1816, 1849, 1860) and a very large deposit of disarticulated bone.

The distribution of burials in the cemetery is uneven, with many more occurring close to the central area than on the eastern and western peripheries. Despite the intercutting of later graves, it is possible to distinguish some clear rows or zones of burial. These are discussed further below, in relation to phasing.

Alignment of burials was based on an east–west pattern, and those to the west and north of the cemetery are closest to this. The greatest deviation from this alignment occurs close to the southern edge and western half of the cemetery, where many burials appear to be aligned almost SW–NE, further evidence for a physical barrier which they paralleled. The angle of burials based on grid north varied between 229 degrees (4077) and 279 degrees (3073), although the majority lay between 250–269 degrees. Figure 7.2 shows the distribution as a bar chart.

**Dating and phasing**

Figs. 7.3–7.6

Phasing was carried out based on stratigraphic relationships between individual skeletons. Of the 297 context numbers relating to bone or disarticulated remains, 258 had at least one stratigraphic relationship and in some well-used areas it was possible to construct quite complex matrices. However, it was rare to find a sequence involving more than four articulated burials, so the suggested phases are very loose. If, for example, all burials in the eastern half of the cemetery were earlier than those in the west, it would not be possible to determine this stratigraphically. Alignment of the body appeared to have a strong correlation with position in the sequences, so this was also taken into account for phasing. In general it was not possible to assign a phase to disarticulated remains, although they are assumed to be earlier than the burial with which they were redeposited.

Dating evidence for this cemetery is limited. Samples from nineteen skeletons were submitted for high precision radiocarbon dating, but unfortunately there was not enough collagen in any of the tested samples for dating to be viable (Chapter 2.II). Pottery associated with some of the skeletons may indicate that the cemetery was still in use in the Late Saxon phase of site use, but there is a possibility that some of this material was intrusive. It was generally found with skeletons which fit stratigraphically into the later phases of the cemetery, but this may simply be due to their position higher up in the sequence. However, evidence that two of the burials, 3116 and 3098, could date to the early 8th century is presented below (Rogers, Iron burial furniture), although the use of chests which were already old at the time of burial must also be taken into account.

Figures 7.3–7.6 show the burials by phase. The total numbers of articulated individuals in each phase were as follows: thirty-five in Phase 1; forty-one in Phase 2; forty-two in Phase 3; twenty-seven in Phase 4. Nine
Figure 7.3  Cemetery 1 Phase 1

Figure 7.4  Cemetery 1 Phase 2
Figure 7.5 Cemetery 1 Phase 3

Figure 7.6 Cemetery 1 Phase 4
disarticulated contexts were assigned to Phase 1, two to Phases 1–2, and one to Phase 2. This left 141 contexts which could not be phased.

The high degree of disturbance to the east side of the cemetery suggests that it was the most favoured area for burial and may indicate that it was the first part to have been used. The skeletons in this area which were assigned to Phase 1 were generally heavily disturbed and incomplete. This contrasts sharply with the clear rows which appear to have defined the early use of the west side. It is very likely that rows were also present to the east but that they cannot be seen due to later intercutting. Alignment to the west end was very close to east–west in this early stage, although the burials in the east were aligned more at the angle of the possible trackway or cemetery boundary to the south.

In Phase 2, the alignment of this feature appears to have affected burials at both ends of the cemetery. Individuals were added to the rows at both ends, those at the east being much clearer in this phase. Burial may have started in the northern area at this stage.

Alignment of burials in Phase 3 appears to have been less dependent upon the southern boundary. Further infilling on the lines of established rows took place, but there were also burials between the rows, and infilling around the edges of the central open area and across possible pathways.

By Phase 4, there was a return to burial on an east–west alignment. Individuals appear to have been fitted in to an approximation of the rows in the east and west, but there seems to have been a preference for the northern part of the cemetery at this stage, with further infilling of some of the open areas.

**Grave depth**
Based on the levels taken on the skulls, the average depth throughout the cemetery was approximately 4.58m OD, and the 5m contour survey over the cemetery indicated an average level of 5.15m OD for the modern topsoil. The average depth to the top of the skulls from the present-day surface was therefore only 0.57m. In many cases it was much less. For example, burial 4071 in the south-western area had a level of 4.6m OD, contrasting with 5.05m OD taken from the turf. When allowance is made for the modern turf build up, this burial was probably only 0.25m below the Saxon land surface. Juvenile 3136, at the north side of the central gap, was at 4.78m OD, only 0.35–0.4m below the topsoil, probably 0.15–0.2m below the Saxon occupation surface. Later burials were largely similar in depth to those they cut.

Average levels on skulls were similar for children and adults at 4.58 and 4.59m OD respectively, but infants were slightly shallower at 4.61m OD. The average for sub-adults was deepest, at 4.51m OD.

**Grave morphology**
Unfortunately it was rarely possible to distinguish the cuts of these graves as differences in the sand backfill and the subsoil were minimal. However the lack of disturbance of bones in some graves which were in very close proximity would appear to suggest that the cuts were no larger than necessary for the size of the body, or possibly that some graves were multiple interments. A few grave cuts were discernible, particularly around those burials with evidence for coffins and in some of the more isolated burials. In general they were sub-rectangular or oval in plan and allowed c.10–20cm of space around the body.

**Bone survival and disturbance**
As the grave cuts were so difficult to discern, the survival of the bones was particularly important in determining stratigraphic relationships. Although the acidic soil had resulted in very poorly preserved bone over much of the site, it was fortunate that in no case was the skeleton reduced to a body stain. The most poorly preserved bones were those on the peripheries of the cemetery; surprisingly, condition of bone appeared slightly better in the intensively used areas. This may be related to continual reworking of deposits in these areas, producing a more loamy and less acidic soil. The areas of better preservation are also those which produced most of the pottery and animal bone from the cemetery (see below).

Disturbance was largely a result of digging and redigging of graves in restricted areas of the cemetery. However, whilst some of the disarticulated remains replaced in the intercutting graves were relatively easy to assign to individuals in the graves below, there were areas of commingled remains which may have derived from deliberate clearance of some parts. Another possible source of disturbance might well be related to the positions of pathways through the cemetery — the constant erosion caused by the passage of many feet over decades might expose some bones in the shallower graves, or the disarticulated bones reburied in their upper fill.

**Body position**
All bodies were laid with their heads to the west and all were supine. Of the 145 articulated skeletons, 82 could be assessed for the position of one or both arms. Of those for whom both arms remained, the majority (18) had both arms straight by their sides, but there was also a high proportion (15) with both lower arms across the pelvis. Only three individuals had an arm across the chest. The remainder had one arm straight and one over the pelvis. Legs were generally straight, but one male and one female had one flexed knee. Fifty-nine burials could be assessed for the position of the head. The majority were facing to the individual’s right side (i.e. south), but almost as many faced left. Only six faced ahead.

There were no major differences in these frequencies by sex, and no particular concentrations of any body position within the cemetery. Some phase differences were noted, but the number of individuals for whom both arms could be assessed in each phase was relatively small and the differences are unlikely to be significant. However, arms lying straight by the sides did appear to be more common in Phases 3 and 4 than earlier.

The two individuals which showed the greatest variation in body position were 3095 on the west side of the open area, and 4089 on the east. Both were leaning slightly to their right sides, heads on their right shoulders, with the left leg flexed across the right, the left arm bent and the right arm straight. It is possible that these individuals were laid to rest slightly on their right side and had later slumped back during decomposition. In the case of the female, 3095, this position was probably related to the various physical traumas that the individual had suffered in life, one of which had resulted in the dislocation of her left hip and shortening of the leg. The
male skeleton was not well preserved, so it is unknown whether his position might be related to disease.

**Coffins and shrouds**

Fig. 7.7, Table 7.1

Twelve graves produced evidence for burial in coffins or chests. Of these, nine had coffin stains alone, one had a stain and an iron object (3145), and two (3098, 3116) had iron fittings only. It was twice as likely that a coffin would contain a male burial (eight examples) than a female (four examples).

Two L-shaped hinge straps (sf3117, sf3120) were found with burial 3116, upright in the sand on the south side, one over the right collar bone the other over the right shin. A hasp (sf3121) was located between the lower left arm and the pelvis. The two hinge straps (sf4006, sf4008) with burial 3098 were also placed over the southern side of the body adjoining the shoulder and shin respectively, but no hasp was found with this skeleton. U-shaped staple sf3139 was near the left foot of 3145, a much disturbed burial, and could be unrelated to the coffin stain in this grave.

The coffined burials were all in the northern half of the cemetery (Fig. 7.7), but they were widely dispersed. Five were burials with no stratigraphic relationships (3098, 3116, 8019, 8021, 8022), two had relationships with disarticulated bone only (3144, 8007) and were presumably later in the sequence, one (3101) cut an earlier burial, and four were the earliest graves in their sequences (3100, 3145, 4048, 8013). However, 8013 contained disarticulated remains within (perhaps originally on top of) the coffin and must have disturbed an earlier burial.

This suggests that coffin burial was not confined to any particular phase of cemetery use, although it was more common in the later phases, as shown in Table 7.1.

It is clear that the majority of burials were not coffined — many isolated burials, where the grave profile was recovered, showed no indication of there having been wood in the grave, and had coffins been used in the more intensely occupied areas, they would surely have caused a greater impact on adjoining skeletons than actually occurs. There was also very little evidence of the internal bone movement which would be expected if a void had been present during decay. The constricted positions of many of the bodies, together with a lack of finds which might indicate the presence of clothing, suggests that most individuals were shrouded or wrapped in some way.

Positions of skulls, generally to either right or left, may indicate that the heads were not included in the wrapping.

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<th>Phase</th>
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<th>Female</th>
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<tr>
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</tr>
<tr>
<td>2</td>
<td>4048</td>
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</tr>
<tr>
<td>3</td>
<td>3098, 3144, 3145, 8013, 8021</td>
<td>3101, 8007</td>
</tr>
<tr>
<td>4</td>
<td>8022</td>
<td>3116, 8019</td>
</tr>
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</table>

Table 7.1 Coffin burials by sex and phase

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Figure 7.7 Distribution of coffin burials
Iron fittings recovered from two inhumations (3098, 3116) suggest that the bodies in those particular burials had been placed in wooden chests as coffins. The fittings include hinge and other straps, hasps and possible padlock fragments.

Hinge straps operated in pairs: one strap was curved over at the head to form a loop and this was linked to an eye at the head of the second strap. The looped eye strap was fitted to the lid of a chest and the other strap to its rear. A chest would typically have two pairs of hinge straps, or occasionally three. Two incomplete linked pairs of hinge straps (sf3117, sf3120), and a strap fragment (sf3129), were found in burial 3116, while burial 3098 produced one pair of straps still hinged together, and parts of at least five more straps (sf3138, sf4008) (Fig. 7.8). These suggest three pairs may have originally been fitted to the chest in inhumation 3098, and two or three to the chest in inhumation 3116.

A hasp used to secure the lid of a chest was found in burial 3116 (sf3121; Fig. 7.8). It has a 90° angle between the upper and lower arms, indicating that the chest to which it was attached had a flat lid (Ottaway unpublished report a). The lower arm of the hasp has an elongated eye: this end would have fitted over a staple in the front of the chest where it would be held in place by a lock. A staple for
attachment of the hasp to the chest lid survives at the other end. This form of hasp appears to pre-date the introduction of the stapled hasp which originates in the 8th century (Ottaway unpublished report a), and may point to an early date for the burial, perhaps in the early 8th century.

The iron fittings found in the two burials 3098 and 3116 provide convincing evidence of the use of chests as coffins on the site. Three finds of nails (sf3130, sf4000, sf7392) also came from burial deposits, but only sf3130 from burial 3116 was found in association with other chest fittings, to one of which it may originally have been attached. The lack of nails from these deposits is not surprising, as Ottaway noted in his study of the chest burials at Thwing, that it was unlikely that the chests used for burial were nailed together but were probably jointed and dowelled (Ottaway unpublished report a). He pointed out, however, that the other fittings, such as hinge straps and corner brackets, were nailed on.

The fittings that survived in the chest burials must comprise only part of the suites of fittings that the chests would originally have possessed. There is a strong chance that other fittings have corroded away completely following burial, but it has also been suggested that when chests were used in this way, most were missing at least some of their fittings at the time of interment. This was perhaps as a result of their deliberate removal for re-use or recycling of the iron, or because the chests were no longer in good enough condition to be serviceable as furniture and were, therefore, re-used for funerary purposes (Ottaway unpublished report a).

The earliest examples of chest burials in Britain are probably Roman, with hinge straps found in two graves of that period at Cirencester (Viner and Leech 1982, 88–9, fig. 36). The reappearance of chest burials in post-Roman Britain may have occurred in the late 7th century (Ottaway 1996, 112–3), but the 8th–10th centuries appear to be the period of the greatest popularity of this burial custom (Ottaway unpublished report b). Within the period of its use the majority of chest burials appear to come from the northern half of England: sites which have produced these burials include Thwing (Ottaway unpublished report a), Ailey Hill, Ripon (Ottaway 1996), Dacre, Cumbria (Ottaway unpublished report b), Flixborough, Lincolnshire (Ottaway 2009a) and Norton, Teesside (Rogers 2005). The chest burials from all these sites were dated from the 8th to mid 9th centuries, but later chest burials are also known, from York Minster, for example, where they were associated with burials and disturbed remains.

Other finds associated with burials and disturbed remains

Finds collected from the area of cemetery 1 amounted to fifty-five sherds of pottery, one piece of tile, two pieces of slag, fifteen pieces of iron (including the small finds mentioned above), and 7850g of animal bone. The pottery found in the area ranged from prehistoric to medieval in date, although the majority consisted of Middle and Late Saxon material. Fourteen sherds of prehistoric pottery were collected, of which eleven were associated with burials and three with disarticulated remains. Those from burials had a much lower average sherd weight (3.5g) compared with those from disarticulated remains (16.7g), suggesting a higher degree of disturbance before final deposition. In contrast, the greater numbers of sherds of Middle and Late Saxon date were from disarticulated contexts. Six sherds of Middle Saxon pottery came from graves (average weight 22.5g) and sixteen from disarticulated material (average weight 35.1g — but this is biased due to the presence of a large fragment of a single vessel in 1863). Five Thetford Ware sherds were from burials (average 2.8g) and eleven from disarticulated contexts (average 7g).

The presence of such a large quantity of animal bone, particularly with the disarticulated contexts, suggests that the area of the cemetery may previously have been in use as a midden, which was later flattened or partially cleared to make way for the cemetery. There is very little evidence of underlying features from which these finds could have been redeposited. A buried soil was identified over part of the area, but assumed to be Iron Age. The spread of finds is particularly clustered around the northern and central parts of the cemetery, in the areas of highest disturbance.
through intercutting. This would have involved a high degree of reworking of earlier deposits and would explain the presence of earlier finds. Thetford Ware and later pottery, however, may be contemporary with the later burials or may be intrusive due to rabbit activity.

Demography
Figs 7.9–7.11, Tables 7.2–7.5
This aspect of the cemetery is discussed in the human bone analysis (Section III), where a summary table of age and sex can be found. Distributions of skeletons by age and sex were plotted but showed no overall patterning: men and women, the very young and the very old, could be buried in any part of the cemetery.

A comparison of the numbers of individuals by sex and age in the four phases showed some differences. Table 7.2 shows that the ratio of men to women in Phases 1 and 2 was heavily biased towards males, although this is only statistically significant in Phase 2. However, if most of the unsexed individuals in these phases were female, the differences would be smaller. In addition to the adults, two 16–18 year olds in Phase 2 and one in Phase 4 were probably male, but are included in the ‘Child’ category in Tables 7.2 and 7.3. Plotting of the sexes on the phase plans does suggest that there was a cluster of male burials in the very clear north–south row in the western half of the cemetery during Phase 1. In this row, taking into account all phases, ten of the sexed individuals were male and only five female.

Age groups by phase are shown in Table 7.3. Juvenile burials occur far more frequently in Phase 1 of cemetery 1 than in later phases, as a proportion of the total. All individuals in the ‘old’ category were buried in Phase 2, although with the exception of Phase 3, those in the first two categories of adult life generally formed more than half of the total aged adult group.

Palaeodemographic analysis was carried out following methods outlined by Boddington (1982; see also Boddington 1987 and 1996). A life table was constructed (Table 7.4), based on an estimated maximum age at death of 70 years, and plots were made of frequencies of age at death (D(X), Fig. 7.9), life expectancy (e(x), Fig. 7.10), and survivorship (l(x)).

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Table 7.2 Distribution of sex by phase

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<td>0.025</td>
<td>29.2</td>
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</tr>
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<td>0.011</td>
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<td>0.010</td>
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<tr>
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<td>6</td>
<td>5.1</td>
<td>5.1</td>
<td>1.00</td>
<td>0.067</td>
<td>7.5</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Key: D(X) – no of individuals; d(X) – % of individuals; l(x) – survivorship (e.g. 100% alive at birth, only 5.1% at age 55); q(x) – probability of death; q<sub>0</sub>(x) – crude probability of death based on the number of years in an age group; e(x) – expectation of life (i.e. number of years expected to live beyond a particular age); C(x) – % of the living population within each age group.

Table 7.4 Life table for articulated skeletons from cemetery 1
7.10) and crude probability of death ($q(x)$, Fig. 7.11). These methods make the data more comparable when using age groups of differing lengths.

The expectation of life for this group appears to have been relatively high at birth (29.2 years). It was noticeably greater for men than women, and no women were...
allocated to the ‘old’ age group. Probability of death was higher for infants than older children, but was very low in comparison with similar data for the Late Saxon population of Raunds (Boddington 1996) and sites in the North-East of England (Anderson 1991). The greatest risk of dying in this group occurred in adulthood.

An estimate was made of the contributing population (calculated from life expectancy at age 0 multiplied by number of burials, divided by the length of time in years). If the cemetery lasted as long as 250 years, the contributing population for cemetery 1 would be 23.4 individuals. If it only lasted 150 years, the contributing population would be 38.9.

The estimated stature of individuals was also analysed by phase, although generally the numbers involved were small. Table 7.5 shows the mean stature by phase. The average male stature in the group shows a slight but noticeable decrease in the first three phases, and a larger drop in Phase 4, although only two skeletons contributed to the figures in the last phase. The female means are generally based on very small groups but they also appear to show a decline from Phase 3 to Phase 4. This is consistent with the general downward trend from Saxon to medieval populations seen throughout the country (Anderson 1991).

### III. Cemetery 1 human remains

#### Introduction

As a completely excavated cemetery, cemetery 1 is a rare phenomenon in British archaeology. Despite this, it cannot be assumed that the group is representative of the living population as a whole. In terms of numbers of burials over as much as two centuries, it is relatively small, perhaps representing as few as one burial every one or two years on average.

Full reports on the bones from the two cemetery sites were originally included in the Ancient Monuments Laboratory series (Anderson 1990) and are available in archive. The following is an abridged version of the original report on the cemetery 1 skeletons, with some new material (e.g. MMD comparisons of the non-metric traits).

#### Methodology

Measurements were taken using the methods described by Brothwell (1981), together with a few from Bass (1971) and Krogman (1978). Sexing and ageing techniques follow Brothwell and the Workshop of European Anthropologists (WEA 1980). Sciatic notch angles were measured, where possible, using the method described by Dawes (Dawes and Magilton 1980, 22). Stature was estimated according to the regression formulae of Trotter
and Gleser (Trotter 1970). All systematically scored non-metric traits are listed in Brothwell (1981), and grades of cribra orbitalia and osteoarthritis can also be found there. Pathological conditions were identified with the aid of Ortner and Putschar (1981) and Cotta (1978).

Comparative material

Table 7.6
Several sites will be used for comparison with cemetery 1. These are listed in Table 7.6. These sites have been chosen for their temporal and/or spatial proximity to Brandon.

Number of individuals

One hundred and fifty-two articulated or partially articulated skeletons were excavated in the area of the first cemetery, although in practice a few contexts thought to be single skeletons are likely to belong with bones labelled separately but found close by. For example, the remains found in contexts 4055 and 4062 almost certainly belong to one individual whose grave was disturbed by 4061. The whole cemetery area was well used and a large amount of disarticulated bone was also uncovered and grouped in 157 contexts. The estimation of a minimum number of individuals was therefore not an easy task.

An estimate was made based on the number of skulls and major long bones. The number of skulls (n=205) may be too large since many of the disarticulated crania were incomplete and some have probably been split between two or three contexts. The total number of left femora (n=172) probably gives the best indication of the minimum number of individuals, with the number of skulls providing an approximate maximum. In terms of articulated individuals, however, the MNI used for the purpose of this report is 145. A summary catalogue of articulated remains is provided in Appendix 2.

Condition of material

The majority of skeletons were in poor or fair condition. Only four of the articulated skeletons were classed as ‘Good’. All were very fragmentary and no skeleton was complete. This is largely due to the acidic nature of the soil in which the remains were interred, but disturbance by grave-digging also played a part. There was no great difference between the sexes, although the majority of adult skeletons which could not be sexed unsurprisingly fell into the very poor category.

Demographic analysis

Sex distribution

Based on the number of left femora (both articulated and disarticulated remains) it seems likely that at least 63 men, 45 women and 24 unsexed individuals were originally buried. If articulated skeletons only are counted the totals are 54 men (16 male), 39 women (16 female) and 24 unsexed adults. Both these totals give a ratio of men to women at this site of 58:42, which is a fairly common one at both monastic and secular sites of the period. The nearby late Roman site at Icklingham had 57.6% males. The Early Anglo-Saxon sites at Barrington and Great Chesterford produced 54.5% and 44.8% males respectively. Middle Saxon sites at Norton (51.4%), Burgh Castle (50.0%) and Caister (51.9%) were all very similar. Ormesby produced only 40.0% males, but this was not statistically significant, and the Late Saxon group from Raunds produced 54.9% males. Only two sites, both thought to have monastic components, produced statistically significant results: Hartlepool had 69.0% males and Nazeingbury only 27.9%.

Since a large proportion of the population is unsexable, such sex ratios may provide a misleading picture where the differences are not statistically significant, and it may be that in these cases the sexes would actually be distributed closer to the norm of 1:1 if children and unsexed adults could be taken into account.

Age at death

Tables 7.7 and 7.8
One hundred and sixteen articulated individuals were adults, and there were twenty-eight children (19.4%). An age could not be determined for one individual in very poor condition. However, if the disarticulated bones are taken into account, the proportion of juveniles is much higher — 23.3% of left femora and 29.8% of skulls. All figures are within the range found at other cemeteries of the period. Great Chesterford produced the greatest proportion at 49.7%, followed by the nearby Early Anglo-Saxon cemetery at Barrington (31.1%). The possible monastic groups produced fewer juveniles: 11.1% at Nazeingbury, 18.0% at Burgh Castle and 23.0% at Caister, as did the rural settlement site at Norton (14.0%). However, Hartlepool produced 37.5% juveniles, mainly due to a large cluster of infants in the southern part of the cemetery. The Late Saxon group at Ormesby contained 27.4% children, and the contemporary site at Raunds 47.1%. The late Roman site at Icklingham had 34.0% children.

<table>
<thead>
<tr>
<th>Site</th>
<th>Code</th>
<th>Report</th>
<th>Date range</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Icklingham, Essex</td>
<td>ICK</td>
<td>Wells 1976</td>
<td>Late Roman</td>
<td>Christian Roman</td>
</tr>
<tr>
<td>Great Chesterford, Essex</td>
<td>GCH</td>
<td>Waldron 1994</td>
<td>M.5th–6th C</td>
<td>Pagan</td>
</tr>
<tr>
<td>Barrington, Cambs</td>
<td>BAR</td>
<td>Duhig 1998</td>
<td>6th–E.8th C</td>
<td>Pagan</td>
</tr>
<tr>
<td>Burgh Castle, Norfolk</td>
<td>BC</td>
<td>Anderson and Birkett 1993</td>
<td>Middle Saxon</td>
<td>Monastic?</td>
</tr>
<tr>
<td>Caister-on-Sea, Norfolk</td>
<td>CBY</td>
<td>Anderson 1993</td>
<td>Middle Saxon</td>
<td>Monastic?</td>
</tr>
<tr>
<td>Church Walk, Hartlepool</td>
<td>HCW</td>
<td>Anderson 2007</td>
<td>Middle Saxon</td>
<td>Monastic?</td>
</tr>
<tr>
<td>Nazeingbury, Essex</td>
<td>NAZ</td>
<td>Putnam 1978</td>
<td>L.7th–M.9th C</td>
<td>Monastic</td>
</tr>
<tr>
<td>Norton, Stockton on Tees</td>
<td>NBS</td>
<td>Higgins n.d.</td>
<td>7th–11th C</td>
<td>Rural settlement</td>
</tr>
<tr>
<td>Raunds, Northamptonshire</td>
<td>RAU</td>
<td>Powell 1996</td>
<td>Late Saxon</td>
<td>Rural settlement</td>
</tr>
<tr>
<td>Ormesby, Norfolk</td>
<td>ORM</td>
<td>Anderson 2009c</td>
<td>11th–14th C</td>
<td>Rural settlement</td>
</tr>
</tbody>
</table>

Table 7.6 Comparison sites for cemetery 1
proportions at other sites were generally slightly lower or entirely area of the cemetery could be excavated. Infant relatively high figure. Maybe this is simply because the a high degree of disturbance, yet it still produced a preservation at Brandon was far from good, and there was loss of the small, fragile bones of tiny babies. However, attributed to poor preservation or disturbance, resulting in

Table 7.7 Adult age and sex distribution

Table 7.7 provides a possible distribution of age for all those articulated skeletons aged more precisely than simply ‘adult’. Six males, five females and eleven unsexed individuals could only be categorised as adults. It should be noted that many of the individuals in the categories ‘Young–Middle-aged’ and ‘Middle-aged–Old’ were put there simply due to the fact that it was impossible to decide which single category they fitted into. The suggested age range should therefore be seen as only a rough guide.

The normal pattern in Saxon and medieval cemetery populations tends to suggest that women were dying earlier in life than men, and this general trend is echoed here. It can be seen from the table that a larger proportion of men had survived beyond middle age than women, and that more women than men had died in the ‘young’ age category. Middle-aged deaths showed a similar trend for both sexes. There were higher proportions of young females than young males at Barrington, Hartlepool, Burgh Castle, Caister, Ormesby and Raunds. At Great Chesterford and Norton, the proportions of young people of both sexes were very similar, but more women died in middle age than men, with the males still having the greater proportion of older deaths. Nazeingbury also had similar proportions in the young age group, but at this site it was the women who occurred more frequently in the older age group. Wells found no ‘young’ adults at Icklingham, but his results still suggested a younger mean age at death for women than for men.

The numbers of children found in each age group are recorded in Table 7.8. There were also four ‘sub-adults’ who could not be aged more closely than that category. Children were fairly evenly distributed through the first twelve years of life, but there were fewer older children and sub-adults. At some contemporary sites, infant burials were uncommon or absent (e.g. Burgh Castle 3.3%, Norton none), and this has sometimes been attributed to poor preservation or disturbance, resulting in loss of the small, fragile bones of tiny babies. However, preservation at Brandon was far from good, and there was a high degree of disturbance, yet it still produced a relatively high figure. Maybe this is simply because the entire area of the cemetery could be excavated. Infant proportions at other sites were generally slightly lower or similar: Barrington 9.3%; Icklingham 14.3%; Nazeingbury 14.3%; Caister 21.9%; Ormesby 27.3%; Raunds 38.8%. However there were unusually high proportions at Great Chesterford (80%) and Hartlepool (62.5%). At the latter, the data was skewed by a very large group of infant burials in the southern part of the excavated area, and a similar result was obtained in the excavated part of cemetery 2 at Brandon (see Section V below). Young children (c.2–6 years) ranged from 5.9% at Great Chesterford to 30.2% at Barrington and juveniles (c.6–12 years) from 9.4% at Hartlepool to 37.5% at Caister, so Brandon is well within the normal range. Hartlepool and Great Chesterford produced no sub-adults (12–18 years), but the other sites ranged from 11.8% at Icklingham to 36.7% at Burgh Castle.

Metrical and morphological analysis

Measurements for individual skeletons and disarticulated remains, together with means and ranges, are recorded in archive (Anderson 1990).

**Stature**

Table 7.9

Table 7.9 shows the means and ranges of height calculated for the articulated skeletons. These means and ranges are fairly normal when compared with contemporary and later cemetery populations in East Anglia. Early Anglo-Saxon male means ranged from 1.66m (Great Chesterford) to 1.73m (Barrington), Middle Saxon from 1.71m (Caister) to 1.76m (Burgh Castle). Female means in Early Anglo-Saxon groups were 1.61m at Great Chesterford and 1.63m at Barrington, and the Middle Saxons ranged from 1.61m (Caister) to 1.68m at Nazeingbury. This puts Brandon towards the lower end of the range in comparison with its contemporaries. The Late Saxon to medieval group at Ormesby produced lower means for both sexes, 1.704m for men and 1.587m for women, as did Raunds for men, 1.67m, although the women were taller on average at 1.62m. The late Roman group at Icklingham was also low at 1.652m for males and 1.599m for females.

**Cranial Indices**

The cranial length/breadth index could only be calculated for ten skulls (of which seven were disarticulated). Other cranial indices could only be calculated for three individuals at the most and are recorded in the tables of

Table 7.8 Age distribution of children

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Suggested age range</th>
<th>Male</th>
<th>%</th>
<th>Female</th>
<th>%</th>
<th>Total (incl. unsexed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Young adult</td>
<td>18–25</td>
<td>11</td>
<td>22.9</td>
<td>11</td>
<td>32.4</td>
<td>26</td>
</tr>
<tr>
<td>Young–MA</td>
<td>25–35</td>
<td>12</td>
<td>25.0</td>
<td>8</td>
<td>23.5</td>
<td>20</td>
</tr>
<tr>
<td>Middle-aged</td>
<td>35–45</td>
<td>16</td>
<td>33.3</td>
<td>12</td>
<td>35.3</td>
<td>32</td>
</tr>
<tr>
<td>MA–Old</td>
<td>45–55</td>
<td>5</td>
<td>10.4</td>
<td>3</td>
<td>8.8</td>
<td>8</td>
</tr>
<tr>
<td>Old</td>
<td>55+</td>
<td>4</td>
<td>8.3</td>
<td>0</td>
<td>-</td>
<td>6</td>
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</table>

Table 7.9 Stature means and ranges

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<th>Sex</th>
<th>No.</th>
<th>Mean</th>
<th>Range</th>
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</thead>
<tbody>
<tr>
<td>Male</td>
<td>25</td>
<td>1.718m</td>
<td>1.608 (5' 3&quot;)  – 1.865 (6' 1&quot;)</td>
</tr>
<tr>
<td>Female</td>
<td>14</td>
<td>1.599m</td>
<td>1.478 (4' 10&quot;) – 1.752 (5' 9&quot;)</td>
</tr>
</tbody>
</table>
Non-metric traits

Table 7.10
Non-metric traits are small non-pathological variations in the 'normal' anatomy of the skeleton. They can be scored for any bone in the body, but have been studied in most detail on the skull. Most are at least partly genetically determined (although the genetic components of single traits are unknown at present). Cranial non-metric scores are recorded in the archive report.

Non-metric traits are difficult to compare between sites due to differences in methods and choice of traits used by various analysts. The statistic known as the Mean Measure of Divergence (MMD) has been used to compare the Brandon group with other Norfolk and Suffolk cemeteries, and the Phase 4 (Saxon) group from Fishergate, York (Stroud 1993a) is also included. The formula published by Thoma (1981) has been used, and bilateral traits have been counted individually for each side.

The results of the MMD analysis are shown in Table 7.10. Differences between groups are significant (*) if they are greater than twice the square root of the variance, and the closer the MMD is to zero, the closer the two populations are to each other.

This suggests that Brandon was closest to Burgh Castle in terms of non-metric traits, followed by Caister, Icklingham, Thetford St Mary, Ipswich School Street and Coddenham. It shows significant differences from the later sites at Ormesby, Ipswich Blackfriars and Fishergate, York.

A cluster analysis was performed on these and other sites. This suggested that Brandon groups with Wolsey Street, Ipswich (Anderson 2009d), Coddenham (Anderson 2011), Burgh Castle, Thetford St Mary (Stroud 1993b), Caister and Farmer's Avenue, Norwich (Anderson 2009e). It is at a greater distance from Fishergate Phase 4 and 6 (Stroud 1993a), Ipswich School Street (Mays 1989), Ormesby, Ipswich Blackfriars (Mays 1991) and Timberhill, Norwich (Anderson 2009e).

A comparison of dental non-metric traits was carried out between a selected group from Brandon and some teeth from the Roman group at Icklingham (Lloyd-Jones 1995; 1997). This showed a high level of similarity between the two groups, but significant differences from other sites elsewhere in England. Lloyd-Jones' figures were used in a comparison between Brandon and a 7th-century cemetery at Coddenham, Suffolk. This produced statistically significant differences between Coddenham and the other two sites (Anderson 2011). However, in view of the lack of a statistically significant difference between Coddenham and Brandon based on the skeletal non-metric traits, it may simply be that this is due to inter-observer error.

Non-metric traits can be used to suggest tentative relationships between individuals buried in a cemetery. Some of the more uncommon traits found at Brandon were plotted on the site plan to see if any occurred in neighbouring skeletons. Plotting of Inca bones and mandibular tori did not appear to show any clear relationships between skeletons. Epipetric bones were found in the skull of Sk. 4017 and disarticulated skull 1883 which were quite close together. The trait of metopism seems to show the most convincing groupings at this site, however. To the north-east of the cemetery two skeletons and two disarticulated skulls showed the trait (4038, 4016, 4024 and 4047), and on the south-western side four more skeletons were metopic (3095, 3060, 3073 and 1900). These remains seem to be close enough together for the groupings not to have occurred by chance, and similar groupings of metopic individuals have been found in other cemeteries. There does seem to be a fairly high probability that those individuals listed above have some kind of genetic affinity with each other. When assessing information of this type, however, it is as well to remember that married women were most likely to have been buried with their husband's family rather than with their own relations, and that there is usually a long period of burial activity in large cemeteries, often with hundreds of years between the first and last burials.
The overall female caries rate (1.5%) was greater than that of the males (0.7%), possibly because the greater rate of male ante-mortem loss was caused in the main by tooth decay. The men, being older on average, had a longer time in which to lose their carious teeth before death.

**Abscesses**

Out of 2366 possible positions, fifty-nine (2.5%) were affected with periodontal abscesses, these being spread between eighteen men and twelve women. Similar rates were found at Norton (1.3%), North Elmham (2.0%), Burgh Castle (2.0%) and Ipswich School Street (3.0%). Caister and Ormesby were both higher with 5.4% and 9.2% respectively, but Icklingham was the lowest (0.7%).

Study of the distribution of abscesses shows that the premolars and first molars are affected most, although the range of affected teeth seems to be wider in the maxilla than the mandible.

Periapical abscesses are generally formed when the pulp cavity of the tooth is opened, allowing bacteria to reach the tip of the root. This can occur following heavy tooth attrition or it may be caused by a carious lesion. Food particles may also find their way down the side of the tooth, perhaps in a condition such as gingivitis (gum disease) and bacteria may use this as a means of reaching the root apex. At Brandon abscesses were found under five female carious teeth. No male teeth were affected by both (although in all cases teeth had been lost post-mortem from alveoli with abscesses).

**Unerupted/congenitally absent teeth**

Since it was not possible to radiograph the dentitions in this skeletal group, scoring of congenital absence or uneruption of the teeth was based on the external appearance of the alveolar bone (except in a few cases the jaw was broken at the appropriate point), and therefore no distinction can be made between the two possibilities. As is the case in most populations, the majority of ‘unerupted’ teeth were third molars.

It is usually expected that females will show a greater rate of third molar agenesis, and if the combined percentages for maxillae and mandibles are consideredBrandon appears to be no exception (9.1% male; 14.4% female). The totals are quite low when compared with other Saxon groups in the area, but higher than Roman Icklingham (4.7%). At Burgh Castle the totals were 13.5% for males and 21.1% for females, and at North Elmham there was a prevalence of 9.4% in the males and 22.6% in the females. The reason for this difference is unknown.

Of the six other ‘unerupted’ teeth in this population, four were canines and two were premolars. Sk. 1917 (male) had an unerupted right maxillary canine, Sk. 8019 (female) had retained her upper left deciduous canine (although it was lost post-mortem) at the expense of the adult tooth, Sk. 3135 (female) had no lower second premolars and had retained the second deciduous molar on the right only, and one of the mandibles in 4011 contained unerupted canines bilaterally.

<table>
<thead>
<tr>
<th>Table 7.11 Dental remains quantification</th>
</tr>
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<tr>
<td><strong>Number of:</strong></td>
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<td>Individuals</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
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<td>Mandibles</td>
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</tr>
<tr>
<td>Observable</td>
</tr>
<tr>
<td>Post-mortem loss</td>
</tr>
<tr>
<td>Ante-mortem loss</td>
</tr>
<tr>
<td>Unerupted/absent</td>
</tr>
<tr>
<td>Remaining teeth</td>
</tr>
</tbody>
</table>

**Dental analysis**

Table 7.11 shows the numbers of dental remains available for study in this population, including disarticulated remains. In addition, 52 unsexed adults had teeth/jaws (35 maxillae and 37 mandibles), and there were 51 children with dental remains (32 maxillae, 41 mandibles).

**Ante-mortem tooth loss**

Ante-mortem loss of one or more teeth was observed in twenty-five males and thirteen females, giving percentages of 39.1% and 23.6% respectively, 31.9% overall. Of these, seventeen males and eight females had caries and/or abscesses. The total ante-mortem tooth loss as a percentage of the total identifiable positions at Brandon was 6.1% (7.7% males, 4.3% females). Similar overall rates were seen at Burgh Castle and Caister, with the earlier site of Norton having a much lower prevalence (3.9%) and the Roman and Late Saxon groups having much higher figures. Ante-mortem tooth loss was highest in the molars (particularly the first) and lower mesial incisors of both males and females, and was generally greater in males than in females. A similar pattern was observed at North Elmham (Wells 1980), and at Burgh Castle.

**Caries**

Eight males, six females, three unsexed adults and two children had carious lesions in one or more teeth. All except one lesion were located in the molar area, the exception being a lesion in the lower right canine of one unsexed adult (3104). The juveniles were affected in the first deciduous molar in both cases.

The overall caries prevalence in this population (1.0% of all assessable teeth) is very low when compared with Roman Icklingham (5.5%) and later groups such as Ormesby (6.2%), North Elmham (6.4%) and Ipswich School Street (10%), but is close to that at Burgh Castle (1.9%) and Caister (1.8%), and only a little less than Barrington (3.2%) and Norton (3.8%). It is also close to the prevalences found by the present author in three Saxon populations in the North East of England (Jarrow, Monkwearmouth and Blackgate, Newcastle; Anderson 1991). A low caries rate may be suggestive of a diet containing few carbohydrates and/or good oral hygiene.
hypoplasia was scored on a similar four point scale. Data are available in archive.

In terms of calculus formation, males and females appear to be quite similar, although the males had more calculus in the 'heavy' category. This may be because they were older on average and therefore the deposit had longer to form. More women were affected overall, possibly due to a softer diet involving less chewing, although the difference is not great. The amount of calculus seems to correlate well with advancing age in this group, and the fact that the large majority of adults were affected suggests that oral hygiene was not good.

Enamel hypoplasia was found to occur more in men than in women, and the lesions in males seemed to be more gross. The reasons for this are uncertain since the correlation of these lesions with disease and malnutrition is not well established in modern populations (Dobney 1988). Adults were more affected with hypoplasia than were the children. This is not because they had a longer time to develop the lesions since hypoplasia is a malformation of the enamel of the teeth as they grow in childhood. The data from this group suggests that those individuals who survived into adult life showed more and grosser lesions than those dying in childhood. It may be that those children dying of disease were affected by acute infections which left no mark on the teeth. Periods when enamel deposition was difficult are suggestive of chronic illness which individuals were generally able to survive.

Males were more affected by alveolar resorption than females, and to a greater degree. This is most likely to be due to the greater average age of the men, although periodontal disease may be a factor as well as old age.

Pathology
All prevalences given in the sections below are based on articulated remains only, owing to the difficulties of recording presence of small areas of bone in the disarticulated remains.

Congenital anomalies
Only one skeleton showed a lesion which appeared congenital in origin. 4027 (Male, Y–MA) had an anomalous articulation for the fifth lumbar vertebra on the ala of the first sacral segment. This condition is likely to have been symptomless in life.

Arthopathies and degenerative disease
Table 7.12
Degenerative joint disease, in the form of osteophytosis and osteoarthritis, occurred in a number of individuals in this group. Osteophytosis involves the growth of bony prominences around the joint and is commonly related to advancing age, although it may also be caused by trauma. It is frequently seen in the spinal column but may occur on any articular border in the skeleton. Forty-six individuals (twenty-six male, eighteen female and two unsexable adults) had some degree of osteophytosis on one or more joints, and in most cases this was only slight. Table 7.12 shows the frequencies of osteophytosis seen in the main articular areas of the skeleton.

The spine shows the greatest amount of osteophytosis in both sexes, as is the case in most populations. There does seem to be a difference between the sexes, not only in the amount of osteophytosis (which is less in females) but also in the site most affected after the spine. In males the hips and elbows have the greatest prevalences and in females the knee and the shoulder seem to be affected most.

Disarticulated context 3092 contained an innominate with lipping of the iliac crest at the widest point, possibly as a result of trauma.

Some degree of osteoarthritic change was found in the skeletal remains of nine men, seven women and two unsexable adults. The prevalence of arthritis in this population is difficult to assess since the bones of many individuals were in such poor condition. Many of the articular surfaces of bones did not survive or were only present in small fragments. Where arthritis was found it tended to involve sclerosis (thickening) of the bone or new bone formation, and it seems likely that purely destructive lesions would not have survived the taphonomic processes at work on this site. Table 7.12 presents the general areas of articulation in the skeleton and the presence of arthritis in those areas.

The areas most affected by osteoarthritis in this group were the spine, the shoulder girdle and the hips. These

<table>
<thead>
<tr>
<th>Area</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spine</td>
<td>43</td>
<td>20</td>
<td>46.5</td>
<td>31</td>
</tr>
<tr>
<td>R. knee</td>
<td>31</td>
<td>1</td>
<td>3.2</td>
<td>22</td>
</tr>
<tr>
<td>L. knee</td>
<td>34</td>
<td>2</td>
<td>5.9</td>
<td>25</td>
</tr>
<tr>
<td>R. sacro-iliac</td>
<td>27</td>
<td>3</td>
<td>11.1</td>
<td>23</td>
</tr>
<tr>
<td>L. sacro-iliac</td>
<td>28</td>
<td>3</td>
<td>10.7</td>
<td>27</td>
</tr>
<tr>
<td>R. elbow</td>
<td>32</td>
<td>5</td>
<td>15.6</td>
<td>21</td>
</tr>
<tr>
<td>L. elbow</td>
<td>36</td>
<td>5</td>
<td>13.9</td>
<td>24</td>
</tr>
<tr>
<td>R. shoulder</td>
<td>28</td>
<td>3</td>
<td>10.7</td>
<td>25</td>
</tr>
<tr>
<td>L. shoulder</td>
<td>42</td>
<td>2</td>
<td>4.8</td>
<td>22</td>
</tr>
<tr>
<td>R. hand/wrist</td>
<td>35</td>
<td>0</td>
<td>-</td>
<td>22</td>
</tr>
<tr>
<td>L. hand/wrist</td>
<td>30</td>
<td>1</td>
<td>3.3</td>
<td>17</td>
</tr>
<tr>
<td>R. foot/ankle</td>
<td>36</td>
<td>3</td>
<td>8.3</td>
<td>26</td>
</tr>
<tr>
<td>L. foot/ankle</td>
<td>38</td>
<td>5</td>
<td>13.2</td>
<td>25</td>
</tr>
<tr>
<td>R. hip</td>
<td>41</td>
<td>6</td>
<td>14.6</td>
<td>28</td>
</tr>
<tr>
<td>L. hip</td>
<td>41</td>
<td>8</td>
<td>19.5</td>
<td>32</td>
</tr>
</tbody>
</table>

Table 7.12 Osteophytosis and osteoarthritis by general joint area
joints are commonly affected in other Saxon groups, such as North Elmham (Wells 1980). The relatively high percentage seen for female left hand/wrist was due to two females with fractures of the forearm and secondary arthritis of the wrist (3095 and 3101). Most of the other lesions recorded were likely to have been caused by general usage of the joints. In fact all of the prevalences seem rather low when compared with other similar sites and it may be that many lesions have gone unnoticed because they have been obscured by post-mortem changes. It is also likely that there is a bias in preservation of articular surfaces in younger individuals since these are generally stronger and contain proportionally more bone. Older osteoporotic or arthritic joints are more likely to be lost and the percentage of these out of all adult joints is therefore lower than might be expected.

One disarticulated context contained bones with osteoarthritic lesions. A right humerus head and left radius head were affected in 3067.

Only one skeleton showed evidence of the condition known as DISH (diffuse idiopathic skeletal hyperostosis) in which there is new bone growth around most of the joints, in conjunction with calcification of the ligaments and cartilage (particularly thyroid and costal), and sometimes ankylosing hyperostosis (fusion of the spine). It is generally seen in middle-aged or older men. Sk. 8003/8004 (middle-aged male) showed lipping of most bones at joints and muscle attachments, and there was a large lip of bone on the lower left border of the T9 vertebral body of the sort associated with ankylosing hyperostosis. A number of other old individuals had calcified ligamentous attachments or osteophytosis of a number of joints, but none of these lesions could be categorised as DISH when they occurred alone.

Four males (Sks 1499, 1919, 3072, 3140) had new bone formation on one or both femoral heads below the foveae. All were middle-aged or old and this may be related to DISH, in which ligamentous calcification occurs.

New bone formation which may also be linked with ageing processes, or possibly with trauma, was seen in Sk. 1706 (male, 25–35?, slight bone deposit below left femoral neck), Sk. 1830 (male, middle-aged?, slight new bone growth on fibulae, roughened new bone at insertion of gluteus maximus on left femur), and Sk. 3113 (middle-aged male, slight new bone growth on linea aspera of left femur at insertion of vastus medialis?).

Osteoporosis is a disease generally associated with old age, although it can occur in association with some deficiency diseases. Three skeletons seemed to have osteoporotic bones in this group. The long bones of Sk. 3086 (female, 25–35?) had very thin cortices, as did the few remains of Sk. 4002 (unsexable, old), and Sk. 8007 (middle-aged female), although the femora of the last appeared rather heavy. A right humerus in disarticulated context. 3067 may also have been affected.

Spinal pathology

The most common vertebral pathology in this population (after osteoarthrosis) was the condition known as Schmorl’s nodes. This is a condition in which small depressions are formed in the upper and lower surfaces of the vertebral bodies due to breakthrough of the nucleus pulposus of the vertebral disc. It is associated with physical stress in young people. In the Brandon population it was observed in nine males and nine females. This fairly low prevalence can be accounted for by the poor condition of most vertebral bodies, with post-mortem erosion often occurring in the areas where Schmorl’s nodes would be expected to develop.

A slight scoliosis was seen in the spine of Sk. 3081 (middle-aged female). The L5 vertebra was slightly wedged, the right side being shorter than the left (20mm and 25mm respectively). However, the L3 was slightly wedged in the other direction (27mm right, 24mm left) and the two probably compensated each other to some extent.

A vertebral anomaly was seen in the L4 of Sk. 3101 (?middle-aged ?female). The proximal anterior border appeared as though it had been pushed downwards, and osteophytes and reactive bone growth had formed around the anterior of the body and at the border. The vertebra was not wedged, the body simply curved downwards to the border. Unfortunately some post-mortem erosion had occurred and it was difficult to suggest a cause for this lesion. It may be a form of anterior epiphyseal dysplasia (see ‘Circulatory disturbances’ below).

Cribra orbitalia and porotic hyperostosis

Cribra orbitalia is a lesion of the roof of the orbit (the part of the skull which encloses the eye). In its mildest form it consists of a number of small pits over most of the roof area, but it can progress and growth of fibrous bone may occur over the surface of the orbital roof. It has been associated with iron deficiency anaemia. The lesion was seen in four children, five females, six males and two unsexable adults. Four individuals from disarticulated contexts also had cribra orbitalia, these being Sk. 3075 (child, c.3 years), Sk. 3082 (child), Sk. 3085 (child, c.2 years) and Sk. 4003 (adult, 35–45). Prevalence in children was almost double that in adults.

In most cases the lesions were at the least developed stage, i.e. porotic or cribriotic (Brothwell 1981), but a few individuals (mainly juveniles) showed a more advanced stage of the lesion with fibrous new bone on the roof surface. Six individuals (three males, two females and a child) were classified as ‘slightly porotic’. Five (two males, two females and a child) were considered to have ‘porotic’ lesions. Cribriotic lesions occurred in five (one male, one female, two unsexed adults and a child). Two examples of trabecular lesions were seen in a child and a disarticulated context.

Two adults showed possible evidence of porotic hyperostosis, a lesion of the cranial vault which is associated with anaemia. Sk. 1746 (?middle-aged ?female) had a thickened frontal bone with enlarged diploë, suggesting the need for more blood to be manufactured. Sk. 4021 (young male) had pitting on both parietals, the superior part of the frontal and the occipital. This may be indicative of a scalp infection, but it could also be healed porotic hyperostosis, especially since cribra orbitalia was also present in both orbits. An extremely thick disarticulated skull (1901) may also have been affected with a blood disorder, and disarticulated context 4035 contained a male skull with pitting and some striation on the parietals, possibly the result of healed porotic hyperostosis.

One child had unhealed porotic hyperostosis. Sk. 3094 (18–24 months) had two fragments of skull with a roughened and porous outer table, and microscopic
examination of the cross-section revealed a ‘hair-on-end’ appearance which is characteristic of the disease radiologically.

**Circulatory disturbances**

Table 7.13

The two most common diseases in this category which are seen in archaeological populations are osteochondritis dissecans and anterior epiphyseal dysplasia of the vertebrae. Both are types of aseptic necrosis involving the ‘death’ of a small area of bone. Osteochondritis dissecans is characterised by a small pit in an articular surface, from which a small area of bone has broken off. It often occurs in younger individuals (particularly males), is probably associated with physical stress or trauma, and may heal spontaneously. It occurred in one female and five males, as well as femora from two disarticulated contexts (3067, fragment of femoral condyle with large healed lesion; 4011, left femur distal lateral condyle with healed pit and secondary arthritis dorsally of pit). Details of the lesions in articulated remains are given in Table 7.13.

Anterior epiphyseal dysplasia occurs in two males and one female. Sk. 1706 (male, 25–35?) had a pit in the superior margin of one lumbar vertebra, and the section of body below formed a lip to compensate. Sk. 1830 (?middle-aged male) had a slight aseptic necrosis of the superior border of the second lumbar vertebra. The upper border of the ninth thoracic and the lower margin of the seventh thoracic vertebrae of Sk. 1838 (?female, c.25–30) had collapsed slightly on the right side, and this may be due to a necrotic lesion, or to a neuromechanical process such as Scheuermann’s Disease (Ortner and Putschar 1981). A lower thoracic vertebra from disarticulated context 3122 also had a necrotic lesion in the upper body.

**Infectious disease**

Pl. 7.1

Very few infections are recognisable in the skeleton, and those which are seen are generally of the non-specific variety (the causative organism cannot be identified). The three major infectious diseases which are recognisable in the skeleton (leprosy, tuberculosis and the syphilitic group) are relatively rare in most archaeological populations, and Brandon is no exception.

The most common site for periostitis (an infection of the outer layer of the bone) in most archaeological populations is the lower leg. Seven males, seven females and two unsexable adults were affected with some form of this disease, ranging from slight graining and new bone growth (most cases) through to deep graining and thickening of the bone. In most cases the left tibia and fibula were more affected than the right although the reason for this is unknown. One skeleton (8008, ?male) had a periosteal reaction on all the leg bones, but in all other cases only the lower leg was involved. Bones from two disarticulated contexts were also involved: 3087 contained a fragment of adult left tibia shaft with fibrous bone growth, and 3089 contained a left tibia and fibula with periosteal reactions.

The distal halves of both femora of Sk. 3116 (young female) appeared unusually large, and there was a small lesion just above the condyles of the right femur dorsal surface (smooth edges, roughened floor, 8 x 5mm). The right tibia showed graining and enlargement of the shaft, a thickened cortex and fibre bone laterally (Pl. 7.1). The

<table>
<thead>
<tr>
<th>Sk.</th>
<th>Sex</th>
<th>Bone affected</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1850</td>
<td>M</td>
<td>Both tibiae</td>
<td>Bilaterally in medial malleolus, possibly developmental defect?</td>
</tr>
<tr>
<td>3101</td>
<td>F?</td>
<td>L. scapula</td>
<td>Glenoid, anterior border, small pit surrounded by ridge of new bone (12x4mm).</td>
</tr>
<tr>
<td>3106</td>
<td>M?</td>
<td>R. femur</td>
<td>Distal medial condyle, small pit (6x3mm) and larger pit superiorly on the lateral border (8x5mm).</td>
</tr>
<tr>
<td>3145</td>
<td>M?</td>
<td>L. humerus</td>
<td>Lateral condyle, healed lesion (6x3mm) with smooth floor and lipped edges.</td>
</tr>
<tr>
<td>4077</td>
<td>M</td>
<td>R. talus</td>
<td>Superio-medial edge, healed oval lesion with cone-shaped new bone deposit (10x6mm).</td>
</tr>
<tr>
<td>8005</td>
<td>M</td>
<td>L. femur</td>
<td>Medial distal condyle, large lesion with pitted floor and slight healing at edges (19x15mm, 5mm deep).</td>
</tr>
</tbody>
</table>

Table 7.13 Osteochondritis dissecans

Plate 7.1 Sk. 3116/3126 enlargement of tibia shafts, anterior
fibula was also affected, especially the distal half. The left tibia in 3126 (disarticulated) belonged to this skeleton, and showed the same lesions as the right (Pl. 7.1). The metatarsals may also have been slightly enlarged but there was too little preserved to be certain. The epiphyses and patellae appeared to be unaffected. A lytic lesion was observed close to the lateral edge of the roof of the left orbit. It was circular, c.6mm in diameter, with a pitted floor and reactive bone growth and destruction. The leg lesions were suggestive of osteomyelitis, but there were no cloacae, and it is unusual to see bilateral symmetrical lesions in this disease. A more reasonable diagnosis is probably chronic periostitis or osteitis of uncertain aetiology.

Two skeletons had an infection of the left maxillary sinus. In Sk. 3135 (female, <30?) this was probably due to the breakthrough of an abscess around the first molar. The cause of that in Sk. 4019 (male, old?) is unknown. Abscesses were probably a factor in the development of sinusitis in the left maxillary sinus of a disarticulated male maxilla from context 4052.

Two skeletons had skulls with enlarged diploë and ectocranial pitting (1804 and 1836), and the skull of Sk. 1499 had a thickened outer table and slight pitting. These lesions could have been caused by an infection or they could be the result of healed porotic hyperostosis.

One individual had new bone growth within the skull on the inner table, Sk. 3131 (child, c.12m). The new bone appeared to have been deposited in layers and was especially thick on the suture lines. It was thickest on the frontal bones with some spread onto the parietals. The cause of this is unknown, but perhaps some infection of the meninges of the brain might have this effect.

Finally, Sk. 3110 (male, 35–45) had lost both his right maxillary incisors and the alveolar bone was very resorbed/atrophied. There was a possible infection of the nasal floor with pitting. Such lesions are consistent with a diagnosis of *facies leprosa*, but in view of the fact that the nasal border was still sharp, the nasal spine was intact, the maxilla was broken and the other half lost, and there was no evidence of leprosy in the two remaining metatarsals and one hallucial phalanx, this diagnosis cannot be confirmed. A maxilla from disarticulated context 3123 had an enlarged nasal aperture and the interior lateral margins of the nose appeared to have been eroded ante-mortem with possible partial destruction of the anterior nasal spine, pitting and porosity. As with Sk. 3110, any diagnosis made on this evidence alone must be uncertain, but leprosy might be considered a possibility.

**Neoplasms**

Three skeletons had lesions which may be benign neoplasms (osteomata). Sk. 3137 (child, 3–4 years) had a lump of bone at approximately midshaft of one finger phalanx, almost circular in shape, with a smooth periosteum. There was slight remodelling of the medial border of the left femur approximately one-third down the shaft of Sk. 4018 (?female, 18–21?), forming a patch of new bone above the periosteum, possibly an osteoma or an ossified haematoma. Sk. 4060 (old male) had a similar lesion in the same position (c.20 x 8mm in size).

**Trauma**

Eleven men and eight women were affected by some form of traumatic lesion, ranging from simple ossified haematomata, through fractures, to unhealed wounds. The simplest form of traumatic lesion which can be seen in the bone is an exostosis or ossified haematoma. This occurs when a violent movement tears or strains the ligaments at their point of insertion with a bone. If bleeding occurs this will clot and eventually may become bone, forming a small raised bony spur or prominence. In most cases the individual concerned would not have been affected by the lesion once the initial shock and/or pain had passed. Four men and two women had evidence of this least traumatic form of injury. Sk. 1842 (?male, 16–18) had a small exostosis on the linea aspera of the left femur at approximately one-third of the way down the shaft (c.11mm long, 1mm deep). The right femoral glutal tuberosity of Sk. 1850 (young/ middle-aged male) was enlarged, with a slightly lumpy appearance, possibly due to tearing of the muscle attachment (21 x 10mm, c.4mm high). There was an exostosis (35 x 8mm, c.2mm high) approximately midshaft of the anterior edge of the right fibula of Sk. 1898 (female, 1825), which had a slightly lumpy appearance and appeared to be above the periosteum, and was located at the distal attachment of the extensor hallucis longus. Such a lesion might follow a kick in the shins. Sk. 3098 (male, 25–35?) had a small exostosis just below the proximal border of the left side of the third lumbar vertebral body, possibly connected with an aseptic necrosis which may have been present (unfortunately the bone was very eroded). A linear

Plate 7.2  Sk. 3095 loss of left femoral head and narrowing of shaft
exostosis was present at the centre of the soleal line of the left tibia of Sk. 3144 (?male, 20–25). Sk. 4050 (female, 18–22) had a slight exostosis on the lateral border of the left humerus approximately one-third down the shaft. None of these lesions could be considered serious, and those affected would have led normal lives after their accidents.

Bones from three disarticulated contexts also showed evidence of ossified haematomata or exostoses. A right femur in 4011 had a lesion in the lower third medially, a left femur in 4031 had an exostosis one third down the shaft on the linea aspera, and a left humerus in 9355 had an exostosis at the distal end at the attachment of the *brachioradialis*.

Healed fractures were seen in the limb bones of seven individuals (five women and two men). Two women had fractures of the left radius. That of Sk. 3101 (?middle-aged ?female) was located approximately three-quarters down the shaft (Collis’ fracture) with displacement of the distal quarter medially. Some bone had been lost from the area of the lesion after death, but enough had survived to suggest that the bone was well-healed with little callus, although there was evidence of a slight infection above the area of the fracture (new bone growth and pitting), and there was gross arthritic change to the distal articular facet. Sk. 4009 (?middle-aged female) had a midshaft (parry) fracture of the left radius, well-healed with little callus but with slight misalignment. In both cases the ulna was unaffected and probably acted as a natural splint, although it is possible that some artificial splinting may have been used. Similar lesions occurred in the left ulnae of two other individuals, although unfortunately neither bone was complete. Sk. 4027 (male, young/middle-aged) had a well-healed fracture at approximately midshaft with smooth rounded callus formation (27mm thick) and a small exostosis on the ?anterior edge, and Sk. 4043 (?male, c.30) had a similar lesion with a small exostosis in a distal fragment of left ulna. Fractures in the left forearm are often associated with violence, since the most obvious form of defence against a blow to the head by a right-handed attacker is to raise the left arm.

Two skeletons have fractures of a clavicle. Sk. 1907 (male, >30) had a well-healed midshaft fracture of the left clavicle, with slight displacement of the lateral half distally and cortical thickening of the distal surface. Sk. 4001 (female, >30) had fractures of the right clavicle and one lower rib, both with little callus or distortion. The clavicle had a small ?abscess hole in the posterior surface of the lesion. Fractures of the clavicle are often caused by a fall, for example due to slipping on ice (Wells 1980), but may be the result of violence. A midshaft fracture of the rib is also often associated with violence but could equally be caused by an awkward fall.

Sk. 3095 (female, young/middle-age) bore the scars of several lesions which are likely to be traumatic in origin. There was a deformity of the distal end of the left radius, where the articulation with the ulna had been forced proximally, perhaps due to a fracture of the ulna, only a fragment of which was present. This fragment showed reactive bone growth around a ?cyst with slight widening of the shaft. The left scaphoid and lunate were both deformed and flattened, with abnormal facets, slight osteophytosis and pitting. The part of the radius which articulated with these two bones was at a steeper angle than normal, and the anterior border appears to have been pushed outwards. These lesions are suggestive of a fall onto the outstretched palm, in which the bones of the wrist were crushed together.

The left femur was abnormally thin medio-laterally, and in place of the head there was a flattened articular surface with pitting and osteophytosis (Pl. 7.2). It seems likely that a traumatic event occurred some time in late childhood which caused a fracture of the neck of the femur, cutting off the blood supply to the femoral head and allowing it to be resorbed. However, if such a fracture occurred in adult life and a fragment of the femoral head remained, it is possible that this had been lost post-mortem since the real acetabulum had been lost in this way. Whatever the cause, the shaft of the femur had become dislocated onto the ilium where a new flattened acetabulum had formed. There was probably only very limited movement of the joint. The right femur was abnormally bowed medio-laterally, perhaps because the left was slightly shorter due to its displacement upwards, and fragmentary remains of the right knee joint show evidence of arthritis (eburnation and osteophytosis). Loss of the femoral head may be diagnostic of tuberculosis, and there was some reactive bone growth and pitting on the fourth to sixth thoracic vertebral bodies which might be further evidence for this disease. However, in view of the fact that there is no evidence for infection on the femur it seems likely that the lesions seen here were traumatic in origin.

In addition to the lesions recorded above, Sk. 3095 also had a deformaity of the right side of the mandible (Pl. 7.3). This was shorter than the apparently normal left side and the condyle was very deformed, being circular in shape
with reactive bone growth on the articular surface, as was the glenoid cavity of the skull. The attachments of the genioglossus and geniohyoid were enlarged or ‘stretched’. No signs of infection were visible, other than that around the alveoli of lost teeth, as would be expected. There was extreme overbite, despite the fact that the palate was also deformed, the left half being narrower than the right, presumably to compensate. These lesions were likely to have occurred in childhood for the mandible to be so much shorter on one side than the other. Whether all these lesions were the result of one accident or several is impossible to say from the evidence available. It is possible that this woman was a victim of habitual violence as a child, but it is equally likely that she was accident prone, especially if the femoral head injury occurred first and she had difficulty in walking. Unfortunately, radiography of the bones provided no further clues to aetiology.

One individual, Sk. 1917 (male, 35–45?), had a crush fracture of the fourth to fifth thoracic vertebrae which had resulted in complete fusion of the bodies but no fusion of the arches (Pl. 7.4). The two bodies together were the same size as a normal single vertebral body. The anterior borders of the vertebrae immediately above and below were slightly altered to articulate with the crushed bodies. Although such a lesion could occur in tuberculosis, the absence of any signs of infection in the spine or ribs (although there was periostitis/osteitis of the tibiae) means that this diagnosis has to be rejected in favour of a purely traumatic one.

A healed depressed fracture of the frontal bone slightly to the left of the midline (c.27 x 13mm in size) was seen in Sk. 4019, an ‘old male (Pl. 7.5). There was slight pitting inside the lesion and possible signs of infection over most of the frontal superior to the lesion. A blow to the head with a blunt object by a right-handed opponent might cause such a fracture.

Three individuals had unhealed cuts on their skulls, and two of these had cuts on other parts of the skeleton. Only one of these skeletons was undisturbed, and it is possible that the cuts on the other two happened in antiquity when new graves were being dug.

Sk. 4038 (male, young/middle-aged) had a small cut (19mm long) on the lateral border of the right deltoid tuberosity of the humerus at an angle of c.25 degrees running upwards from lateral to medial (Pl. 7.6). There was no sign of healing. Part of the bone had broken off above the cut and had been lost post-mortem. The left femoral medial border just below the lesser trochanter also appeared to have been cut around (or soon after?) death, based on colouration of the bone. The fragment of detached bone was still present (Pl. 7.7). The cut appeared to have started at the posterior edge, with a roughened break at the anterior. As the skeleton was not buried in a prone position it is unlikely that such a cut could have been made after interment. There was evidence for a root having penetrated the area from the posterior side,
however, so perhaps the sliver of bone was pushed off by this. The sliver/cut area is rather large, extending 115mm down the shaft and 20mm across. It would be necessary to use considerable force to inflict an injury of this size through the muscles which overlay the rear of the femur. However, the actual cut might only have been c.69mm long, the rest of the bone probably having been forced off by the removal of the weapon. There were two cut areas on the skull. One was at the rear and extended over the region of the lambda and onto the left parietal, removing the outer table of the skull but probably not piercing the brain (Pl. 7.8). The other cut through the middle of both parietals from right to left (Pl. 7.9). It is difficult to suggest a scenario which would explain all of these wounds occurring shortly before death. The cut to the right humerus would probably have had the effect of disarming a right-handed man, leaving him almost defenceless. The cut at the back of the head might have knocked him out, although this would make it difficult to inflict the other cut vertically through the parietals unless he was still on his
knees when it fell. The lesion on the medial surface of the femur is harder to explain. It could have been made by a swordsman standing slightly behind and to the left of a man on horseback, although this would be difficult. It would be easier to stab the back of the leg if the victim were lying face down, but if this were the case then he would be almost defenceless and such a wound would be superfluous to any which might be made in the chest or head areas, where they would be more likely to prove fatal. Unfortunately the ribs were in poor condition, but no cuts were seen on the fragments that remained. It seems likely that most, if not all, of these cuts were made whilst the individual was still alive, especially given the fact that his grave was undisturbed.

Sk. 4055/4062 (?young male) was cut in half by Sk. 4061, and it is possible that any cuts seen on the skeleton of this individual were the result of grave-digging. Three cuts were seen on the skull, one diagonally across the frontal from the right orbit to the left parietal, one on the right parietal approximately midway across, and one which shaved the surface of the right parietal dorsally to the former (Pl. 7.10). Most of the edges of the fragments of skull appeared abraded and were the same colour as the outer surface of the skull, implying that the skull was broken in antiquity. A small fragment of one rib also showed a cut mark on the inside. Whether these cuts occurred immediately prior to death or whether they are artefacts caused by grave-digging tools when 4061 was buried is difficult to say.

Sk. 8007 (middle-aged female) had a cut at an oblique angle on the left parietal extending from near the coronal suture to the lambda. The line was rough but the edges were sharp and well defined. Another small cut ran across the centre of the sagittal suture but unfortunately one side of it was lost in places and it was difficult to interpret. Both lesions must have happened in antiquity judging by the colour of the bone, but whether they were ante- or post-mortem is uncertain.

A healed cut was seen on the right side of the frontal bone of disarticulated skull 3079 (Pl. 7.11). It was irregular with rounded edges and a deposit of bone at one end. Another lesion (17mm long) was seen almost at the
middle of the left parietal, but it was incomplete. It had rounded edges, was deeper than the one on the frontal, and was pitted inside. It seemed to be a partially healed or infected cut.

Two other skeletons had lesions which might be traumatic in origin. The left third and fourth metatarsals of Sk. 1900 (?male, middle-aged/old) had abnormal articular facets between them, suggesting that they were pushed together during a traumatic incident, or that they were continually being forced together by the wearing of tight footwear. There was no sign of fracture on the remaining bones of the foot. The right femoral lesser trochanter of Sk. 4027 (young/middle-aged male) was slightly deformed. It was flatter all over than that on the left, lipped towards the anterior and the anterior groove was much deeper than normal. The appearance suggested that the trochanter had been pushed/pulled round to the anterior. The cause of this is unknown, but it could well be traumatic.

Miscellaneous lesions
Pls 7.12–7.13
A number of pathological lesions could not be categorised under any of the headings above, and some could not be diagnosed. These are recorded below.

Sk. 1882 (female, middle-aged/old) appears to have had a withered leg. The right femur was extremely flattened anterio-posteriorly and the linea aspera was almost non-existent (Pl. 7.12). The cortex was very thin. The right tibia and fibula also appeared thinner anterior-posteriorly and cortically than those on the left. Both tibiae were grained on the medial surface, but the left was affected to a greater extent than the right. The right femoral condyle appeared slightly flattened (proximal-distal) but only the lateral half was preserved. There was lipping and new bone formation around the borders of the articular surface and the beginnings of eburnation at the most distal point. The proximal right tibial condyles, also damaged, showed eburnation on both sides (middle of the lateral and dorsal edge of the medial) with some pitting and lipping. This was presumably related to the pathological condition noted in the right leg, causing greater stress on this knee. Unfortunately most of the leg bones were too fragmented for their lengths to be measured, but the femur appeared to be slightly shorter. The few fragments of right foot which remain did not appear to be smaller than their opposite numbers. These lesions are suggestive of poliomyelitis or some other form of paralysis, in which a small diameter and smooth surface of the bone are expected due to lack of use of a limb (Ortner and Putschar 1981, 325).

A few lesions which may be developmental defects were noted in this population. Sk. 3090 (young male) had a possible developmental defect of the radial fossa of the left humerus, where no compact bone covered the floor of the fossa and the cancellous bone was visible. The smooth edges of the defect and the cancellous bone suggested that this lesion had not occurred post-mortem. The right greater wing of the sphenoid of Sk. 3113 (young male) had a similar lesion at the centre of the endocranial floor (13 x 8mm), with rounded borders, pitted floor and some new bone growth. Alternatively this could have been some form of lytic lesion, but the rest of the skull showed no evidence of infection or destruction.

The articular facets on the right side of the C2–4 vertebrae of Sk. 8015 (male, middle-aged?) are significantly larger than those on the left. The cause of this might be congenital, or it could be developmental.

Three skeletons showed evidence of an inflammatory disease of the ischial tuberosities, known as ischial bursitis. This is suggested by new bone growth over the tuberosities, giving them a roughened, craggy appearance. It is caused by continual movement whilst sitting on a hard seat, and is commonly known as 'Weaver's Bottom', although it is not limited to individuals with this occupation. The three individuals affected were Sk. 1499 (male, 45+), Sk. 1836 (adult ?female), and Sk. 3140 (old ?male). A left ischium from a disarticulated context (4028) also showed signs of the disease.

A left second metatarsal in disarticulated context 3107 was ankylosed to the lesser multangular. This could have occurred due to trauma, some form of arthritis, or an infection.
Three cranial lesions were noted on the frontal bone of the disarticulated skull from context 4003 (Pl. 7.13). One was located on the central line c.25mm below the bregma, and was an irregular rounded shape with new bone around the edge and a central depression, c.7mm in diameter. Another lesion on the right side of the frontal, c.35mm above the orbit, was an irregular ovoid depression with a pitted floor and slight rounded growth at the edges (13 x 7mm). A very slight rounded depression lies between the first two. The last two could be fractures but the cause of the first is unknown.

Scientific analysis
by Peter Marshall and Alex Bayliss

Amino acid analysis
The results of the amino acid analysis on the nineteen samples of human bone originally submitted for high precision dating from cemetery 1 indicate that overall the collagen-like profile did undergo deterioration due to diagenesis during burial; with samples generally classified as ‘class IV’ or poorly preserved according to Stafford et al. (1988). The high values for Glutamic acid may indicate the presence of exogenous Glutamic acid in the samples (e.g. as humics), and the decreased values for hydroxyproline indicate some deterioration of protein (van Klinken and Mook 1990). Although some deterioration has taken place in the collagen, nearly all the samples still have acceptable C:N ratios, within the range 2.9–3.6 (DeNiro 1985). We have therefore chosen to use all the stable isotope data, except for Sk. 1706 (C:N ratio 4.5), in the following analysis of the isotopic data (see below).

Stable isotopes
The ratio of carbon isotopes is used to distinguish between a marine protein diet (expected consumer’s δ¹³C -12‰) and a C3 plant protein diet (most vegetables, fruits, and wheat; expected consumer’s δ¹³C -20‰) (Schwarcz and Schoeninger 1991). Carbon isotope values between -12‰ and -20‰ indicate consumption of a mixture of marine and terrestrial resources.

Nitrogen isotopes are primarily used to determine the input of plant vs. animal protein in the diet, although there is some evidence that δ¹⁵N values are also influenced by the nitrogen balance of an organism (Fuller et al. 2004). In an ecosystem each step up the food chain results in consumer tissue, in this case bone collagen, being enriched in δ¹⁵N by approx. 3–4‰ relative to diet (Schoeninger and DeNiro 1984). Thus people who eat more animal protein compared to plant protein will display higher δ¹⁵N values (O’Connell and Hedges 1999).

The δ¹³C values derived from human bone samples show that the diet at Brandon was predominantly terrestrial, with perhaps a very small marine component. The results from Brandon can be compared with isotopic studies of the individual from the Anglo-Saxon cemetery at Bloodmoor Hill, Carlton Colville (Lucy et al. 2009a). Individuals from both cemeteries showed similar carbon isotopic values, suggesting a similar reliance on C3 crops at the base of the food chain, and little contribution from marine resources.

As no faunal samples are available from Staunch Meadow, it is not possible to make a direct trophic level comparison of human δ¹⁵N values with domestic or wild animal δ¹⁵N values. Comparison of δ¹³C values with fauna results from the broadly contemporary settlement at Bloodmoor Hill (Lucy et al. 2009a) suggests that these individuals could have been consuming sheep, cattle, and pigs, since the Staunch Meadow adult human average of 9.3±0.8‰ is approximately 4–5‰ enriched above these animals. The large difference of +4 to +5‰ between the mean nitrogen isotopic values of fauna and humans indicates that protein other than that from herbivores was probably consumed regularly. Given the location of the site next to the River Ouse, it is probable that freshwater fish was regularly consumed.

The difference in δ¹³C between the fauna and humans (0.5‰) is typical of the observed carbon trophic level effect.
IV. Cemetery 2

Introduction
In contrast to cemetery 1, only a very small part of this second cemetery was excavated. It was located in the northern half of the site in the centre of the eastern limits of excavation (Fig. 4.1). It probably represents the western edge of a much larger cemetery which is known from antiquarian reports to have extended across the higher ground to the east.

The burials were excavated in plan, excepting 4946 and 4665, where the top half of the grave was sectioned to record its relationship to clay surface 4669. The graves tended to be clearer than those in cemetery 1, with edges easier to define, and the relative depth of the bodies was deeper.

Number of burials
Forty graves were identified in the excavated areas (Fig. 7.12). From these, thirty-one articulated skeletons were recovered, and three further skeletons were recorded but not lifted. Disarticulated bones were collected from five contexts associated directly with this part of the cemetery, and one was noted but not lifted.

Extent
The excavated area measured 11m by 6m, but the full extent of this cemetery is unknown. The excavated part represents the western edge, but test trenches dug in 1988 showed that burials continued further to the east and north-east. An account by Charles Myers describes the location of skulls collected at Brandon as follows:

The skulls were found in a field just outside Brandon within 80 yards from the river….three holes were dug on the top of a large circular elevation, about 50 yards in diameter, which was surrounded by a depressed area of ground and at no point rose more than 3 feet above the average plain of the grassy meadow. Along the whole extent of the rise the labourers are fully confident of discovering further human remains…The skeletons of the present series were found entire, but it was by no means rare to find parts of the same body separated by some distance. No bones were discovered at a depth exceeding 4 feet. There was a complete absence of display of orientation in burial; it was equally common to find bodies lying over, parallel to or across each other. No ornaments nor any pottery came to light. Large pieces of iron were dug up, but they had so decayed that it was impossible to pronounce on their former use (Myers 1896, 113–4).

Finds of disarticulated human bone in the southern part of the large enclosure ditch suggest that the cemetery may have extended to the southern limits of the higher ground. However, no burials were identified in the small area excavated to the north of this part of the ditch, and it may be that the bone was redeposited along with general demolition rubble when the medieval enclosure was finally abandoned.

No evidence for boundaries was identified around this cemetery, but this may simply be a result of the more intensive land use in this part of the site. Any ‘blank’ areas which might have represented pathways or lines of fences would not be discernible amidst all the earlier and later pits and ditches.

Internal structure
The excavated part of the cemetery had a shape not unlike that of the west end of cemetery 1, tapering to a narrow terminus with only one burial (4584) at the far end. Four north–south rows, all of which contained intercutting graves, spread to the west, and in the narrow test trench (s33 on Fig. 4.3) at least three further rows were identified either side of the medieval enclosure ditch. An outlier was present to the south-west (4675).

The alignment of the burials was, like cemetery 1, an approximation of east to west. Figure 7.13 shows that, despite the smaller numbers involved, the distribution pattern was very similar at cemetery 2. Whether it had boundaries on which to align itself, as has been suggested for cemetery 1, is impossible to determine. However, topography appears more likely to have played a part in this area. Several ditches and structures in this part of the site ran parallel with the river and it seems likely that this and the contours at the waterfront were major factors in

Figure 7.13 Distribution of burial alignments in cemetery 2
their alignment. The same may be true of cemetery 1, even if indirectly through alignment on other extant features.

**Buildings**

Pl. 7.14

Two structures may be associated with the early use of the cemetery. Building 4531 appears to contain burial 4584 and the two are certainly on the same longitudinal alignment. Both the burial and the building cut ditch 4509, but there was no direct stratigraphic relationship between them. This skeleton was submitted for radiocarbon dating and produced a result of cal AD 820–1020 (GU-5817). The building was cut by most of the burials in the second row, but this row was later than row 3, in the northern half at least. One of the burials which cut the east wall of building 4531 provided an earlier date of cal AD 680–990 (GU-6050), which makes it less likely that 4584 was contained within its standing walls.

To the west of building 4351, again on the same alignment, was a sub-rectangular clay surface 4607 (structure 4669) (Pl. 7.14). The clay pad measured 3.5m by 2m and was an average 0.1m deep. It was aligned ENE to WSW, generally parallel to the graves. No sign of any surrounding wall was found although it is possible that a wattle surround or insubstantial sill beam arrangement would have escaped detection. The pad was cut on its eastern half by burial 4665 and the clay surface was then reinstated with additional chalk, but some burials in row 4 (4821, 4956) appeared to underlie it. Relationships with other burials were uncertain. Burials 4587, 4824 and 8163 may have cut it, but the ragged edge at the west end could be due to slumping. Burial 4946 was underneath, but its relationship with the clay was destroyed by the burial of 4665.

There was a gap between rows 4 and 5 of approximately 2m and it is possible that row 5 intentionally respected the edge of the clay surface. If so, this may have been a standing structure when row 5 was started.

**Dating and phasing**

Fig. 7.14

Radiocarbon dates were available for seven skeletons from this cemetery, as shown in Table 2.3 (Chapter 2).

Although the dates are broad, they suggest that this part of the cemetery was in use from at least the Middle Saxon phase into the Late Saxon period. The very late date for 4842 is difficult to accept, since the characteristics of this burial are exactly the same as those for the earlier dated burials. Finds of horses and weaponry mentioned in the 19th-century accounts may even suggest that the cemetery originated in the Early Anglo-Saxon period, but no evidence for this was found in the excavated areas.

Very few finds were collected from the burials. The presence of a single sherd of Thetford Ware in the earliest of the burials with a radiocarbon date may place this burial (4584), the one associated with building 4531, in the Late Saxon phase if the sherd were not intrusive. Its position in the grave is not recorded.

Graves in trench 9300 (s33 on Fig 4.3) cut into natural and were cut by the enclosure ditches (Fig. 7.14), which are medieval in date. Several of the later burials in the sequence cut the east wall of building 4531, and much of the eastern row of the main excavated area cut ditch 4961 (Phase 1.1). Burials in the middle of the area cut through ditch 4812 (Phase 1.1) and, as noted above, some of these were below clay surface 4607.

Phasing for this cemetery was difficult as most of the burials respected each other. Two sequences of three
burials were identified, so at least three phases are likely. Probably amongst the earliest were 4805, 4824, 4821, 4956, 4946 and 4559. To the east, 4817 and 4796 may also be of early date as both appear to be cut by later graves. Burial 4587, in the row which cut building 4531, may belong in the same phase as the early child burials, or it may be contemporary with 8163. The row along the east end of building 4531 probably developed next, and 4558, 4584 and 4738 probably also belong in this phase. Those in the row to the east of the clay pad, which includes possible medieval burial 4842, may be the latest in the sequence. The burials identified in Trench 9300 were not phased, nor was outlier 4675.

Grave depth
Levels were taken on the skulls of the majority of burials in this cemetery. The average was 4.11m OD, but they varied from 3.71m to 4.27m OD. This area of the site was lower-lying than the cemetery 1 area — on average around 4.9m OD at the surface — but the average depth of the graves (0.79m) was still slightly greater than cemetery 1. In this cemetery, there was a slight difference in average depth between adults and children. The adults were at 4.11m OD, children at 4.15m OD and infants at 4.05m OD. This is unexpected, as smaller graves would be more difficult to dig to a greater depth.

Grave morphology
In cemetery 2 it was possible to identify cuts for most of the graves. The majority were sub-rectangular in plan and in general there was more space surrounding the bodies at the sides than at the ends. Profiles generally showed vertical sides and flat bases.

Bone survival and disturbance
Skeletons from this cemetery were all fairly complete as disturbance and intercutting were minimal. However, the bone condition of over half of this group was considered to be poor. Although skeletons were not usually heavily disturbed by external factors, their bones had often been moved out of anatomical position within the graves, in several cases quite considerably. This is expected when decomposition takes place inside a void.

Body position
Body positions were difficult to determine for many burials in this group, due largely to the high degree of bone movement. The arm positions of thirteen individuals could be recorded, the majority of which had their arms straight by their sides (six individuals). Four had one straight arm and one arm across the pelvis or waist, and two had both lower arms across the pelvis. One had one straight and one indeterminate arm. Analysis of the positions of fourteen pairs of legs showed that nine were straight and five were flexed. Ten head positions were evenly distributed (four left, three right, three straight ahead).

Coffins
The bone movement seen in most of these graves can be attributed to the use of coffins. Twenty-four graves had coffin stains. The majority of these appear to indicate that the coffin was a very tight fit for the body, at least from side to side. This is in contrast to the relatively greater space at the sides than at the ends of the grave cuts. Whilst there
was likely to be some distortion of the wood during decay, with inward curvature and collapse of the sides into the internal void before the wood finally became no more than a stain, the lines recorded in these burials are all relatively straight, suggesting that they do represent the approximate size of the original boxes. With one exception, no metalwork was found in any of these graves, so most of these coffins are likely to have been jointed without the use of nails. Grave 4842 produced one nail from the coffin stain and two fragments of iron hasps (sf4795 and sf4844).

Iron hasps by Nicola Rogers
These hasps are of a similar type to those described in Chapter 6.X. Both sf4795 and sf4844 retain their looped staples. Hasps recovered from burials typically represent the remains of wooden chests with iron fittings which have been re-used as coffins in Anglo-Saxon burials (see burials 3116, 3098 in cemetery 1 above). Grave 4842 is unusual in producing two hasps rather than one.

Other finds associated with burials
Two sherds of pottery, one prehistoric and one fragment of Thetford Ware, came from burial 4584. Ipswich Ware was recovered from 4822. Burial 4675 contained several small pieces of lava quern. One fragment of a glass vessel (sf4609) was found with 4602. Three flints were collected with 9312. Most of these finds are likely to be residual.

Demography
This aspect of the cemetery is discussed in the human bone analysis (Section V), where a summary table of age and sex can be found. As this cemetery was not completely excavated, there is a degree of bias in the distribution of ages and sexes. The high percentage of female and child burials may well be a result of this, although other explanations can be suggested (see below). The sample was too small for palaeodemographic analysis, but the figures were added to those of cemetery 1 to see if the addition of a relatively large number of child burials would make any significant difference. The probability of dying in infancy \((q-x)\) was raised to 0.054, but was still less than the adult figures for those over the age of 35 years.

V. Cemetery 2 human remains

Introduction
The number of individuals buried in the excavated part of the second cemetery was easy to assess since little disturbance had occurred and the graves tended to respect each other to a great extent. Thirty graves were excavated originally, with a few more being uncovered close by at a later date (contexts over 9000). A total of 31 individuals was seen, plus four disarticulated contexts. The area has produced other human remains in the past which are assumed to form part of this cemetery (Myers 1896), although from the description they appear to have been partly disarticulated. It is likely that only the more complete skulls were collected.

For details of methodology and discussion of specific aspects of pathology etc., see Section III above.

Condition
The majority of skeletons were assessed as belonging in the poor to fair range of preservation; none was classified as ‘Good’. This only takes into account the condition of the bone, not the completeness of the skeleton.

Demographic analysis
Table 7.14
Of the eleven adults buried in cemetery 2, three were male (two of which were only possible males) and eight were female (three possibles). Two males could not be aged more closely than ‘adult’, the other male was thought to be old, and the females were fairly evenly distributed through the categories (one young, two young/middle-aged, two middle-aged, three middle-aged/old).

Table 7.14 shows the age distribution pattern of the twenty children. It can be seen from the table that the greatest proportion of children in this cemetery were infants and young children. Although on this evidence the skeletons from cemetery 2 seem to suggest some form of selective burial — the greatest proportions of individuals being children and women — since the cemetery has not been fully excavated it is difficult to make any definitive statements about the nature of its population. It should be noted, though, that it seems unlikely that a sample excavation of cemetery 1 would have produced a similar picture regarding sex and age distribution.

The skulls studied by Myers included twenty-eight males, twenty-three females, one sub-adult and two children aged around 6–7 years.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
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<td>50.0</td>
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<td>10.0</td>
</tr>
<tr>
<td>16–18 years</td>
<td>1</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Table 7.14 Age distribution of children in cemetery 2

Metrical and morphological analysis
Measurements for individual skeletons and disarticulated remains, together with means and ranges, are recorded in archive.

Only two skeletons from this cemetery could be measured for stature estimation, both of them female. They measured 1.568m (5’ 2”) and 1.663m (5’ 6”), which is within the normal range for females from any period.

Myers’ study of skulls from the area included five brachycranial, twenty-three mesocranial and twenty-three dolichocranial examples, with a range of 71.2 to 81.1.

Craniol non-metric trait analysis showed that a few unusual traits were present in this group, including one example of an Inca bone and one of mandibular torus. Both traits were present with low prevalences in cemetery 1.

Myers identified complete metopic sutures in four of the 63 skulls he studied (6.3%), four ossicles at the lambda or Inca bones (6.3%), eight occurrences of lambdoid wormians (12.7%), one asterionic bone (1.6%) and one bregma bone (1.6%). These prevalences assume that all skulls could be assessed for each trait, which is reasonable
in view of the fact that most of the skulls (or at least the cranial vaults) appear to have been intact.

Dental analysis

Table 7.15 shows the numbers of dental remains available for study in this population, including disarticulated remains. In addition, there were three unsexed adults and seventeen children with teeth.

Two men and four women had ante-mortem loss of one or more teeth, giving percentages of 66.7% and 44.4% respectively, 50% overall. These figures are higher than those for cemetery 1, probably due to the smaller samples in cemetery 2, and also to the larger proportion of older individuals buried there. The distribution of tooth loss within the dentition has not been calculated owing to the small numbers involved. The total ante-mortem tooth loss by sex as a percentage of the total identifiable positions was 47.0% for males and 5.1% for females. The high figure recorded for the males is due to the fact that out of the three males buried there, two were almost edentulous.

No males, three females, one unsexed adult and one child were affected with caries. Of the females, three lesions were in molars, two in premolars and one in an incisor. The child (4727) was affected in all four second deciduous molars. The overall prevalence as a proportion of the teeth present was 3.5%. The higher prevalence found in cemetery 2, compared with cemetery 1, is probably due to the small numbers of jaws available.

The prevalence of abscesses was 1.9%, affecting two women only. Two were in the maxilla (left mesial incisor and left first molar) and two in the mandible (both in the right M2). One was in the socket of a carious tooth.

The majority of ‘unerupted’ teeth were third molars, occurring in females only with a prevalence of 8.3%.

Calculus and resorption are scored according to the schemes of Brothwell (1981), and hypoplasia has been scored on a similar four-point scale. The numbers available for study are low, and the results are difficult to interpret. The women appear to have a greater degree of calculus, but as two of the men had no teeth, they could not be affected. Only one individual, a child, had enamel hypoplasia which was classified as greater than ‘slight’. Resorption appears to have affected the men in this group to a greater degree than the women, and is probably related to their age.

Pathology

Congenital anomalies

4587 (young female) had a left cranial arch (the neural canal is not covered by a bony arch) of the S4–5 sacral segments. This is a very common and minor condition and would have been asymptomatic.

Arthropathies and degenerative disease

Four females showed evidence for osteoarthritic changes. One female spine was affected out of six assessable (16.7%), and three out of six right (50%) and one out of seven left (14.3%) hip joints were involved. No other arthritic changes were noted in this small group.

Only the females showed evidence of osteophytosis. Two out of six spines (33.3%), one out of six left shoulders (16.7%), two out of six right hips (33.3%) and one out of seven left hips (14.3%) were affected.

One other arthropathy which may be present at Brandon is ankylosing spondylitis. This is a disease of the spine in which fusion of the vertebral bodies and the neural arches occurs progressively from the sacrum to the neck. Unlike ankylosing hyperostosis, mentioned above in connection with DISH (cemetery 1), the spine becomes completely rigid in time and movement becomes very difficult for the individual involved. It has a male:female ratio of 9:1. The first stage of the disease is bilateral symmetrical fusion of the sacro-iliac joints, and such a condition is present in Sk. 4558 (female, c.30–35). The diagnosis has to be tentative due to the ascribed sex of the individual. The individual also had new bone growth endocranially, but this was very uniform, forming thin layers across most of the frontal and onto the parietals; it did not have the normal appearance of hyperostosis frontalis interna, and the cause is unknown.

Cribra orbitalia and porotic hyperostosis

Pl. 7.15

Cribra orbitalia affected one male and six children. The prevalence figures for adults are based on too small a group to make any conclusions. However the prevalences for children in this group are quite high. Four children had porotic lesions, one child and one adult male had cribriotic lesions, and one child had trabecular lesions. In all cases both orbits were affected to the same degree.

The individual with trabecular cribra orbitalia also showed signs of unhealed porotic hyperostosis. Sk. 4946 (c.3–4 years) had porous bone symmetrically on both parietals running along the lambdoid suture in a band approximately 20–25mm wide, the right parietal being slightly more affected than the left (Pl. 7.15). Some labyrinthian lesions were apparent. The frontal bone was involved in the region of the brow ridges and laterally on both sides with slight porosity. The temporals were also affected to a lesser extent, and the malar bones seemed slightly porous. A cross-section of the parietals showed an intact inner table, enlarged diploë and lack of outer table. The mandibular chin area and the palate also showed some porosity. The unerupted M1s were stained blue along the growth lines (transversely across the crowns). Such staining is often related to side effects of drugs in the modern population, but could also be a result of metal (particularly lead) poisoning. In this case, however, it seems more likely to be a result of haemolytic anaemia (DeLong and Burkhart 2008, 250–11). The coloured lines

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Table 7.15 Dental remains quantification

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
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<tbody>
<tr>
<td>Number of:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individuals</td>
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<td>9</td>
</tr>
<tr>
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<td>8</td>
</tr>
<tr>
<td>Mandibles</td>
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<tr>
<td>Expected</td>
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<td>2</td>
</tr>
<tr>
<td>Remaining teeth</td>
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<td>188</td>
</tr>
</tbody>
</table>

Table 7.15 Dental remains quantification
appeared at similar stages in the development of the teeth, when the child was approximately 9–18 months old. The adult maxillary incisors were also affected at a similar stage in their growth. As well as the cranial lesions observed in this child, the femora were also involved. A cross-section of the left femur shows thickening of the anterior part of the shaft with a layer of new bone outside the periosteum, and widening of the lower half of the shaft with enlargement of the medullary cavity. The cortex is thinner than normal. The right femur was probably also affected but was in poor condition. Most of the rest of the skeleton was not preserved. These lesions are consistent with a diagnosis of a deficiency disease, most probably anaemia.

One other child, Sk. 4796 (newborn–6 months) also showed post-cranial lesions suggestive of a deficiency disease. The cortex of the right femur appeared abnormally thick with new fibrous bone growth on the outer surface. Unfortunately no other major bones survived from this individual, so the diagnosis can only be tentative.

Circulatory disturbances
Sk. 4849 (adult ?male) had one fragmentary thoracic vertebra with possible aseptic necrosis of the lower border.

Infectious diseases
Disarticulated context 9355 included a pair of tibiae with slight periosteal graining on the shafts, and a right femur from this context showed osteomyelitic lesions.

Two skeletons, Sk. 4558 (female, c.30–35), and Sk. 4821 (child, 7–8 years) had new bone growth within the skull on the inner table. In both cases the new bone appeared to have been deposited in layers and was especially thick on the suture lines. It was thickest on the frontal bones with some spread onto the parietals.

Miscellaneous pathology
The right clavicle of Sk. 4842 (?female, ?35–45) had an extra piece of bone antero-laterally which appeared almost as an extra lateral end super-imposed on the original. A canal ran through the bone. The articular surface appeared to be split into two levels. The cause of this is unknown.

VI. Disarticulated remains from other parts of the site
Fragments of disarticulated bone were recovered from contexts outside the general areas of the cemeteries. Several squares to the south of the excavated part of cemetery 2 produced human bone fragments, including pieces of skull, mandible, a large right ulna and some foot bones; these probably represent disturbed remains from cemetery 2. Contexts overlying the large enclosure ditch were probably also related to the area of the second cemetery, and included a right humerus, two teeth, bones of the foot and hand, and a fifth lumbar vertebra.

Bones which may be outliers to this general pattern of redeposition in a later period may include an adult left radius shaft in ditch 0678, an adult left humerus shaft in 2.5m square 6687, and an adult left clavicle and skull fragment in ditch 7518. However, two of these contexts were within features of Middle Saxon date, so unless the bones were intrusive in upper layers, they are less likely to relate to cemetery 2.

The bones from 2.5m squares 7594 and 7595 (adult right first metatarsal, right calcaneus and talus) may be related to the partially disarticulated burial 8000 which may have originally been buried within the ‘chancel’ of the church and was redeposited during the digging of ditch 8919. This ditch also contained 7847, an adult left first metacarpal. Burial 8000 certainly lacked all of these bones. However, again it is possible that these few fragments were outliers to the general scatter over the enclosure ditch.

An almost complete male right innominate was recovered from a layer on the waterfront. This seems unlikely to be related to the redeposition which was clearly occurring after cemetery 2 was abandoned. However, it is still likely to be a redeposited find. It may represent a pre-Saxon burial which was disturbed through erosion along the riverbank or perhaps it was found by one of the Saxon occupants and simply added to the midden material at the water’s edge.

Two adjacent pits, 0147 and 0156, which were not completely excavated, produced fragments of a newborn infant. This could represent disposal of an unwanted baby, or possibly disturbance and redeposition of an earlier burial.

Sk. 1293 and related bone from the causeway may be of Iron Age date and are described in Chapter 3.IV.
Chapter 8. Personal Items

I. Introduction

This chapter includes those items which might have been worn or carried by people living at the settlement as a part of daily life. This includes dress accessories such as clothes fastenings, toilet implements and combs, objects associated with literacy, and weaponry. The dress accessories include items of both Early Anglo-Saxon and Middle Saxon date and consist of brooches, bracelets, finger rings, beads, buckles, belt mounts, strap-ends and hooked tags. The assemblage is dominated, however, by over 200 copper alloy and silver pins. Toilet implements include tweezers and combs, as well as a single ear-scoop. Objects associated with literacy form a small but important category, consisting of stylus, glass and antler inkwells and a gold plaque, as well as runic inscriptions.

II. Dress accessories

by Ian Riddler, with contributions from Vera Evison and Nicola Rogers

Brooches

Fig. 8.1

The assemblage of eleven copper alloy brooches from Brandon includes two fragmentary cruciform brooches and three annular brooches, most if not all of which belong to the Early Anglo-Saxon period. A fragment of a lead alloy cruciform brooch model (sf2109) is also discussed. The five coiled one-piece brooches include two unfinished examples made on site and extending into the Middle Saxon period. An equal-armed cross brooch is also of Middle Saxon date. The presence of Early Anglo-Saxon material on a site largely of Middle Saxon date reflects the situation seen at Flixborough (Loveluck 1998, 155).

Cruciform brooches

Three fragments of cruciform brooches can be identified. Two are parts of cast copper alloy brooches whilst the third piece is a small part of a lead alloy brooch model.

A fragment of the lower part of a cruciform brooch (sf8355; Fig. 8.1) belongs to Reichstein’s Midlum type (Reichstein 1975; West 1998, 294 and fig. 145.26–31). The brooch has fractured across the lower part of the bowl and has a large catch-plate and a long muzzle with triangular eyes and oval terminals. Within the scheme of Penn and Brugmann (2007, 24), it can be placed in group X1, belonging essentially to phase FA1, placing it in the middle or second half of the 5th century. There is no precise correspondence with the foot forms of Bode (1998, abb 10).

A florid cruciform brooch (sf5548; Fig. 8.1) has been published previously by West (1998, 12 and figs 10.17 and 150.7). The lower part of the brooch survives and includes a bow with a raised square, a catch-plate with a large stamped ring-and-dot motif that retains traces of possible enamelling, and a flat muzzle with a prominent central raised band. Lappets to either side of the catch-plate are decorated by Style 1 animal designs. The brooch belongs to Leeds Group IV(b) (Leeds and Pocock 1971, 26–30) and to group X2 as defined by Penn and Brugmann, florid cruciform brooches extending over a long date range, roughly from the mid 5th century to the mid 6th century (Penn and Brugmann 2007, 24, 48 and fig 2.9). Within Bode’s scheme the bow belongs to her form 17 and the foot to her form 20 (Bode 1998, 23–72). This allows the brooch to be placed in her Gruppe 4, dated to the middle and possibly the second half of the 6th century (Bode 1998, 68).

The third fragment (sf2109; Fig. 8.1) consists of part of the foot of a cruciform brooch model of lead alloy, with spiralling terminals to either side of a raised central band. It has been briefly mentioned by Mortimer (1994, 34 n15) in the context of lead alloy models for Early Anglo-Saxon brooches. Another fragment of lead alloy, from a florid cruciform brooch model, has emerged recently at the Early Anglo-Saxon settlement at Eye, Suffolk (J. Caruth, pers. comm.). Both fragments are similar in design, with echoes of florid forms and Style 1 decoration, which allows them to be placed in the period c.450–550 (Bode 1998, 68).

Illustrations

sf5548 Ac. Florid cruciform brooch, incomplete with square raised moulding on bow, transverse arms above it decorated with Style 1 designs, flat area at centre with light impression of concentric circle design, lateral mouldings leading to animal head apex. Eyes raised well above head, stylised nasal ridge also in high relief, curved flat snout panels to either side and triangular end with curved sides and abraded central pattern. Rounded flat knop at apex. Rectangular pin rest on reverse. Layer 5701, Phase 2.

sf8355 Ac. Fragment fractured across lower part of bow. Flat notched and bevelled panels lead to three transverse mouldings above elongated animal head with rounded triangular eyes, diagonal lines across the nose and two oval curved panels for the snout. Unstratified 0001.

sf2109 Pb. Small fragment of foot of cruciform brooch model with two sets of curved spirals to either side of a raised central spine with a flat, rectangular moulding. Unstratified 0001.

Annular brooches

The three annular brooches from Brandon all lack their pins. Two of the annular rings are fragmentary and one is complete. The fragmentary examples (sf4879 and sf5866) have flat bands of rectangular section with framing lines of stamped lunette decoration, which is common on brooches of this type (Haughton and Powlesland 1999, 101; MacGregor and Bolick 1993, 89 no. 10.35; Hawkes and Hogarth 1974, fig. 7.1–2; Green et al. 1987a; fig. 330; West 1998, figs 26.4 and 28.10.1). One of the pair (sf5866; Fig. 8.1) retains a circular perforation for the pin, in the manner of annular brooches from Icklingham and West Stow (MacGregor and Bolick 1993, 87–8). The third brooch (sf2328; Fig. 8.1) is D-shaped in section with four bands of transverse linear ribbed decoration. Similar brooches are known from Castledyke, Morning Thorpe and Sewerby (Drinkall and Foreman 1998, figs 83, 91 and 106; Green et al. 1987a, figs 359 and 405B; Hirst 1985, fig. 34; MacGregor and Bolick 1993, 91 no. 10.49). A
smaller example of an annular ring, decorated in the same manner, occurred by the shoulder of a skeleton from Horndean (Knocker 1956, fig. 10.7), whilst a brooch with a greater number of lateral bands from the Boss Hall cemetery has been dated to the first three-quarters of the 6th century (Scull 2009, 87 and 2.34.2).

Annular brooches occur throughout southern and eastern England across most of the Early Anglo-Saxon period and they are difficult to date with any precision (Hines 1984, 262; Geake 1997, 52; Penn and Brugmann 2007, 25). Those with flat bands tend to be of 6th-century date and the smaller brooches tend to be later than the earlier, broader types, although the latter can occur in late 7th-century graves (Drinkall and Foreman 1998, 255; Geake 1997, 53; Walton Rogers 2007, 116). Cast annular brooches with a D-shaped section, in contrast, belong to the late 6th to early 7th century (Walton Rogers 2007, 117). Penn and Brugmann (2007, 25) have suggested that examples with oval perforations for their pin are earlier in date than those like sf5866 with circular perforations, the latter belonging to phase FA2b, attributable to the late 5th to mid 6th century. This brooch (sf5866) came from a context of Phase 1.2, whilst sf4879 was recovered from a context of Phase 2.2.
Illustrations
sf2328 Ae. Complete ring of D-shaped section, decorated with four bands of lateral ribbed lines. Butt joined across one panel of decoration. Traces of adherent material on reverse. Unstratified.

sf8866 Ae. Segment of annular brooch, thin rectangular section with rounded edges, circular perforation for pin, decorated by framing lines of lunate punch marks, worn and abraded. Layer 5923, Phase 1.2.

Coiled one-piece brooches
Five copper alloy coiled one-piece brooches form an intriguing component of the Brandon sequence of dress accessories, in part because there are two unfinished examples. Two complete brooches (sf3869 and sf5007; Fig. 8.1) ably illustrate the type. In each case copper alloy wire has been curved into a single coil and leads to a tapered pin at one end and a lightly flattened body and catch-plate at the other, the catch-plate bent over at the end to receive the pin. The body and pin are parallel and are separated by the width of the coil. In one case (sf5007) the body is decorated by single ring-and-dot patterns and twists to form the catch-plate. A fragmentary body and catch-plate was also recovered (sf4845), as well as two unfinished brooches with coiled springs (sf4998 and 7332; Fig. 8.1). Four of the five pieces are stratified, stemming from contexts of Phases 1.2, 2 and 2.3.1.

It is assumed here that the two sections of coiled wire (sf4998 and sf7332) are unfinished examples of these brooches. This is likely in the latter case, where the loop and pin are of the requisite size, but the wire of the other example is noticeably thicker. The object may have been intended for a different function (cf. Riddler 2008a, 193 and fig 2/47.2245).

The origins of the brooch type lie with a series seen in 7th-century graves, the earliest of which is a pair of silver one-piece brooches with triangular catch-plates from Kingston grave 205 (Faussett 1856; Webster and Backhouse 1991, 51 and fig. 32(b); Geake 1997, 54–5 and fig. 4.13). Five silver one-piece brooches were enclosed within a casket found by the upper legs of an adult female buried at Swallowcliffe Down (Speake 1989, 47–9). As with the Kingston examples, these brooches are decorated by bands of transverse lines across the flattened rectangular body and catch-plate. A silvered or tinned copper alloy example from Uncleby is similar in form with a flattened, rectangular body, but it includes punched ring-and-dot decoration, recalling the Brandon brooch (Smith, R. 1912, 155–6 and fig. 7; Geake 1997, 54). A brooch from Shudy Camps is closer in design to the Brandon series (Lethbridge 1936, fig. 2.A2). It is made of copper alloy and is undecorated, although the body is still expanded to a broad catch-plate with a curved terminal. A copper alloy coiled one-piece brooch from Mucking has a narrow body with a perpendicular catch-plate (Hamerow 1993, 61 and fig. 105.2). The closest parallel to the Brandon brooches and particularly to the complete example (sf3869) is provided by an example from Whitby, which is undecorated with a lightly flattened body and catch-plate retaining the pin (Peers and Radford 1943, fig. 12.4). A series of eight copper alloy brooches of this type, as well as one of silver and no less than twenty-two of iron, came from Flixborough, and most of them share the simplicity of design seen with the Brandon series (Rogers et al. 2009, 1–3, 6–7 and figs 1.1 and 1.3).

The Kingston brooches belong to the first half of the 7th century whilst the brooches from Swallowcliffe Down and Shudy Camps can be placed in the second half of the century, alongside a pair from Coddenham grave 11 (Penn 2011, 73). The brooches from Brandon, Flixborough and Whitby are largely simplified versions of these earlier examples, mostly lacking any decoration and with bodies and catch-plates scarcely distinguished from the pin. They are likely to be of late 7th or 8th-century date, although it has been suggested that those from Flixborough continue into the 9th century (Rogers et al. 2009, 3). A plain, simple example from Carlton Colville emphasises the 7th to 8th-century dating of the type as a whole, with only the Flixborough examples suggesting any continuation into the 9th century (Lucy et al. 2009a, 175 and fig. 4.3.19). A similar coil mechanism can be seen on a brooch from Hamwic which, however, has a lozenge-shaped body, decorated with interlace. It is probably of 8th-century date, as is a fragmentary brooch with a flattened and punched-decorated body from Buckinghamshire (Birbeck et al. 2005, 113 and fig. 63.5; Read 2001, no. 736).

The 7th-century sequence of coiled one-piece ‘safety pin’ brooches come from the graves of adult females (Geake 1997, 55). They have generally been found at the waist or upper thigh and not at the neck (White 1988, 41) and in several cases they lay within bags or caskets in that location. In several graves they were accompanied by a brooch worn at the neck. This clearly indicates that they were not worn in quite the same way as brooches. Geake has noted that the 7th-century series was intended to be seen in profile (Geake 1997, 55 and 113). The later series, exemplified by the examples from Brandon, Flixborough and Whitby, includes one example (sf3869) that follows this pattern and another (sf5007) with a decorated body set perpendicular to the coil. The Hamwic brooch was intended to be seen in the same way, with the body in front of the pin.

Illustrations
sf3869 Ae. Brooch formed of wire, flattened to rectangular section and bent over to form catch for pin. Curved to form spring at opposite end with pin tapering to a point. Depression 3796, Phase 2.

sf4998 Ae. Wire of circular section coiled at one end with the terminal flattened. An unfinished brooch. 2.5m sq. 4970, Phase 2.3.1.

sf5007 Ae. Curled spring leading on one side to tapering pin of circular section. Flattened on other side and decorated with small single ring-and-dot patterning, the end narrowed and bent over to receive the pin. 2.5m sq. 4682, Phase 2.3.1.

sf7332 Ae. Unfinished brooch, coiled at one end with the terminal flattened and cut laterally, the straight pin tapering to a sharp point at the opposite end. Unstratified 0001.

Equal-armed cross brooch
An incomplete copper alloy equal-armed cross brooch (sf5009; Fig. 8.1) includes three near-complete arms, which widen to lobbet ends as they radiate from a central boss. It was originally secured by a pin on the reverse and this distinguishes it from the elaborate gold and garnet pendant crosses of 7th-century date from Ixworth, Wiltion and the coffin of St Cuthbert (Bruce-Mitford 1956, 316–7 and pl. XV; Webster and Backhouse 1991, 26–8 and 133–4). It can be compared instead with two brooches from York, one of which is thought to be of Insular origin, whilst the other is Frankish, and it is closest in form to the Frankish brooch, recovered from the Coppergate excavations and dated to the 8th–9th century (Garrison et al. 2001, nos 10 and 20; Mainman and Rogers 2000, 2574).
Bracelets
A fragment of a three-strand wire bracelet (sf5271) came from a Phase 2.3.1 context. It closely resembles Roman forms of late 3rd to 4th-century date (Clarke 1979, 303 and 309–10; Crummy 1983, 38). A similar fragment was recovered from a 10th to early 11th-century context at Flixborough but once again, it is not certainly of Anglo-Saxon date, and could equally well be Roman (Rogers et al. 2009, 28).

A second fragment (sf8515; Fig. 8.1) can also be compared with late Roman designs and particularly crenellated bracelets with bands of transverse ribbing, which formed Clarke’s type D2c (Clarke 1979, 306 and fig. 37; Crummy 1983, fig. 43.1659). In this case, however, the interstices between the ribbed bands are filled with enamel. The enamel survives in poor condition and has degraded to a grey colour. It has been applied on both the interior and exterior faces. Late Roman copper alloy bracelets were not usually enamelled and this technique is more familiar in the Anglo-Saxon period, and particularly within the western part of East Anglia (Evison 1965, 55–6) and they include a few examples of this type, one of which came from a grave at Chatham Lines (Evison 1965, fig. 15a). A bracelet from Barrington may also be of this form (Malim and Hines 1998, 216–7).

Illustration
sf5009 Ae. Equal-armed cross brooch with majority of three arms surviving. Each arm splays from centre, incised with double framing lines, small pellets at each end. Four larger pellets at central interstices and raised square pellet at middle. Two raised projections on reverse to accommodate a pin, now missing. 2.5m sq. 5064, Phase 2.3.1.

Beads
by Vera Evison
Pl. 8.1
There are thirteen Saxon beads of which three are undecorated. Two of these are small, sf4357 globular, opaque light blue and sf4875 annular, translucent green-blue (Pl. 8.1). These are both types which occurred in the Roman period and on until the 7th century (Guido 1978, 65, Group 6 (vii), pl. II, 11, and 69, Group 7 (v); Guido 1999, 48, pl. 5a). Sf5253, also small, is a blue-green, drawn segmented bead (Pl. 8.1). Colourless examples with enclosed gold foil occurred in the Roman period in northern Europe and continued into the Anglo-Saxon period. This type is smaller and coloured (Guido 1978, 93, type b, fig. 37, no. 3; Guido 1999, fig. 1 segmented globular; Brugmann 2004, 30, figs 39, 84, 85).

Sf2060 is large disc bead, plano-convex in shape, black with yellow trails, straight and parallel on the circumference and zigzag on top and on the side (Pl. 8.1). This belongs to Guido’s Schedule 2 vii (a) where eighteen examples are listed including this one. The distribution map 6 shows a distribution in southern counties with Brandon as the most northerly point. These large beads may have been included on necklaces with decorative or prophylactic function, or could have been used as sword beads or spindles whorls. They were imported from the Continent, probably from Trier. This type is called ‘Sunflower’ by Brugmann and allocated to the late 4th and 5th centuries (Brugmann 2004, 30–1, fig. 111a, b).

Sf0755 and sf2053 both have decoration in the form of white spots (Pl. 8.1). Only part of the spot remains in fragment sf0755 so that it is not evident whether there was a central red dot also as on sf2053. The latter was quoted by Guido for her type 6 (xiii) ‘Blue beads with red-centred white eyes’ (Guido 1999, 54, 273, pl. 5, Schedule 6) dated to 6th to 7th century. Sf0755 may have belonged to this type or type 6 xiv ‘Blue beads with white or yellow spots’ of the same date. ‘Regular dot beads’ are noted by Brugmann (2004, 139, figs 57 and 150).

The rest of the beads have trait decoration, such as sf2062, a blue bead with white zigzag decoration (Pl. 8.1). The type has a broad territory and time span (Guido 1999, 53, p.15, Schedule 6 ix) and occurs in the Stour Street,
Canterbury, burial group of late 4th to 5th century (Brugmann 2004, 30–1, fig. 111a).

With regard to sf2052 and sf3643 (Pl. 8.1), Guido lists annular glass beads with coloured surface spirals (1999, Schedule 11, 75, pl. 8, map 31). This is a long-lived type which ‘may go back to Roman-Alexandrian beads of the first century’, and Brandon was cited as the latest example. Brugmann dealt with similar Blue-Green Spiral and White Spiral beads (2004, 36, figs 63, 152–4). The fragments of a bronze ring with sf2052 at Brandon suggests that the bead was suspended separately as a pendant.

Sf1129 is a large light green translucent disc bead and simple monochrome beads like this occurred in the Roman and Anglo-Saxon periods, but decoration in the form of a single circumference trail has not been noted.

Sf4372, sf4373 and sf8334 are cylindrical beads different from the rest of the beads in form and decoration as most of the applied trails have not been marvered into the surfaces (Pl. 8.1). Sf4372 is light blue with a marvered dark trail wound round the cylinder about four times and an unmarvered yellow trail applied round each end and at the middle. Sf4373 is a streaky blue and yellow with an unmarvered yellow trail at each end and in the middle. Sf4374 is a streaky black and yellow with an unmarvered yellow trail at each end and in the middle. Sf8334 is a streaky black with unmarvered yellow trails at each end and in the middle. These belong to Guido’s Schedule 3xiv, (1999, 28, pl. 3, 2xiv (unscheduled)) where only one stray find from Cornwall and one example from Brandon are listed, apart from mention of examples from Avar cemeteries in central Europe and at Helgö in Sweden and Ribe in Jutland. A bead of this type is illustrated at Helgö, and is also included amongst ‘exotic beads of the Roman period’ (Lundström 1981, fig. 14, 2054; Guido 1978, pl. II). The contexts of the beads in England and at Helgö suggest a date after AD 700, and at Brandon sf4373 belongs to Phase 2.2 and sf4372 to Period IV.

Most Anglo-Saxon beads may be attributed to the period of pagan-type burials from the late 4th to early 8th century when burials with grave goods came to an end. During this period the numbers of beads in a grave varied, most occurring in the 6th century (Evison 1987, tables XII–XV), after which they declined in numbers. Few beads have been found on settlement sites from the 8th and 9th centuries, and the types that occur are almost always the same as those in use in the previous centuries. Only fourteen have been forthcoming from Brandon, and all of them appear to have been relics, one is probably from the Iron Age, and all the others are types present in 6th-century graves. Only the cylindrical type suggests a new production in the late 7th to early 8th century. Necklaces of glass beads must have been out of fashion in the 8th and 9th centuries.

Only one bead was found at Flixborough, and this was of a type current from AD 790 to 990, although it occurred in a post-hole of an earlier building (No 942, Evison 2009). At Ipswich three beads were found, one identical to the Brandon blue bead with red-centred white eyes, one large and monochrome and one opaque orange which at Dover occurred in graves attributed to Phases 4 and 5, AD 625–75 (Evison 1987, 61–2; Guido 1999, 68–9, 328–9, Plate 8.1 Beads
map 29, pl. 7; Brugmann 2004, 40, figs 42, 90–92). At Hamwic there were a number of beads, only five of which were decorated, and these also correspond to known types from pagan graves (Hunter and Heyworth 1998, 26, fig. 18).

Plate 8.1

| sf0755 | Blue translucent, 20 x 9mm. Annular fragment, marvered white spot. Cleaning layer 0744, unphased. |
| sf1129 | Lt green translucent, 23 x 13mm. Disc bead, patchy glass, circumference empty channel of lost trail. Causeway layer 1265, unphased. |
| sf2052 | Lt green translucent, 18 x 5.5mm. Flat disc bead, opaque white and red trails in a spiral. Remains of a bronze ring. Unstratified 0001. |
| sf2053 | Blue opaque, 16 x 13mm. Barrel-shaped, three red-centred white eyes on circumference. Unstratified 0001. |
| sf2060 | Black, 27 x 1.1mm. Disc bead, plano-convex, four-fold yellow circumference trail, yellow zigzag above and below. Ditch 0144 (comp. 8128), Phase 1.2. |
| sf3643 | Dark blue, 15 x 4.5mm. Flat disc bead, marvered white spiral trail. Layer 3646 (comp. 8155), Phase 1.1 |
| sf4357 | Lt blue, 6 x 5mm. Globular, glossy. Ditch 4346 (comp. 8151), Phase 2.2. |
| sf4875 | Green-blue translucent, 5.5 x 2mm. Annular. Layer 4840 (building 4886), Phase 2.2. |
| sf4372 | Colourless, 6 x 8mm. Cylindrical fragment with turns of a marvered black trail, unmarvered yellow trail round each end and middle. Ditch 4361 (comp. 8150), Period IV. |
| sf4373 | Green streaky, 6 x 13mm. Cylindrical, unmarvered yellow trail round each end and middle. Pit 4347, Phase 2.1. |
| sf5253 | Blue-green, 3 x 9mm. Drawn triple globular. Layer 5247, Phase 2.3. |
| sf8334 | Black streaky, 6 x 10mm. Cylindrical, unmarvered yellow trail at each end and middle. 2.5m sq. 6650. |

Buckles and belt mounts

Fig. 8.2

Copper alloy buckles

Four buckle frames are oval in shape with parallel sides and abutted ends. Each has been produced from wire of circular section, which has been bent to shape. All four retain their pins and two buckles (sf2124 and sf9745) also include sheet metal plates. The pins have simple loops but two (sf5202 and sf5611; Fig. 8.2) have lightly modelled animal head terminals, with transverse line decoration in front of the loop. One of this pair (sf5611; Fig. 8.2) comes from a stratified context. Two broad groups of buckles can be distinguished within this small sample. The first consists of small buckles with a frame width of less than 20mm, accompanied by sheet metal plates. The second consists of larger wire frames without plates; it includes pins with decorated animal head terminals.

An oval ring of D-shaped section (sf9831; Fig. 8.2) may also stem from a buckle, although its sides are not parallel and it lacks a pin. A fragmentary sheet metal buckle plate (sf8221) has fractured across its loops and the presence of ring-and-dot patterning suggests that it is Anglo-Saxon, rather than medieval. A complete sheet metal buckle plate (sf2559) could be Anglo-Saxon or medieval. A sheet metal sheet with a narrowed, rounded end and a perforation at its centre (sf2319; Fig. 8.2) can be compared with an object of a similar shape from Spong Hill, as well as an example from Beeston Tor (Hills et al. 1984, 109 and fig. 106.4; Wilson 1964, 121 and pl. XI.4; Webster and Backhouse 1991, fig. 245(d)). The Brandon object is broken across a fold at the other end and it appears to be the lower part of a buckle plate.

The small buckle with tongue shaped plate (sf9745; Fig. 8.2) can be placed in Marzinzik’s type II.22a (Marzinzik 2003, 48–9 and pl. 124). The type largely occurs in East Anglia and the East Midlands and has mostly been found in male graves of 6th and 7th-century date. The closest parallels for the Brandon example are provided by buckles from the Buttermarket Grave 1356 at Ipswich and Pakenham (Marzinzik 2003, pl. 124; West 1998, fig. 119.6; Scull 2009, fig 3.45.8). Several examples came from Flixborough (Rogers et al. 2009, 22). A second buckle (sf2124; Fig. 8.2) has a long rectangular plate, originally fastened by two rivets and decorated with double framing lines and a single medial line. It belongs to Marzinzik’s type II.19b, another type commonly found in East Anglia (Marzinzik 2003, 46–7).

The subtle decoration of the pins on the two oval frames without plates (sf3202 and sf5611) is similar to that seen on several buckles from Hamwic (Hinton 1996, fig. 2.4/6 and 13/2) although it is a characteristic which extends back into the late 6th to 7th century. It occurs also on an oval buckle frame from Hadleigh Road at Ipswich (West 1998, fig. 68.3). Large oval frames like these are known from 7th-century contexts, including Grave 2 at Appleheld on Down and Welch 1990, 102) and it seems likely that they continued into the 8th century. A comparable example in iron came from Shakenoak (Brodribb et al. 1972, fig. 43.200) and a second example of iron was retrieved from a Late Saxon context at Ely (Mortimer et al. 2005, 56 and fig. 4.2.36).

Illustrations

sf2124 Ae. Simple oval buckle frame of circular section with wire pin held within sheet metal buckle plate. Plate secured towards inner
edge by two rivets. Single framing line decoration with parallel medial line at centre. Unstratified 0001.

sf2319 Ae. Sheet metal rectangular plate with rounded end pierced by a rivet hole. Fractured across rivet hole at opposite end, with possible loops to either side. Unstratified 0001.

sf3202 Ae. Oval frame, butt joined along pin rest, broader on outer edge. Simple looped pin tapering to rounded point, decorated by two bands of lateral lines. Unstratified 0001.

sf5611 Ae. Wire oval frame, circular section, the terminals chamfered together. Broad pin with simple loop, D-shaped section, tapering to animal head terminal with long snout. Layer 5583, Phase 2.

sf9745 Ae. Complete. Plain oval frame, looped wire pin with curved point retained in sheet metal folded plate, secured by single rivet. Rounded inner edge to plate; undecorated. Unstratified 0001.

sf9831 Ae. Complete ring distorted to oval shape, square section with rounded edges, poor condition. Slot 9194, unphased.

Iron buckles
by Nicola Rogers

The site produced one rectangular iron buckle (sf2649), and four fragmentary objects which may also be buckles (sf3868, sf2471, sf2501, sf9717), and which have either annular, D-shaped or oval frames. Three of the buckles were found in Saxon deposits (sf3868, sf2471, sf2501), and a fourth in a 2.5m square (sf9717); the rectangular buckle was from a metal-detector hole and was unphased. All the forms exhibited by the Brandon buckles are well known in the Middle and Late Saxon periods, although they also extend into the medieval period (Rogers 1993, 1346–50; Ottaway 1992, 683–4). They would have been used not only as dress accessories, but also on spurs and bridle, although it is not usually possible to assign a specific function to a particular buckle.

Strap-ends

Fig. 8.3, Pl. 8.2

Nineteen of the twenty strap-ends are made of copper alloy and one is silver. They can be separated into several distinct types. The earliest strap-ends are the thin, elongated examples (sf4328 and sf8322), one of which comes from a context of Phase 2.1 and the other from a 2.5m square. Both are fastened by single rivets at the split end and are circular in section with rounded knobs at the terminal. They belong to Hinton’s type A (Hinton 1996, 37–8 and fig. 14; Blackmore 2003b, 268). Similar strap-ends occur also in graves of the late 7th century. In addition, a strap-end from Maxey (Hinton 1996, fig. 17.169/2037; Cunliffe 1976, fig. 136.52; Haslam 1980, fig. 20.6; Wade Martins 1980, fig. 263.13–14; Biddle 1990, fig. 126.1065–6 and 1068–71). Evison (1980, 35) has set these related strap-ends into the 9th century but the series is undoubtedly anticipated by the Polhill examples and this would suggest that their origins lie in the 8th century. In addition, a strap-end from Maxey is very close to the type A described above, with an elongated body of cylindrical section and a rounded end, but it is splayed at the opposite end and double riveted (Addyman 1964, fig. 17.1). In effect, it is transitional between types A and D. Moreover, it is possible to see a typological development from narrow forms with splayed, double riveted split ends and poorly developed animal head terminals towards the more typical strap-end of the 9th century, with a flat main field and concave sides. A relatively large version of type D from Brandon (sf0754; Fig. 8.3) has fractured across the split end and has transverse ribbing along its length. It is similar to a strap-end from Fishergate, York (Rogers 1993, fig. 652.3318). The difference in size between types A and D belies a distinction in function. Whilst strap-ends of type A are firmly associated with shoes, those of type D were used with straps.

A broad and lengthy strap-end (sf7373; Fig. 8.3) has been set into the middle of the 8th century on the basis of its narrow outline, the length of the plate, seen against the single riveted split end, and the lack of an animal terminal (Webster and Backhouse 1991, 85 no. 66(n)). It is decorated with a thin interlace pattern, which recalls several other copper alloy objects from Brandon. A large, undecorated leaf-shaped strap-end came from Hamwic (Hinton 1996, fig. 15.169/397). A closer parallel is provided by a strap-end from Coddenham (West 1998, fig. 21.29).

Ten of the Brandon strap-ends are double riveted with convex sides and animal head terminals. Within this assemblage, several sub-groups can be distinguished. A
fragmentary strap-end (sf2125; Fig. 8.3) includes paired crossing diagonal lines in the central field, in the manner of several strap-ends from York (Rogers 1993, fig. 652.5317 and 5321) although it is closer to examples from Flixborough, Ramsbury and South Newbald (Rogers et al. 2009, fig 1.4.58; Evison 1980, fig. 20.2; Leahy 2000, fig. 6.3.4). One of the York strap-ends came from an 8th-century deposit and may not have been intrusive in that context. Moreover, Evison has suggested that ‘for all of these strapends the 8th century is just as likely as the 9th’ (Evison 1980, 34), although more recently they have been discussed as a 9th-century phenomenon (Rogers et al. 2009, 7). Little can be said of the middle segment of a strap-end (sf2532) with ring-and-dot decoration. It can be compared with an example from Cottam (Haldenby 1992, fig. 4.13).

Webster has drawn attention to a copper alloy strap-end (sf2342; Fig. 8.3 and Pl. 8.2) with a depiction of a naked man in the main field (Webster and Backhouse 1991, 84–5 no. 66(l)). The animal head includes large lunette ears with a transverse dividing line, a characteristic of strap-ends from southern England (Webster and Backhouse 1991, 233). The naked figure can be compared with a male seen in a Canon Table of the Barberini Gospels (Alexander 1978, fig. 173), as well as with a later series of figures on broader strap-ends of 10th-century date (Margeson and Williams 1985, 29 and figs 24.4 and 25).

A similar form of animal head occurs on a related strap-end (sf2341; Fig. 8.3), for which the main field is filled with an interlace pattern. The pattern is incised and differs from the dense, relief cut interlace on a strap-end from Fishergate, York (Rogers 1993, fig. 652.5319). A silver strap-end with interlace decoration came from North Elmham (Wade Martins 1980, fig. 262.3). Traces of a dense interlace mesh survive on a copper alloy strap-end (sf8295; Fig. 8.3) with two circular ears set behind the rounded, short head. A narrower and more elongated strap-end (sf2320; Fig. 8.3) has lost the detail of its main field and has a long animal head with oval depressions to indicate the ears.

Three strap-ends (sf3638, sf8674 and sf9850; Fig. 8.3) belong to a type with inlaid silver wire identified and described by Thomas (1996). Two examples (sf3638 and sf8674) have been placed in his Group 1, defined by the presence of two rectangular, longitudinally set panels of silver wire decoration (Thomas 1996, 91 and fig. 5). The third example (sf9850) has a single panel of silver wire decoration and belongs to his Group 2 (Thomas 1996, 95 and fig. 6). The animal head on this strap-end can be compared with that on an example from Ixworth, which may also have retained a niello central field originally (Hinton 1974, 22 and pl. VIII.16). One of these Brandon strap-ends (sf3638; Pl. 8.2) came from one of the latest features on site, of 9th to 10th-century date (Webster and Backhouse 1991, 85 no. 66(m); Thomas 1996, 85); another is a residual find from a medieval context. The type is considered to belong to the 9th century and possibly extends well into that century (Thomas 1996, 85–6).

Illustrations

Narrow strap end, hooked bird head terminal, double riveted (Hamwic Type D)

sf2771 Ac. Split sheet metal apex fractured across two rivet holes, decorated with framing line and tapering to long segment of square section with lateral grooves, with short, broad hook beyond. Unstratified 0001. sf7120 Ac. Near complete with two rivets piercing split end, which has a rounded apex and tapers to a body of square section with
lateral grooves on the upper face. Hook tapers from body and is lightly curved with two punched holes, giving a bird-like appearance. 2.5m sq. 7025.

sf7388  Ae. Lower part of strap end of rectangular section with lateral grooves on three sides, the terminal flattened and lightly curved.

sf8054  Ae. Tapering shaft, D-shaped section, lateral mouldings and possible animal head terminal. Unstratified 0001.

Large, single riveted, incised decoration

sf7373  Ae. Incomplete, lacking part of split end on reverse. Main body consists of three joined ovalings forming a scalloped design with a rounded end. Single central rivet hole at split end with curved sides. Main area decorated by linear incised interface pattern, figure-of-eight enmeshed with a looped design. Triangular incised pattern close to rivet hole. 2.5m sq. 7594.

Double riveted, convex sides, simple hatched decoration

sf2125  Ae. Double riveted, lightly curved sides tapering to animal head, now missing. Decorated by paired crossing diagonal lines within narrow rectangular frame. Unstratified 0001.

Double riveted, convex sides, animal head terminal

sf2342  Ae. Complete double riveted strap end with curved sides leading to animal head with large double rounded ears and V-shaped incision at back of head. Main field shows naked male figure with long hair, hands raised across chest and legs spread open. Vegetal ornament to one side of figure, possibly beast on the other.

sf2341  Ae. Near complete, lacking small part of split ends. Curved sides with squat beast head at outer end with round snout and large oval two-part ears. Main field retains elements of tightly bound interlace design. Curved lines forming crescentic pattern separate main field from split inner end.

Double riveted, animal head terminal, silver wire panelled decoration

sf3638  Ae. Complete. Inner edge has two curved roundels with rivet holes. Main area decorated by linear incised interface pattern, perforations set through the plate itself. This is unusual for the Brandon series of circular or oval tags (if not for those of triangular form), although it is clearly related to that series. A copper alloy tag (sf8581) also has an elliptical form, but with a curved base and lugged extensions to accommodate the circular holes.

sf6764  Ae. Complete with part of split end missing, fractured across rivet holes. Curved sides and outer edge, central panel divided to five segments, each originally filled with niello and silver inlay. Two upper panels are rectangular with silver spirals and U shapes. Central panel is triangular with one curved side; insert is now missing. Two lower panels are narrow segments with one curved edge and one straight, filled also with simple spiral pattern and U motif. 2.5m sq. 9090.

sf9850  Ae. Incomplete. Part of split end survives with no rivet holes. Upper section of main body has two crescentic punch marks forming circular pattern, with recessed area below filled with niello and inlaid spiral patterns. Well-defined animal head with long ears including pear drop hollows, oval eyes and a tapering snout at a rounded end. Hitch/pit 9141. 2.5m sq. 9128, Period IV.

Other

sf8295  Ag. Double riveted but most of split end now missing. Curved sides notched to form cable pattern, curvilinear foliate pattern at centre, heavily abraded, with two prominent discs with crescentic notches forming ears above broad animal head. Curved interlaced pattern below with punched eyes and rounded snout. 2.5m sq. 6699.

sf2320  Ae. Double riveted, split end, long curved sides with three lateral lines separating animal head terminal, with long raised snout. Central field unadorned, possible traces of gilding. Unstratified 0001.

sf2325  Ae. Double riveted with median line between rivet holes leading to groove at edge. Line bifurcates to two diagonals extending towards the central field.

Hooked tags

The eighteen hooked tags from Brandon were largely recovered from metal-detecting. Three are made of silver and fifteen are copper alloy. One of the copper alloy examples (sf2164; Pl. 8.2) includes silver inlay and another (sf8228) may originally have been inlaid in a similar manner. There are no traces of gilding on any of the copper alloy hooked tags. All but two are made from sheet metal and the exceptions (sf2164 and sf8228) are cast to a similar design and are closely related in style. Almost all of the hooked tags from Brandon are unstratified and only two (sf4370 and sf9851) come from excavated contexts, one of Phase 2.1 and the other of Period IV (medieval).

Three principal forms of sheet metal tag can be identified within the assemblage. These can be described as triangular, elliptical and oval or circular. Nine examples, representing half of the assemblage and including all three silver tags, are triangular in shape with a narrow, elongated form. The sides are straight with the exception of two silver tags (sf2321 and sf8662) and one of copper alloy (sf8275), where they are lightly curved. This characteristic relates these tags to the second group, formed of just two elliptical examples (sf5456 and sf9831), the former of which is undecorated with a flat base and curved sides. Its squatter proportions distinguish it from the triangular examples, although it is clearly related to that series. A copper alloy tag (sf8581) also has an elliptical form, but with a curved base and lugged extensions to accommodate the circular holes.

The third form includes tags with oval or circular plates. Three examples (sf2552, sf4370 and sf8525) have perforated circular lugs. A further tag (sf2332) is fragmentary but was probably of oval form originally, whilst a tag with a circular plate (sf2118; Fig. 8.3) includes perforations set through the plate itself. This is unusual for the Brandon series of circular or oval tags (if not for those of triangular form), although it is commonly seen on hooked tags of this shape from other sites. This tag is very similar to an example from Barham, both for its decoration and for the oval extension in front of the hook (West 1998, fig. 5.38).

Two closely related cast copper alloy tags (sf2164 and sf8228; Fig. 8.3) have scalloped edges formed from the addition of punched roundels set around their perimeters. One example has inlaid silver wire in spiral patterns at the centre whilst the other has an indented oval area, simply filled with peck marks. The original central insert has been removed in this case. These hooked tags are similar to examples from Barham, Bawsey, North Elmham and South Newbald (West 1998, fig. 5.35–6; Webster and Backhouse 1991, 232, no. 188(g); Wade Martins 1980, fig. 263.10; Leigh 2000, fig. 6.4.14). Their resemblance to silver inlaid strap-ends has been noted by Thomas (1996, 83) and it indicates that they are of 9th-century date.

Four of the tags — including two of the three silver examples — are undecorated. The undecorated silver tags (sf2321 and sf9743) are triangular in form and resemble those from Flixborough and Tetney (Wilson 1964, nos 86–7; Webster and Backhouse 1991, 99 no. 69(q); Rogers et al. 2009, fig 1.7). The Flixborough tags have been given a broad Middle Saxon date, subsequently revised to the 9th-century for some of them (Rogers et al. 2009, 18), whilst the Tetney tags come from a hoard deposited before AD 970 (Webster and Backhouse 1991, 99). Triangular undecorated hooked tags of copper alloy have been found in Late Saxon contexts at Colchester, Norwich and Thetford (Crummey 1988, 12 and fig. 12; Ayers 1985, fig. 24.5; Andrews and Penn 1999, 40 and fig. 36.12). Earlier undecorated examples, contemporary with those from
Brandon, are known from Cottam, Dover, Melbourn and Shakenoak (Haldenby 1994, fig. 3.2; Philp 2003, fig. 62.178; Dickinson 1973; MacGregor and Bolick 1993, 190; Duncan et al. 2003, fig. 24).

The fourteen remaining tags, forming the majority of the assemblage, are decorated. Seven tags, either of triangular or oval form, have simple ring-and-dot patterning, generally filling the available space, although in three cases (sf2332, sf4322 and sf9851) it is sparsely applied and is well spaced across the decorative area. Three narrow triangular tags (sf2280, sf8275 and sf9945; Fig. 8.3) with single ring-and-dot patterning and profiled lower edges recall examples from Cheddar, Coddenham, North Elmham, Whittington and York (Rahtz 1979, fig. 228).
Their flimsy nature indicates that they were not intended for clothing (Graham-Campbell and Okasha 1991, 222). Graham-Campbell has noted that the absence of rivets is indicative of a more simplistic (Biddle 1990, figs 148–9).

One of the most intricate schemes of decoration is found on an incomplete triangular hooked tag (sf9868; Fig. 8.3), which has an interface pattern within the main field. A triangular hooked tag (sf2278; Fig. 8.3) has a blank central area and a border formed of closely spaced punched circles and small squares. It is similar to an example from Middle Harling (Margeson 1995, fig. 39.40). Two copper alloy oval tags (sf2552 and sf4370; Fig. 8.3) have simple incised petal decoration. The hatched lines surrounding the decoration on one tag (sf2552) recall the framed broad band resembling an inscription surrounding the blank central area on a related tag (sf8252). The framed border and the overall shape of this tag are paralleled by an example from Hamwic, whilst the overall shape and the petal design occur also on a hooked tag from Flixborough (Hinton 1996, fig. 4.32/170; Rogers et al. 2009, fig. 1.7.104). A gilded silver tag (sf8662; Fig. 8.3) has a chip-carved triquetra ornament at its centre, with pecked marks on the surrounding border. The lower edge is sinuous, as with a number of the Brandon tags. The decoration of this tag is unusual but an incised triquetra pattern occurs also on a hooked tag from York (Waterman 1959, fig. 10.11).

The earliest examples of hooked tags come from burials, including those at Burwell, Melbourn, Harford Farm and Shudy Camps, all of which are cemeteries within East Anglia (Duncan et al. 2003, 115–6; Geake 1997, 66). They have been noted also in burial contexts at Castledyke (Geake 1997, 66; Drinkall and Foreman 1998, 271). Triangular tags are particularly common within these early contexts. Few of these graves are closely dated but the general scarcity of the object type within burial deposits suggests that they do not occur before the second half of the 7th century, and possibly not until the latter part of that century. Thereafter they are commonly found up to the Norman Conquest and the latest examples come from 12th-century deposits (Biddle 1990, 549; Crummy 1988, 12; Riddler 2008b, 331).

It is interesting to note that circular hooked tags are practically absent at Brandon, although they are common at Middle Harling, Norwich and Thetford (Margeson 1993, 16; 1995, 56). The circular type may largely, therefore, be of Late Saxon date. In general terms, Late Saxon copper alloy examples are simpler in design and decoration than the Brandon hooked tags and tend to lack punched patterning. The Brandon sample can be compared in this sense with the sequence from Winchester, for example, where in general the designs are more simplistic (Biddle 1990, figs 148–9).

Most of the hooked tags are made of sheet metal with perforations applied to the sheet or set to the side in lugs. Graham-Campbell has noted that the absence of rivets with the perforations suggests that they were sewn to clothing (Graham-Campbell and Okasha 1991, 222). Their flimsy nature indicates that they were not intended to be put under strain. Within cemeteries they have usually been found in pairs, in a variety of locations within graves (Geake 1997, 66; Graham-Campbell and Okasha 1991, 224–5). The set from the Old Minster at Winchester appeared to fasten garters at the knees of the deceased, whilst other pairs may have been used to secure bags or purses (Wilson 1965, 263–4; Graham-Campbell and Okasha 1991, 225). The Rome set include an inscription split between the pair and read with the hook uppermost, but a hooked tag from Brandon Leisure Centre (Chapter 11) has an animal design clearly intended to be read in the opposite direction, with the hook facing downwards.

Illustrations

sf8662 Ag. Triangular form with curved sides and serrated lower edge, with two rivet holes. Central area has a ‘chip-carved’ interface triquetra, surrounding area with lightly punched dots. Short hook, bent back. Gilded throughout on upper face.

sf2118 Ae. Discoidal plate with framing line and single ring-and-dot decoration; two rivet holes. Curved flat moulding leading to fragmentary hook. Unstratified 0001.

sf2164 Ae. Incomplete. Oval central field, middle of which has inlaid silver pattern with three spirals and U shapes surrounding them. Enclosed by near-circular raised line with circular roundels along sides and lower edges, each with a single ring-and-dot motif. Oval extensions in each corner, pierced by circular rivet holes. Curved lines form a V-shape leading to the hook, which is bent back on itself. Unstratified 0001.

sf2278 Ae. Triangular plate with broad beaded frame, punched decoration throughout, fractured across both rivet holes. Short broad hook, bent back towards plate. Unstratified 0001.

sf2280 Ae. Incomplete. Triangular plate with sinuous lower edge, fractured across one rivet hole. Single framing lines enclose single ring-and-dot patterning filling available space. Complete hook, not fully bent back on itself. Unstratified 0001.

sf2322 Ae. Large hooked tag, incomplete and in poor condition, plate either rectangular or circular, apparently with four rivet holes but these have punched surrounds and could be decorative ring-and-dot patterning. Short incomplete hook. Unstratified 0001.

sf4370 Ae. Oval plate with two rivet holes close to edge, one still surrounded by circular lobed extension. Central foliate design with stamen and nine petals. Part of hook survives. Ditch 4362 (comp. 8143), Phase 2.1.

sf8228 Ae. Oval plate with two rivet holes surrounded by circular extensions and small circular mouldings surrounding the centre, each with a punched centre. Largely plain circular interior to plate but with punched triangles at the centre. Hook complete, bent back on to itself. 2.5m sq. 6671.

sf9851 Ae. Pear drop shaped plate with circular extensions for rivet holes, main area decorated by seven well-spaced single ring-and-dot motifs with single framing line leading to narrow, bent hook. Ditch 9148 (comp. 9128), Period IV.

sf9868 Ae. Fragment of triangular plate with traces of two small rivet holes along the lower edge. Decorated with an interlace pattern in the main field. Trench 9300 through enclosure ditch 9304.

sf9945 Ae. Near complete. Triangular plate with sinuous lower edge, two rivet holes, punched decoration and single framing lines. Broad hook bent back. 2.5m sq. 9079.

Pins

The 239 Middle Saxon pins of silver and copper alloy represent the largest category of dress accessory. There are three principal pin types, with spherical, biconical and polyhedral heads, and these form the majority of the assemblage. Pins of other types, including spiral-headed, linked and headless, occur in small numbers. Each type is discussed in turn, beginning with the three principal types, after which broader aspects of pins and pin making at Brandon are considered.
Pins with spherical heads

Fig. 8.4; Pl. 8.3

The largest group of pins can be classified as spherical headed: 106 pins can be assigned to this type, 97 of which are copper alloy whilst nine are silver. One of the copper alloy pins is gilded, as are six of the nine silver pins. Twenty-eight of the pins are complete and seventeen are near complete; sixty-one (57.5%) are fragmentary. The type corresponds to the ‘globular-headed pins’ at Flixborough (Rogers et al. 2009, 33–4).

Two principal sub-types can be identified, depending on whether the head is globular in shape (sub-type 1) or, following Ross (1995, 1045), resembles the shape of a ‘hot air balloon’ (sub-type 2). Forty-four pins belong to sub-type 1 and fifty-five to sub-type 2. A small group of seven pins (sf2083, sf3398, sf4353, sf4986, sf5898 and sf6869) belong to a third sub-type, which is globular in shape but with a flattened apex. A similar pin form can be seen at Hamwic (Hinton 1996, fig. 7.254/1523).

At its simplest, the globular sub-type includes a series of pins with undecorated heads, single collars and swelling or hipped shafts (twelve examples). In addition, one pin with an undecorated head has no collar, whilst several have double collars and there are two examples with triple collars (sf5519 and sf5261; Fig. 8.4), as well as one (sf3395; Fig. 8.4) with a quadruple collar. Where the shafts survive they are invariably hipped or swollen over the lower part.

Decoration has been applied to the head of fifteen pins with globular heads. It occurs either in the form of ring-and-dot motifs (six examples) or wrythen patterning (seven examples). In addition, three silver pins have filigree wire applied in spiral patterns across their heads; these are discussed below. Ring-and-dot decoration is applied sparingly on two pins (sf2779 and sf5637), both of which include just three motifs, with smaller but more numerous motifs placed on the remaining pins (e.g. sf2303; Fig. 8.4), one of which (sf2772; Fig. 8.4) has a particularly large globular head. The wrythen decoration extends over the entire head of each pin with one exception (sf7133; Fig. 8.4), where it is confined to the upper part. In most cases it spirals from the apex and produces vertically aligned concave lines across the head, but with one pin (sf2066; Fig. 8.4) the lines are set diagonally about the head. The two silver pins (sf2165 and sf2166; Fig. 8.4 and Pl. 8.3) have gilded wrythen heads and they are the only examples of silver pins of this sub-type to be decorated in the same manner as a copper alloy pin. The three filigree-decorated pins have silver heads; the ring-and-dot and wrythen decorated pins are otherwise made of copper alloy.

Two silver-gilt pins (sf2299 and sf2300; Fig. 8.4 and Pl. 8.3) have filigree-decorated heads with curving spiral patterns. The heads are hollow and are mounted on to separate shafts, both of which are fragmentary. A third pin (sf4502) has a bent silver shaft surmounted by a collar and the vestige of the lower part of a filigree-decorated head. The pins resemble the silver-gilt examples described by Hinton (1974, 9 and pl. IV.3) but the heads are skilfully made in one piece and are not joined along a central band, as with those from Ash, Bredfield and Middle Harling (Hinton 1974, 9; West 1998, 12 and fig. 11.3; Margeson 1995, 55 and fig. 36). A further example is known from Wicken Bonhunt (Mussy et al. 1973, 287). The two-part type has often been associated with Viking activity (Waterman 1948; Leeds 1950; Hinton 1974, 9) but the Brandon examples can also be compared with the series from East Kent, including pins from Ash and Canterbury, which have no obvious Viking connections (Hinton 1974, 9; Rigold 1970, 345; pin from St George’s Street unpublished). Close parallels are provided by two silver pins with filigree heads from Dorestad (Roes 1965, 8 and pl. II.6–7). Whilst the two part hollow pin is essentially of Late Saxon date (Robinson 1981) the Brandon series appears to anticipate that group.

The balloon form (sub-type 2) also includes a series of pins with undecorated heads, ten of which have no collars at all and include evenly tapered or slightly swelling shafts. One example with no collar (sf5512) has a hipped shaft of octagonal section. Amongst this group are a complete pin (sf6203; Fig. 8.4) and a fragmentary pin (sf4355) both of which have tiny heads, just 2mm in diameter. The complete example is 36mm in length. A small silver pin (sf5263) has a slightly larger head, 3.5mm in diameter. A further twenty-four pins of this sub-type have single collars between the undecorated head and the shaft, with a similar range of shaft types, encompassing evenly tapered, swelling and hipped forms. Three pins have double collars.

Nine pins of this sub-type have ring-and-dot decoration on the head and seven have wrythen patterning. One of the latter pins (sf2167; Fig. 8.4) is silver, with a
gilded wrythen pattern. All of the remaining decorated pins are made of copper alloy. Of the two principal sub-types, therefore, around 27–29% of the pins have decorated heads either in the form of ring-and-dot patterning or wrythen designs. The ring-and-dot pins of sub-type 2 reflect those of the main variant of the globular series, with numerous motifs covering the available surface. The pins with wrythen decoration spiral with vertical concave curves from the apex and encompass the entire head, with the exception of one pin (sf5629), for which the decoration merely encompasses the top part of the head. One pin (sf0945; Fig. 8.4) has a cross motif at the apex.

Just one of the seven pins of sub-type 3 (sf4986; Fig. 8.4) is decorated, with ring-and-dot motifs around the sides of the head and a single motif at the apex.

One pin of sub-type 2 (sf2084) has a shaft that appears to have been repointed at its end. Some of the shafts of the complete or near-complete pins are straight or almost straight (37 examples). Others are bent at an angle around
the midpoint (21 examples), in two cases (sf0945 and sf2075) with a second bend closer to the point. With one pin (sf9870) the lower part of the shaft is perpendicular to the head and the upper part. The fragmentary pins have mostly fractured just below the head (18 examples), although at least four are broken further down the shaft, at the point where it has been bent.

Stratified examples of pins with spherical heads stem entirely from Anglo-Saxon contexts, with sixteen of the thirty-six examples recovered from Phase 2.3.1 deposits. The same general pattern can be seen with the other main pin types (Table 8.1), suggesting that they are all broadly contemporary. There are very few metal pins before Phase 2.

Illustrations
Sub-Type 1

sf2001 Ag. Complete. Undecorated globular head, collar above sinuous shaft, hipped just below half of its length and octagonal in cross-section. Unstratified 0001.

sf2165 Ag. Fragment with spiral wrythen pattern on head, revolving from apex and gilded. No collar, indented above shaft of circular section, straight over surviving length. Unstratified 0001.

sf2166 Ag. Fragment with spiral wrythen pattern on globular head, revolving from apex and gilded. Rounded collar, vestige of shaft of circular section. Unstratified 0001.

sf2299 Ag. Head and small part of shaft of pin, silver throughout. Globular head, gilded with silver filigree spirals. Each of four spirals has large loop at one end and curves to a smaller loop at the apex. Centre of each spiral is lightly domed circular stud; apex is stud with filigree surround. Collar below formed of spirally twisted filigree wire with herringbone pattern.

sf2300 Ag. Fragment with gilded globular head embellished with four spiral filigree wire patterns, two slightly longer than the others, wound from circular domed centres. Collar formed of three bands of wire, two twisted as spirals, broader band in centre. Vestige of shaft of circular section. Unstratified 0001.

sf9806 Ag. Fragment with undecorated globular head, originally gilded, and slight collar above straight shaft that widens slightly over the surviving length. 2.5m sq. 9111.

sf2066 Ae. Fragment of head only, gilded with incised line decoration in spiral descending from apex. Collar above stub of shaft. Unstratified 0001.

sf2303 Ag. Fragment with globular head, decorated by single ring-and-dot motifs, filling all available space. No collar, straight segment of cylindrical shaft. Unstratified 0001.

sf2772 Ag. Fragment with large globular head, flat apex, decorated throughout by single ring-and-dot patterns, with collar above straight section of cylindrical shaft. Unstratified 0001.

sf3349 Ae. Complete. Undecorated, flattened globular head, two collars above tapering shaft, widening below mid-point and bent as tapers to point. 2.5m sq. 3260.

sf3395 Ae. Complete. Undecorated globular head with four collars above shaft. Upper section of shaft straight, widening over lower part and tapering to sharp point, bent over last section. 2.5m sq. 3370.

sf4837 Ae. Complete. Globular head, collar below, cylindrical shaft in three segments, tapering to sharp point. Head undecorated. Layer 4840 (building 4886), Phase 2.2.

sf4838 Ae. Complete. Undecorated globular head with two collars above a straight shaft. Cylindrical shaft tapering to a sharp point. Layer 4840 (building 4886), Phase 2.2.

sf5261 Ae. Complete with undecorated globular head, three rounded and indented collars, shaft tapering lightly before widening over lower part, narrowing to sharp point. 2.5m sq. 3531, Phase 2.3.1.

sf5310 Ae. Fragment with wrythen decorated globular head, pattern radiating from apex. Two collars above straight shaft which widens slightly over lower part; point missing. 2.5m sq. 5357, Phase 2.3.1.

sf8990 Ae. Complete. Large undecorated globular head, collar above slightly sinuous shaft. Second collar above slight widening of shaft at midpoint, tapering thereafter to point. Unstratified 0001.

sf7133 Ae. Fragment with globular head, almost biconical with radial grooves over upper part, no collar, shaft of oval section, slightly bent over lower part with light swelling. Point missing. 2.5m sq. 7005, Phase 2.3.1.

Sub-Type 2

sf0945 Ae. Complete. Wrythen decorated balloon head, flat apex with incised cruciform pattern, collar above straight shaft, bent and widening slightly, bent again as tapers to point. Spread 0760, unphased.

sf2004 Ae. Complete. Undecorated balloon head, single rounded collar with indented line at centre, shaft as wide as collar, circular section tapering evenly to point. Lower part of shaft slightly indented. Layer 0059, Period III.

sf2074 Ae. Fragment with balloon head, decorated by two rows of single ring-and-dot motifs. Collar above straight shaft, widening slightly from head. Unstratified 0001.

sf2167 Ag. Fragment with spiral wrythen pattern on balloon head, revolving from apex and gilded. Rounded collar, shaft of circular section, straight over surviving length. Unstratified 0001.

sf8509 Ae. Fragment with undecorated balloon head, flat apex, raised collar above straight section of cylindrical shaft. Context 7015, 2.5m sq.

sf3167 Ae. Incomplete. Undecorated balloon head, collar above straight shaft, widening slightly over lower part, tapering to point; tip missing. Unstratified 0001.

sf3172 Ae. Fragment with undecorated balloon head, two lightly incised collars above slightly sinuous shaft, hipped over lower part, square section tapering to point. 2.5m sq. 3166.

sf4417 Ae. Fragment with wrythen decorated balloon head, flat apex with cruciform pattern, wrythen decoration confined to side and finishing above collar. Straight cylindrical head, lower part missing. 2.5m sq. 4386.

sf5226 Ae. Complete. Balloon shaped wrythen decorated head with flat apex, flat plain collar, cylindrical shaft of circular section swollen over lower part beyond three incised lateral lines, tapering to slightly bent point. 2.5m sq. 3184.

sf3512 Ae. Complete. Undecorated balloon head, no collar, straight shaft widening over lower portion and faceted to heptagonal section, bent to side, tapering to point. 2.5m sq. 3474.

sf7381 Ae. Complete. Fragment with undecorated balloon head, lightly curved apex, fragmentary collar above stem of cylindrical shaft. 2.5m sq. 8774.

sf6203 Ae. Complete. Small pin with undecorated balloon head, straight shaft widening over lower part, bent to one side, tapering to point. Layer 6240, Period III.

sf4174 Ae. Complete with balloon head decorated by evenly spaced single ring-and-dot motifs, one at apex, remainder in three rows. Rounded raised collar, shaft of circular section widening over lower part before tapering to rounded point. 2.5m sq. 4151.

sf4848 Ae. Incomplete, lacking tip of shaft. Balloon head with two rows of single ring-and-dot motifs and one at apex. Collar above slightly curved cylindrical shaft, hipped over lower part, tapering with round section to point, slightly curved. Spread 4830, Phase 2.2.

sf2068 Ae. Fragment with balloon head, decorated with single ring-and-dot motifs in two rows, and with one motif at the apex. Short section of shaft widening as descends from collar. Unstratified 0001.

sf5957 Ae. Complete. Balloon shaped wrythen decorated head with pattern radiating from flat apex. Collar above straight shaft widening over lower part before tapering to point. 2.5m sq. 5052, Phase 2.3.1.

Sub Type 3

sf3398 Ae. Fragment with crudely faceted undecorated globular head, no collar, straight lightly tapered shaft widening over lower portion, decayed thereafter with point missing. 2.5m sq. 3380.

sf8689 Ae. Fragment with undecorated balloon head, near flat apex collar above shaft, which widens across lower part with two lateral incised lines. Bent just above swelling, tapering thereafter, point missing. Unstratified 0001.

sf4986 Ae. Incomplete, lacking tip of shaft. Balloon head with two rows of single ring- and-dot motifs and one at flattened apex. Collar above slightly curved cylindrical shaft, hipped over lower part, tapering with round section to point. 2.5m sq. 4970, Phase 2.3.1.
Pins with biconical heads

Fig. 8.5

All of the forty-four examples of this pin type are made of copper alloy and none show any traces of gilding. As with the other pins, there are a number of sub-types. The head form is defined in essence by the presence of a carination at or near the midpoint. The basic form (sub-type 1) widens from the shaft to the midpoint and tapers thereafter to a pointed apex (fifteen examples). The carination can be sharply delineated (sf9921; Fig. 8.5) or rounded (sf7374; Fig. 8.5). A second sub-type has the balloon form of head encountered with spherical headed pins, but with a sharp carination and a rounded apex (eleven examples). This sub-type is closely related to sub-type 2 of the spherical headed series. A small group of four pins (sf2007, sf4409, sf4579 and sf9975; Fig. 8.5) have small, undecorated heads that taper to the apex with four facetted sides (sub-type 3). The fourth sub-type consists of pins with a central band forming the carination (fourteen examples); the sub-type has been noted also at Hamwic (Hinton 1996, 28). Rogers has noted the presence of sub-types at Flixborough also, with the equivalent of Brandon sub-type 4 being the most common sub-type there (Rogers et al. 2009, 34).

Eleven of the pins are complete, six are near complete and twenty-seven are fragmentary (61.4% of the sample). The type is mostly undecorated, with the exception of four pins. These include the fragmentary head of a pin of sub-type 1, as well as two pins of sub-type 4 (sf2086 and sf4943), all of which have ring-and-dot patterning applied to either side of the carination, with an incised cross motif at the apex of one pin (sf4943). In addition, a small pin of sub-type 1 (sf5626), surviving in poor condition, has wrythen decoration over the upper part of the head. The lack of decoration applied to pins with biconical heads is echoed at Hamwic and Flixborough (Hinton 1996, 28; Rogers et al. 2009, 34 and fig. 1.25).

The majority of the pins of this type are separated from their shafts by single collars, only one of which (sf2292) is indented. A pair of lateral, grooved lines occur on the lower part of the shaft of a pin (sf3201; Fig. 8.5) of sub-type 4 and the pin also has an elaborate, triple collar. A further pin (sf9874; Fig. 8.5) has a double collar. There are no collars at all on the pins of sub-type 3 and all four have swelling shafts. There is a greater range of shaft types within this pin type than is the case with pins that have polyhedral heads. Eleven pins have swelling shafts and
seven have evenly tapered shafts. In addition, two pins (sf2295 and sf3353; Fig. 8.5) of sub-type 2 have shafts hipped at the midpoint, tapering thereafter with an octagonal section.

A small distinction can be made between the pins of sub-types 1, 2 and 3, in comparison with those of sub-type 4. Complete or near-complete examples of the former types generally have bent shafts, whether evenly tapered or swelling (Fig. 8.5). Only a few examples of pins of these sub-types have straight shafts. The situation is quite different, however, with the pins of sub-type 4. Where the shafts survive with pins of this sub-type, almost all are straight, with just two exceptions (sf2086 and sf8310).

Stratified examples of pins with biconical heads largely follow the pattern seen with polyhedral-headed pins, with the majority stemming from Phase 2.3.1 and with scattered examples from other sub-phases, as well as one example from Period IV (Table 8.1).

Illustrations

Sub-Type 1

sf3388 Ae. Complete. Roughly facettted undecorated biconical head, tightly tapering shaft bent in three places, leading to rounded point. 2.5m sq. 3369.
sf2082 Ae. Fragment of head only, undecorated rounded biconical head, collar above stub of shaft. Unstratified 0001.
sf7374 Ae. Incomplete with undecorated large biconical head, slight collar above shaft which tapers over upper section, bent towards middle, swelling over lower part with point missing. 2.5m sq. 7595.
sf7331 Ae. Fragment with biconical head, decorated by numerous single ring-and-dot motifs, filling all available space. Rounded collar above cylindrical stem of shaft. Unstratified 0001.
sf9921 Ae. Incomplete. Large undecorated biconical head with sharp carination at midpoint and pointed apex. Collar above evenly tapered, curved cylindrical shaft, tip missing. 2.5m sq. 9080.

Sub-Type 2

sf2307 Ae. Fragment with undecorated head, dome shaped with pointed apex, lower part tapering to collar above straight section of shaft. Lower part of shaft bent and widening before tapering towards point, tip missing.
sf3391 Ae. Complete. Undecorated biconical head, rounded apex, no collar, shaft of rectangular section below head, bent approximately one third along length, tapering to rounded point. 2.5m sq. 3251.
sf3173 Ae. Fragment with undecorated biconical head, collar above cylindrical shaft, lower part slightly bent; fractured. 2.5m sq. 3160.
sf3353 Ae. Complete. Undecorated biconical head, rounded apex, collar above straight shaft, bent at mid-point just above hipping, with remainder of shaft hexagonal in section, tapering to rounded point. 2.5m sq. 3260.
sf9874 Ae. Near complete. Small undecorated biconical head, sharp carination at midpoint, rounded collar of same width as cylindrical shaft, lower part slightly bent and tip missing. Trench 9300 through enclosure ditch 9304.

Sub-Type 3

sf9975 Ae. Near complete. Small undecorated biconical head, sharp carination at midpoint, no collar. Cylindrical shaft now bent in two places (possibly for recycling) with short widened area below midpoint, tapering to point, tip missing. Unstratified 0001.

Sub-Type 4

sf2312 Ae. Complete. Undecorated biconical head with pointed apex and band at midpoint, collar above near-straight shaft. Shaft widens slightly over lower part and curves gently to point.
sf2313 Ae. Fragment with large undecorated biconical head, band at midpoint, collar above straight cylindrical shaft, lower part missing.

sf3201 Ae. Near complete. Rounded undecorated biconical head with two collars above slightly sinuous shaft, two lateral lines at point of swelling over lower part, tapering to point with tip missing. 2.5m sq. 3155.
sf8530 Ae. Fragment with undecorated biconical head, pointed apex, prominent central band. Rounded collar, straight narrow cylindrical shaft. Unstratified 0001.
sf8561 Ae. Fragment with undecorated head, lightly curved apex, double collar above straight section of shaft. 2.5m sq. 8736.
sf8960 Ae. Fragment with undecorated biconical head, broad band at centre, rounded apex. Faint traces of gilding. Thin collar above vestige of cylindrical shaft. Unstratified 0001.

Pins with polyhedral heads

Fig. 8.6

Fifty-three examples of pins with polyhedral heads were identified, all of which are made of copper alloy. There are no silver examples. No traces of gilding could be seen on any of these pins. Thirty-three of the fifty-three pins (62.3%) are fragmentary, sixteen are complete and four are near-complete. All but three of the complete or near-complete pins are decorated. In contrast, almost half of the fragmentary pins are not decorated (15 of 33). It is very likely, therefore, that a number of the fragmentary pins are unfinished and represent failures, which were discarded as failed castings or because there were weaknesses with the shafts.

The heads can be separated into three sub-types on the basis of their section. Those with heads of square or near-square section form sub-type 1, which is the principal sub-type with thirty-four examples. Rectangular heads (six examples) belong to sub-type 2 whilst sub-type 3 is formed of heads with a flattened rectangular section (six examples), which is more exaggerated than sub-type 2 (Fig. 8.6). A similar distinction between square and flattened heads has been made for Flixborough and could be made also for Hamwic (Rogers et al. 2009, 34; Hinton 1996, fig. 9); the distinction between square and rectangular-sectioned heads is more subjective. Most of the heads have a slightly greater length than width but one group of seven pins, all of sub-type 1, can be distinguished for the elongated nature of their heads (sf2089, sf3322, sf3393, sf3404, sf3570, sf5533 and sf5633). At the other end of the scale, a single pin (sf8212; Fig. 8.6), also of sub-type 1, has a compressed head of greater width than length. A pin from Hamwic has a similarly compressed head (Hinton 1996, fig. 9.169/1747).

The majority of pins of each type (66% of the sample) have decorated heads, adorned in each case with single ring-and-dot motifs, usually applied to each face, with the exception of the flat apex. Only three pins (sf4352, sf7131 and sf8272) have a decorated apex (Fig. 8.6). In contrast, many of the pins with polyhedral heads from both Hamwic and Newbald South are decorated only on the central faces, and not on the smaller, angled faces (Hinton 1996, fig. 9; Leahy 2000, figs 6.7–8). In six cases at Brandon (sf2265, sf5570, sf5532, sf5501, sf7150 and sf8212), the motifs have been applied to the four diamond-shaped central panels of each side only and the interstices are blank. In a few other cases, particularly with the larger heads, the central panels include multiple ring-and-dot motifs (Fig. 8.6) similar to those seen at Hamwic, where restraint in the decoration of the apex is also evident (Hinton 1996, fig. 9 type Bb2ii). This type of multiple patterning is confined to pins of sub-types 2 and 3 with heads of rectangular section, for which two faces are larger than the others.
Almost all of the pins with polyhedral heads have collars between the head and the shaft. In most cases the collars project beyond the shaft although six pins have indented collars formed by simply cutting a channel into the shaft itself, with little further modification. Two of the complete pins have straight shafts whilst twenty-four have swelling shafts; none of the shafts are hipped. The complete pins vary in length between 55 and 85mm, with most lying between 55 and 75mm (Fig. 8.6).

Most of the pins are unstratified and only seventeen come from excavated and phased contexts. The majority of these come from contexts of Phase 2.3.1 (Table 8.1). Rogers has noted that polyhedral pins with flattened heads from Flixborough may possibly extend from the Middle Saxon to the Late Saxon period (Rogers et al. 2009, 34). This cannot be confirmed at Brandon, where the phased pins are almost entirely of sub-type 1 and do not include any examples of sub-type 3, the pins that have flattened heads.

**Illustrations**

**Sub-Type 1**

sF2003 Ae. Complete. Polyhedral head decorated with single ring-and-dot motifs on all faces except apex. Collar above straight cylindrical shaft, bent perpendicular over lower section, tapering to point. Pit 0287, Phase 2.

sF3200 Ae. Fragment with polyhedral head decorated with single ring-and-dot motifs on side and upper faces, not apex or lower faces. Collar above slightly sinuous shaft, tapering evenly towards point, lower part missing. 2.5m sq. 3155.

sF3209 Ae. Fragment with polyhedral head, single ring-and-dot motifs on every face except apex, no real collar, straight shaft of cylindrical section, fractured above lower section. 2.5m sq. 3222.
Sub-Type 1. Elongated Head

sf8272 Ae. Fragment with rectangular polyhedral head, poor condition, single ring-and-dot motifs on every panel. Broad collar, straight cylindrical shaft widening slightly towards lower end, point missing. Unstratified 0001.

sf8536 Ae. Fragment with rectangular polyhedral head, poor condition, single ring-and-dot motifs on side panels only. Rounded collar, small section of cylindrical shaft. 2.5m sq. 8771.

sf2086 Th. Incomplete. Spiral headed, spiral curved inwards and tightly curled, leaving circular hole at centre. Broad spatulate area below leading to double collar. Shaft of circular section widening over lower part, octagonal in section thereafter with point missing. Lightly bent throughout. Unstratified 0001.

Illustration

sf2298 (Pl. 8.4) Ag. Incomplete. Spiral headed, spiral curved inwards and tightly curled, leaving circular hole at centre. Broad spatulate area below leading to double collar. Shaft of circular section widening over lower part, octagonal in section thereafter with point missing. Lightly bent throughout. Unstratified 0001.

sf2265 Ae. Fragment with polyhedral head of rectangular section, decorated by single ring-and-dot motifs on four middle faces. Collar above segment of straight shaft. Unstratified 0001.

sf2302 Ae. Incomplete. Polyhedral head of rectangular section decorated on all faces except apex by single ring-and-dot motifs, with two motifs on the broad faces. Collar above straight section of shaft, bent to one side and widening slightly over lower portion, faceted to roughly octagonal in section as tapers to point, tip missing. File marks on shaft.

sf3574 Ae. Fragment with polyhedral head of rectangular section, decorated by single ring-and-dot motifs on all faces except apex, but two broad faces each have four motifs; collar above small section of cylindrical shaft. 2.5m sq. 3330.

sf3531 Ae. Complete with decorated polyhedral head of rectangular section, single ring-and-dot motifs on every face except apex. Single collar above cylindrical shaft, very slight widening over lower part, bent above at mid-point, tapering to sharp point. Context 5384 (part of section 6458 across peninsula).

Spiral-headed pins

Pl. 8.4

The only example of a spiral-headed pin (sf2298) is made of silver and lacks the lower part of the shaft (Pl. 8.4). The pin has a double collar and a lightly curved shaft, which is of octagonal section over the lower part. The pin has been published previously (Webster and Backhouse 1991, 84 no. 66(h)). It can be compared with a pair of silver spiral-headed pins from Eccles in particular (Hawkes 1973, 283–3 and fig. 4), as noted by Blackmore (2003b, 267). The similarities between the Brandon pin and those from Eccles suggest that it dates to the second half of the 7th century, or the early 8th century. Hinton has drawn attention to the possibility that this pin type may have been worn as linked pairs, based on the evidence from graves at Eccles, Kingsworthy and Bourton-on-the-Water (Hinton 1996, 29). Geake has noted, however, that this was not the case with the pair from Ashtead (Geake 1997, 35; Hayman 1991, 11–13 and fig. 4.1–2). The Kingsworthy cemetery has now been published, as has a brief summary of the Eccles cemetery (Hawkes and Grainger 2003, fig. 2.33; Shaw 1994). The continuation of the use of spiral-headed pins into the first half of the 8th century has been proposed by Hinton and Geake (Hinton 1996, 30; Geake 1997, 36) and is confirmed by recent examples from Hartlepool, Fishergate at York and Lundenwic (Daniels 2007, 124; Rogers 1993, 1363; Blackmore 2003b, 267 and fig. 165.M35).

Illustration

sf2298 (Pl. 8.4) Ag. Incomplete. Spiral headed, spiral curved inwards and tightly curled, leaving circular hole at centre. Broad spatulate area below leading to double collar. Shaft of circular section widening over lower part, octagonal in section thereafter with point missing. Lightly bent throughout. Unstratified 0001.
Linked pins

Fig. 8.7; Pl. 8.5

Linked pins form a miscellaneous category that has less to do with the form of the object and more to do with the method of its use. Thus linked pins can have several different head forms, but they share a common use of perforations at the head and — where they survive — linking elements of rings and chains. Not all pins with perforated heads were necessarily linked (Geake 1997, 36) but equally, some sets of linked pins were broken up for burial (Penn 2000, 54). Two groups can be identified from Brandon. The first consists of four pins with perforations set at the apex. The second incorporates disc-headed pins with attachments enabling them to be linked together.

Four copper alloy pins (sf0835, sf3279, sf5601 and sf5952) have perforations set at their apices. The complete pin (sf5601; Fig. 8.7) retains a wire slip-knot ring and three elements of a figure-of-eight chain. The head has an oval baluster set between roll mouldings with a straight shaft widening over its lower section and continuing with a tapered, octagonal section to the lightly curved point. It is similar to an example from Hamwic identified as a ring-headed pin (Hinton 1996, fig. 13.30/328) and represents an elongated version of the linked pins from Grave 8 at Winnall (Meaney and Hawkes 1970, fig. 9). Another example with this head form can be provenanced to Kent (Meaney and Hawkes 1970, 37). All of these pins are likely to be of late 7th to early 8th-century date. The same dating can be applied to a second example from Brandon (sf3279; Fig. 8.7), which has a lightly widened shaft, curving once again over its lower end, and a rectangular head inscribed with a saltire pattern. The loop at the apex has fractured. A third pin (sf5952) was originally gilded throughout and retains an area of black discolouration below the flat, rhomboidal head. A small perforation is set at the apex. The shape of the head resembles an example from Fishergate, York (Rogers 1993, fig. 664.5367).

The fourth example (sf0835; Fig. 8.7) is much heavier and has a thick shaft that tapers gently as it curves to the fractured lower end. The head is polyhedral and undecorated and there are two baluster mouldings set within collars, with a loop at the apex retaining part of a wire ring. The object has all the characteristics of a linked pin and includes a polyhedral head, but the thickness of the shaft is unusual. A polyhedral pin from Canterbury also includes a baluster moulding below the head and an iron pin...
from Pakenham shares the same configuration (Blockley et al. 1995, fig. 459.650; West 1998, fig. 120.16).

The four pins of this group include different head forms but each has a relatively long shaft, and that distinguishes them from the earlier linked pins of the 7th century, which are generally small and short.

The second group of pins can be directly equated with Rogers’ type LIN2 from Flixborough (Rogers et al. 2009, 36–7) and consists of pins with large disc-shaped heads. The principal member of this sub-type is a silver pin (sf2343; Fig. 8.7 and Pl. 8.5) that has been published previously (Webster and Backhouse 1991, 83 no. 66(c)). The pin survives in two pieces with the shaft bent to one side and lightly expanded over its lower part. The head originally included an attachment loop on the right side, which fractured; this was replaced by a riveted attachment close to the fragmentary loop.

Webster has compared the human figure and beasts in the interstices of this pin with manuscript decoration of late 8th to early 9th-century date (Webster and Backhouse 1991, 83) and this dating is substantiated by recent finds of metalwork. The Brandon pin appears to follow on closely from a series of discs (mostly stemming from brooches) with equal-armed crosses at the centre and animal as well as interlace designs in the interstices. Amongst these is a disc from Brandon (sf2162) that is described (Chapter 6.IV) and compared with a smaller example from Thetford, as well as the Ixworth brooch (Margeson 1999, 40 and fig. 36.13; Bruce Mitford 1956, 199 and pl. XXXa). A further disc from Thetford includes interlace decoration alone, as does a disc-headed pin from Barham (Dallas 1993, fig. 115.1; West 1998, fig. 3.9). The earliest examples may be a pair of small silver discs from Harford Farm, Norfolk (Penn 2000, 54 and pl. V). Several examples are known also from Cottam (Haldenby 1990, fig. 1.1–2). This series is confined to interlace or to enmeshed animals with prominent heads or bodies, seen always in profile, and it represents a Mercian or Mercian/ Anglian style that develops in the late 7th century and continues in the 8th century (Plunkett 1998, 211). Wilson has dated the Witham pins to the middle of the 8th century (Wilson 1984, 67) but — alongside the Brandon pin — they show certain changes in style that prefigure later, 9th-century, work. The Brandon pins include two characteristics seen also with the Brandon pin, namely the use of vegetal ornament springing from a container and the presence of animals seen from above (Wilson 1984, fig. 33). Two of the figures on the Brandon pin face out directly to the observer; the beasts are no longer seen in profile, oblious to the observer. Both pins also have skewed surfaces, which anticipate the 9th-century Trelwiddle style, much in the manner of the Birka hooked tag discussed by Graham-Campbell (1982, 146). Accordingly, Webster’s dating of the Witham pins to the late 8th century is more plausible, and ties in well with the Brandon pin (Webster and Backhouse 1991, 227). A related disc-headed pin from Hamwic (Hinton 1996, 31 and fig. 12.169/2959) came from a late context there and substantiates the dating of the Brandon series.

A second disc-headed pin (sf8679; Fig. 8.7 and Pl. 8.5) has been modified in order to be linked, with the addition of a perforation on the right side. The pin also includes a runic futhorc on the reverse (see Section IV below); it has been discussed extensively by Webster (Webster and Backhouse 1991, 82–3; Webster 2001, 267). The elongated beasts have large mouths and protuberant tongues extending from small heads and represent simplified examples of the beasts seen in the St Petersburg (or Leningrad) Gospels (Alexander 1978, fig. 192). The pin is one of the longest to come from Brandon (overall length 120mm) and it is probably of late 8th or early 9th-century date. A linked pin with a disc head from Thorpe Salvin is of a similar length (Parsons, J. 1992).

Illustrations

Linked pins

sf0835  Ae. Fragment with undecorated polyhedral head surmounted by loop with circular perforation filled by small section of wire ring. Multiple collars below head enclose two baluster mouldings, thick tapering, lightly curved shaft below. Building 0734, Phase 2.2.

sf3279  Ae. Incomplete with looped head, small loop now fractured, rectangular raised area below each side decorated by single crossing diagonal lines. No collar, shaft of circular section widening over lower part and tapering thereafter to rounded point. Lightly curved throughout, tip bent back slightly. 2.5m sq. 3242.

sf5601  Ae. Complete linked pin with oval looped head pierced by circular perforation, oval baluster moulding with single collar above and two collars below and lightly curved shaft. Shaft widens lightly over lower part and curves slightly as it tapers to a sharp point. Loop retains wire ring with twisted terminals and three elements of wire chain, each of S-form. Clay layer 5586 (peninsula 8117), Phase 2.3.

Linked pins with disc-shaped heads

sf2343  Ag. Incomplete disc-headed pin with riveted attachment close to edge retaining oval plate for loop, now broken. Large disc with equal-armed cross at centre, pecked decoration and simple linear interlace. Four fields enclose naked long-haired male, winged entwined beast with head facing forward, winged beast seen from above and a vegetal pattern. No collar, shaft bent and now in two pieces, widening slightly, lower part missing.

sf8679  Ag. Complete with oval head gilded throughout with single framing line and pecked decoration. Two affronted beasts seen in profile, both with short rounded snouts, single dots for eyes and long curved tapering tongues. Long curved necks, small stout bodies, long tails coming round to front of body and joined together. Long legs and wings run parallel, legs ending in claws. Vine-like thin foliage on right side, oval loops of thin interlace on left. Double rounded collar above shaft. Shaft of circular section, widening slightly over lower part, bent slightly to rounded point. Runic inscription on reverse over with first sixteen letters of futhorc over two lines. 2.5m sq. 9099.

Pins with figurative heads

Pl 8.6

This category covers a miscellaneous group of four pins, each of which includes animal ornament on the head. All four have previously been published in the Making of England catalogue and the type as a whole has recently been reviewed by Gannon (Webster and Backhouse 1991, nos 66(d)–(r) and (h); Gannon 2007).

A gilded, kite-shaped pin head (sf2161; Fig. 8.7 and Pl. 8.6) is decorated with two animals whose bodies dissolve into tightly bound spirals. The heads have prominent muzzles with dots for eyes, broadly reminiscent of beasts from the St Ninian’s Isle hoard (Small et al. 1973, figs 21–2; Webster and Backhouse 1991, 84). Tight spirals with enlarged centres can be seen in the Echternach Gospels (Alexander 1978, fig. 51) whilst the ovoid mouths of the beasts are similar to some of those seen on the carpet page of the Liechfield Gospels (Alexander 1978, fig. 77). The style of the decoration suggests a date in the first half of the 8th century. A second gilded silver pin head (sf2297) of 8th-century date includes a simple design of interlaced lobed tendrils.
A shield-shaped pin head (sf2163; Fig. 8.7 and Pl. 8.6) includes two affronted beasts with long muzzles, set above a back-turned beast with interlaced legs and tail. The larger beasts are speckled. Several pins with this type of head decoration can be identified, most of which have a northerly distribution. They include examples from Flixborough, Louth, South Newbald and York (Webster and Backhouse 1991, figs 69(e) and 183; Leahy 2000, fig. 6.5.1; Rogers et al. 2009, 37 and fig. 1.29.678), as well as an unpublished pin head from Foundation Street, Ipswich. Few of these pins are closely dated but the use of gilding on this example, as well as the speckled decoration, suggests that it belongs to the second half of the 8th or the early 9th century.

Webster has compared the silver pin with a three-dimensional animal head (sf2000; Fig. 8.7) with an example from Flixborough and noted that they form part of a small group of high quality pins of the 8th century, worn by women (Webster and Backhouse 1991, 83 and fig. 66(d)). A pin head from South Newbald can be added to this group (Leahy 2000, 56 and fig. 6.3.1). The Brandon pin is one of few from this group to come from a stratified context, of Phase 2, confirming the 8th-century date.

Illustrations

sf2161 Ag. Fragment with kite shaped head with two spirals at apex, widening to oval blobs at the centre and unfurling to bodies with collapsed legs, long tapering necks and dots for eyes, with line indicating snouts. Both entwined with second dotted roundel leading to central area of thin interlace and snake-like lateral bar, widening at either end. Shaft does not survive, traces of a perforation in this area, possibly for re-use. Unstratified 0001.

sf2297 Ag. Fragment with oval head decorated by two chip-carved fronds rising upwards and crossing at the apex, curving back on themselves and outwards to end in curls. Plain on reverse, no collar, cylindrical straight shaft of circular section. Unstratified 0001.

sf2163 Ag. Fragment with shield shaped disc head, tapering towards shaft, which is missing. Decorated by two confronted beasts with long curved, snake-like bodies and pecked decoration. Lateral line distinguishes head from body, eye is single punched ring-and-dot, small round ear seen in profile, mouth closed. Central beast enclosed by this pair, quadruped with back turned head, prominent pointed ear, dot for eye, slit for mouth and long rounded snout. Legs and tail dissolve into interlace. Gilded throughout. Unstratified 0001.

sf2000 Ag. Sub oval head in form of pig-like beast with snout, including laterally ridged upper lip and short lower lip. Eyes are yellow glass inserts set just in front of apex. Snout is angled upwards; back of head plain. Flat collar below, cylindrical shaft widening over lower part and tapering to point, tip missing. Pit 0203, Phase 2.

Headless pins

Twenty shafts of pins survive, all lacking any heads. Nineteen of these are copper alloy and one (sf3229) is silver. They can be separated into two groups. The first consists of sixteen small fragments of shafts, fractured below the head, often where the pin has been bent in use. A number of these fragments stem from the lower part of the pin and include hipped or widened shafts. Several are quite long but have still fractured from pins with heads.

The second group consists of four shafts comparable in length with complete pins of other types and generally (though not invariably) including collars at their apex. All are unstratified. Three have straight shafts and the other one is slightly sinuous. One (sf4836) has a single collar and another (sf9837) has a double collar. All four have expanded shafts, embellished in one case (sf2600) with an indented double moulding.

Rogers has described this type as headless pins and discussed them in the context of the Flixborough assemblage, where they form one of the larger types (Rogers 1993, 1364–6; Hinton 1996, 34–5; Rogers et al. 2009, 35). They are certainly not common at Brandon, with only five secure examples. Fifteen were identified at Shakenoak, representing a reasonable percentage of the entire pin assemblage there. Northern sites have provided even greater numbers, with sixty-seven from Flixborough and fifteen from Fishergate, York, where a further thirty-six pins included heads (Rogers 1993, 361–6 and fig. 664). It is difficult to determine an accurate figure for this pin type from Hamwic (Hinton 1996, 35 and table 1) or from Lundenwic (Blackmore 2003b, 267–8). It seems likely, however, that headless pins are much more common from northern sites, and rare in East Anglia.
Figure 8.7  Linked and figural pins (1:1)
**Middle Saxon pins from Brandon**

The 239 non-ferrous pins from Brandon form one of the larger collections from Anglo-Saxon England, smaller than the assemblage from Flixborough but comparable in quantity with that from *Hamwic*. Few of the pins come from stratified contexts but it is possible, nonetheless, to provide a tentative outline of developments in pin manufacture across the 8th and 9th centuries. There is a small amount of evidence for their manufacture and their distribution across the site is of interest.

**Manufacture**

The majority of the pins were cast, usually with the head and shaft combined as a single, integral unit. No moulds were recovered from Brandon and the manufacturing evidence stems, therefore, from a consideration of the objects themselves. The more elaborate filigree-decorated spherical pins have a head applied to a separate shaft and the presence of a small number of ‘headless’ pins suggest that this practice was a little more common, although still occurring with a relatively small number of pins. One example of a pin shaft (sf5185) has a swelling at the centre and a long taper but no point, suggesting that it is unfinished and has not been shaped to its final form. The head has fractured from the shaft. It has been argued above that the series of undecorated pins with polyhedral heads and fragmentary shafts represent rejects from the casting process, discarded before they were decorated. Occasional traces of file marks can be seen on a few pins (sf2302, sf3390, sf8528 and sf8559). The cast pins were finished with a file and punched or incised decoration was applied to them, as a part of the finishing process.

The study of the metallurgy of the pins indicates that most of those analysed are made of bronze, with a small number (mainly of biconical type) made of brass (see Appendix 3). In general they cluster together for their metal content, irrespective of type.

**Chronology**

**Table 8.1**

Most of the pins are unstratified and only a few have come from stratified deposits (Table 8.1). Only one pin (sf4409) was recovered from a context of Phase 1.2, which suggests that pin manufacture and use at Brandon did not begin in earnest until the 8th century. Both linked pins and spiral headed pins are types that go back to the 7th century although, as noted above, the Brandon series of linked pins (excluding those with large disc heads) appear to represent a development beyond the smaller 7th-century types seen elsewhere. Similarly, the sequences of spiral- headed pins from *Hamwic*, Flixborough, *Lundenwic* and Fishergate at York extend into the 8th century and Rogers has suggested that they even continued into the 9th century (Rogers 2009, 35; Blackmore 2003b, 267; cf. Hinton 1996, 37).

That evidence comes only from York, at Fishergate and Coppergate, and there was undoubtedly a lot of residual Middle Saxon material at the latter site, and more than was realised in its publication. Aside from York, the type belongs to the 7th to 8th centuries. Spiral-headed pins are well represented at those sites noted above and are

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**Miscellaneous head forms**

Fig. 8.8

Four pins have individual head forms that do not fit any of the types outlined above and three of them are likely to be of Roman date. A small but complete copper alloy pin (sf2078; Fig. 8.8) has a shaft of rectangular section, surmounted by a small domed head. It bears some resemblance to Roman forms (Crummy 1983, fig. 31.500; Frere 1972, fig. 52.179; Cool 1990, 151 type 1A) and is probably of that date. A second pin (sf9859; Fig. 8.8) is also of Roman date, its heavy moulded form recalling an appearance of an unfinished pin intended to include an animal head set axially at its apex, in the manner of a pin from Flixborough and an unprovenanced example in the British Museum (Webster and Backhouse 1991, figs 69(g) and 182).

**Illustrations**

- sf2078  Ae. Complete. Small undecorated domed head. No collar, lightly tapering shaft, circular at head but mostly flattened to rectangular section, rounded point. Unstratified 0001.
- sf8323  Ae. Fragment with undecorated conical head swathed in gilded silver sheet with seam clearly visible. Traces of a lateral band at the mid-point. Rounded collar above straight cylindrical shaft, swelling over lower part, fractured just below with point missing. 2.5m sq. 6696.
- sf2076  Ae. Fragment with rounded apex and three broad collars below. Thick shaft bent in two places, lightly tapered, swelling over lower part and heptagonal in section towards point; tip missing. Possibly silvered throughout. Unstratified 0001.

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**Figure 8.8  Miscellaneous pins (1:1)**
surprisingly scarce at Brandon. If they are an early type, as
Hinton has suggested, then their absence at Brandon may
reinforce the suggestion that pin making did not occur
during the early phase of the site. It may be significant that
the pins from West Stow (a site that continued into the first
part of the 8th century) include single examples of spiral
headed, spherical, biconical and polyhedral types, as well
as several small disc headed pins, which are essentially of
7th-century date (West 1985, 145 and figs 246 and
266.4–6). Another possible indicator is provided by
Coddenham, a site which may only have extended into the
early 8th century, like West Stow (Newman 2003, 103).
The only pin from Coddenham illustrated by West is a
perforated, linked pin with a discoidal head (West 1998,
fig. 21.16). The close phasing now possible for 
_Lundencwic_
is also instructive in terms of the _floruit_ of non-ferrous
pins. Just one indeterminate pin came from a phase 4
context at the Royal Opera House and the majority came
from the succeeding phases 5 and 6, of mid to late
8th-century date (Blackmore 2003b, table 49). All of this
indicates that pins were not common at Brandon until the
8th century, with production and use beginning in earnest
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indicates that pins were not common at Brandon until the
8th century, with production and use beginning in earnest
c. AD 725–50.

Pins are plentiful at Brandon within Phase 2 and its
sub-phases, with the largest number of each of the main
types coming from Phase 2.3.1. The overall impression to
be gained from the stratified examples is that pin making
may have begun at Brandon in the first half of the 8th
century and reached its _floruit_ in the late 8th to early 9th
century, with production continuing into the 9th century in
reduced circumstances. Most of the elaborate pins from
Brandon of silver or silver gilt are unstratified, but it has
been argued above on typological grounds that the large
disc headed pins belong to the late 8th to early 9th century.
One figurative pin (sf2000) came from a context of Phase 2.

Distribution

A plot of the distribution of all non-ferrous pins shows an
intense concentration in the northern part of the site, at the
waterfront (Fig. 4.69). The distribution is very marked,
with less than forty of the 240 pins located in the southern
half of the site. None of the pins was associated with either
set of graves. The distribution of pins by type over the
southern part of the site reflects the overall ranking of the
pins by quantity: Spherical (12); Biconical (8); Polyhedral
(10).

To the north the pins lie at the waterfront and in
association with properties aligned broadly west to east,
immediately to the south of the waterfront, with smaller
concentrations in the vicinity of other structures, and in the
midden.

<table>
<thead>
<tr>
<th>Phasing</th>
<th>Spherical</th>
<th>Polyhedral</th>
<th>Biconical</th>
<th>Linked</th>
<th>Headless</th>
</tr>
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<tr>
<td>1.2</td>
<td>6</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>0</td>
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<tr>
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<tr>
<td>2.3</td>
<td>16</td>
<td>8</td>
<td>6</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2.3.1</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1–2</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>IV (medieval)</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>36</strong></td>
<td><strong>17</strong></td>
<td><strong>11</strong></td>
<td><strong>3</strong></td>
<td><strong>0</strong></td>
</tr>
</tbody>
</table>

Table 8.1 Copper alloy and silver pins from stratified deposits

Size, design and gender

The three principal pin types were produced in a similar
range of sizes. The complete polyhedral pins are all over
55mm in length whilst the spherical and biconical types
include shorter examples of 45–47mm. There are also a
small number of pins of a markedly shorter length,
including one complete spherical pin (sf6203) that is just
35mm long. The longest pins of these types are biconical
and extend to almost 100mm. The large disc headed linked
pins are longer still, with lengths of 120mm.

The principal non-ferrous pin types at Brandon
scarcely occur at all within Early Anglo-Saxon graves and
it is not possible to see any correlations of gender from that
very limited evidence. The same three types of pin head
(spherical, biconical and polyhedral) predominate at
Flixborough, _Hamwic_ and Fishergate at York, albeit in
different proportions at each site. There are few obvious
regional distinctions between these major assemblages,
although a few Northumbrian types of pin can be
identified, which occur rarely in southern and eastern
England (Hinton 1996, 32; Rogers 1993, 1363–4). The
spiral-headed pin was favoured at _Hamwic_ and occurs also
at sites nearby, including Kingsworthy and Portchester
(Hinton 1996, 29–30). It is not common in East Anglia,
although there is an example from Ipswich (West 1998,
fig. 96.6). A further pin from Ipswich has more in common
with Irish and Scottish examples of the early Christian
period (West 1998, fig. 96.7; Stevenson 1955, fig. A.2). It
forms part of a growing corpus of Insular material found in
Middle Saxon England (Hinton 1996, 32; Youns 2001;
2009; Riddler and Trzaska-Nartowski 2013).

The major distinction in pin design lies between the
spherical and biconical forms on the one hand, and the
polyhedral on the other. Of the three types, only the
spherical headed pins include examples in silver as well as
copper alloy. Most of the spherical and biconical headed
pins are undecorated; most of the polyhedral headed are
decorated. There is no obvious correlation with gender but
this clear distinction between two groups of pins is worthy
of note. At the same time, the treatment of the shaft was
similar across all three types, with swelling shafts
commonplace and hipped shafts used on occasion, often
faceted to an octagonal section; they do not occur with
polyhedral headed pins. Straight tapering shafts are rare, if
slightly more common with biconical headed pins.

_Bone or antler pins_

Fig. 8.9; Table 8.2

Thirteen pins of bone or antler were recovered, only a few
of which are complete. None of them can be securely
identified to species or bone type. Nine retain their heads,
which enables them to be ascribed to a particular type.
Four groups of pins can be identified on the basis of the form of the head (Table 8.2).

Bone and antler pins with both globular and flattened globular heads are encountered within deposits of the earlier part of the Middle Saxon period. The flattened globular form occurs elsewhere at Dover, Frisia, Pennyland and Ramsgate, within contexts of mid 7th to mid 8th-century date. Indeed, most of the small bone pins from Middle Saxon sites belong to that period, and from the later 8th century onwards bone pins of a different type emerge (Riddler et al. forthcoming).

The second group consists of two pins (sf0817 and sf2170; Fig. 8.9) with heads that widen from the shaft before tapering to sharp points. Neither shaft is hipped or enlarged and the complete example (sf0817) extends to 51mm in length. The head form is limited to Brandon and has not been found elsewhere in Anglo-Saxon England as yet. One example (sf2170) came from a Saxon context. The rough faceting of the shafts and heads, as well as the light curve of the shafts, suggest that these objects may have served as pegs, if not pins.

A single pin (sf0901; Fig. 8.9) has no real head at all and with a length of just 37mm it could be dismissed merely as a fragment of a shaft. However, it belongs with a small group of pins of Middle Saxon date for which the head only just projects beyond the shaft and is scarcely present at all. Examples are known from Hamwic, Lundenwic, Ipswich, Nazeingbury and Wharram Percy (Riddler et al. forthcoming). The type belongs to the 8th century.

The most impressive of the bone pins (sf5490) retains only the upper part of its shaft and has a head with four roundels extending from it, with a curved apex above. A bone pin with similar roundels but a flat apex has come from Fishamble Street in Dublin and another example has emerged recently from a site (SOU1553) at St Mary’s Street in Hamwic (Patrick Wallace and Matt Garner, pers. comm.). The Brandon pin comes from a context of Phase 2.3.1, which could be quite late in the archaeological sequence, conceivably according well with the Dublin evidence.

A pin shaft (sf9950) with a well-crafted swelling towards one end is larger and more substantial than the remainder of the series, and stems from a pin of late Roman date.

It is likely that most, if not all, of these pins were made at Brandon. Slender evidence for their production is provided by an unfinished fragment (sf2171; Fig. 8.8) from a Phase 2.2 context, which has a stock at one end comparable with a similar piece from Wharram Percy, another site where Middle Saxon bone pins were manufactured (MacGregor 2000, fig. 71.74). All of the bone pins from Brandon are small and slender, with shafts of circular section and with no perforations or means of attachment. MacGregor (2000, 152) has argued for a continuum between this type of bone pin and small, hipped examples of 12th-century date but there are no pins of this type at all to fill the intervening period from the mid 8th to the early 12th century. New forms of large, perforated bone pins come to prominence from the mid 8th century onwards, perhaps representing a change in dress, and at that point the small bone pin became superfluous.

Illustrations

Table 8.2  Bone or antler pins

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>flattened globular</td>
<td>5 pins</td>
</tr>
<tr>
<td>2</td>
<td>pointed apex</td>
<td>2 pins</td>
</tr>
<tr>
<td>3</td>
<td>excrescent</td>
<td>1 pin</td>
</tr>
<tr>
<td>4</td>
<td>quadrilateral</td>
<td>1 pin</td>
</tr>
</tbody>
</table>

Table 8.2 Bone or antler pins

Figure 8.9 Bone pins (1:1)
Abruptly from the mid-point in light curves, in a similar (sf1131; Fig. 8.10), they are narrow at the apex and widen from one end to the other. In contrast with another set of turned terminals. With one example (sf2276; Fig. 8.10) form can be identified. The sides either widen as straight ends to form rectangular terminals. Several variations in widen from an oval bow and are folded inwards at their sides, providing a serrated effect, which can be seen with one exception (sf8324) that has notched patterning on the sides, providing a serrated effect, which can be seen also on sets from Kingsworthy and Whitby (Hawkes and Grainger 2003, fig. 2.28.41.3; Peers and Radford 1943, fig. 13.10).

Tweezers with lightly curved and well-splayed sides to their arms form the principal group within the assemblage, with eleven examples. Most have incised framing lines and are decorated with single ring-and-dot motifs, usually in a medial line with additional patterning in the broader space close to the terminals. The ring-and-dot motifs tend not to extend to the bow, the upper area being reserved for pairs of lateral lines. Within this group the range of patterns is fairly restricted and they are all broadly similar in appearance. They can be compared with contemporary sets of tweezers from Barham, Blakenham, Lakenheath, Maidenhead, Shakenoak, Shudy Camps and Wetheringsett (West 1998, figs 6.51, 10.5, 110.6 and 134.1; Foreman et al. 2002, fig. 4.31 and pl. 4.2; Brodribb et al. 1972, fig. 30.134–5; Lethbridge 1936, fig. 1F). Tweezers from East Kent, including those from Canterbury and Sandtun, have a similar shape but differ in their decoration, suggesting that regional distinctions may exist at this time (Blockley et al. 1995, fig. 443.468–9; Riddler 2001a, 231–2 and fig. 42).

A few sets are of entirely different forms. With a small, unstratified set (sf2011; Fig. 8.10), which is undecorated, the arms taper lightly from the bow instead of widening. The terminals are missing, unfortunately, but may possibly have ended in the manner of those from Shakenoak with a light splay at the lower end (Brodribb et al. 1972, fig. 30.133). Alternatively, they could have tapered to rounded terminals, as with a set from Canterbury (Blockley et al. 1995, fig. 443.471).

A fragment of the lower part of a further set (sf2327; Fig. 8.10) has a narrow arm that widens abruptly to an oval shape, with indentations leading to a rectangular lower section. The tendency to widen abruptly over the lower part of the arm can be seen also with a complete set of tweezers from Harwick (Hinton 1996, fig. 18.4/5). This form is common on the Continent, occurring alongside the splayed form in Merovingian cemeteries (Kazanski 2003, 46–7). Both forms are seen also at Dorestad (Roes 1965, pl. IX.74.8).

Within Early Anglo-Saxon burials tweezers occur mainly in male graves, where they were used in personal grooming (Evason 1987, 118; Stoodley 1999, 33; Riddler 2001a, 231). Other functions have also been suggested (Rogers 1993, 1388) but they are likely to have been retained as personal grooming items. There are as many sets of tweezers from Brandon as hooked tags, and the number easily exceeds that for any contemporary site, even allowing for the use of metal detecting. Only ten sets of tweezers came from Whitby, for example, and the same quantity was recovered from Flixborough (Peers and Radford 1943, 62–3; Rogers et al. 2009, 30). The Brandon tweezers fall neatly into the Middle Saxon period. The majority have splayed arms and broad terminals, which are developed beyond the more restrained forms seen in Early Anglo-Saxon cemeteries (MacGregor and Bolick 1993, 220–5). Copper alloy tweezers occur only rarely in 7th-century graves and accordingly they were not considered by Geake (1997). Middle Saxon examples from Canterbury, Harwick, Sandtun, Shakenoak and Whitby show a similar degree of splay to the arms, which is more exaggerated in the Dorestad sample (Holwerda 1930, afb 63.4–8; Roes 1965, pl. IX.74–8). Late Saxon

III. Toilet implements

by Ian Riddler with a contribution by Nicola Rogers

Silver and copper alloy tweezers

Fig. 8.10

Nineteen of the twenty sets of tweezers are made of copper alloy and one fragmentary set is silver. The silver fragment (sf0836; Fig. 8.10) has been published previously (Webster and Backhouse 1991, 85, no. 66(o)); it includes a runic inscription on the surviving part of the arm. The majority of the tweezers have splayed arms that taper to wedge shape. Polished. Layer 0709 (Building 0734), Period III. 1995, fig. 443.471).

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tweezers revert to a rectangular form, exemplified by examples from Winchester and York (Biddle 1990, 690–2; Mainman and Rogers 2000, 2600 and fig. 1295). Closer dating within the Middle Saxon period is not feasible at present, unfortunately.

Figure 8.10 Tweezers and ear-scoop (1:1)
Ear-scoop

A single example of an ear-scoop (sf3394; Fig. 8.10) has a plain shaft of rectangular section and retains a copper alloy suspension loop. Within Early Anglo-Saxon graves ear-scoops are generally found in association with picks, which may have served as nail cleaners (MacGregor and Bolick 1993, 216–20; Drinkall and Foreman 1998, 288–9). Thereafter they are a scarce commodity and there are no published examples from Hamwic, Lundenwic, South Newbald or Fishergate at York, suggesting that this example might be of Early Anglo-Saxon date. Two sets of toilet implements, both with ear-scoops, were recovered from Barking Abbey, however, and an ear-scoop has also come from Flixborough (Webster and Backhouse 1991, 90 no. 67(1); Rogers et al. 2009, 30 and fig. 11.12.230).

Illustration

Ear-scoop with shaft of rectangular section, lightly curved, flat oval bowl at one end, suspension loop at other. Wire slip-knot ring attached to loop, wire thins as knotted. 2.5m sq. 3378.

Combs

The combs can be separated into four distinct groups: single-sided composite; doubled connecting plate; handled; and double-sided composite. Each of these types is considered in turn, after which broader characteristics of comb making at Brandon are examined.

Single-sided composite combs

Figs 8.11–8.12; Table 8.3

With a typological sequence that largely accords with and leaves the central area blank. The Ipswich comb, in applying decoration to the ends of the connecting plates, Wharram Percy utilise a common Middle Saxon system of lattice patterns on one of their connecting plates. The comb is undecorated but the other examples include open crossings diagonal lines, forming an open lattice confined within triple bounding lines. The other connecting plate is crossed with lateral lines above, separating fields with curved indentations. Unstratified 0001.

Iron tweezers

by Nicola Rogers

A pair of iron tweezers (sf4586; Fig. 8.10) with inturned tips and the remains of a suspension ring through the loop at the upper end, was found in topsoil, but may be of Saxon date. Although tweezers from this period are more commonly made of copper alloy (see above), iron examples have been found in Anglo-Scandinavian levels at 16–22 Coppergate, York (Ottaway 1992, 550–51, 2701–04) and in Middle Saxon deposits at the Royal Opera House site in London (Blackmore 2003b, 254–5, fig.60). Ottaway speculates that the smaller tweezers from Coppergate, all of which are larger than sf4586, were more likely to be toilet instruments, rather than tools used in cloth preparation (Ottaway 1992, 561).

Illustration

Possible pair of tweezers, tips inturned, loop at upper end with remains of ring in situ. L.47.5 W.11.5 Th.2mm. Unstratified 0001.
A similar design can also be seen on a number of combs from the 8th century (Tempel 1979, 167 and abbn 2.5, Elisenhof of Tempel’s groups B, C and D, which are dated to the 8th century (Dallas 1993, fig. 159.2). A small fragment of a comb (sf2545; Fig. 8.11) could well be contemporary with this comb, or even a little earlier in date. As Tempel noted, display sides occur on combs of 8th to 9th-century date (Tempel 1972, 57).

A small part of an unstratified connecting plate (sf2042; Fig. 8.11) could well be contemporary with this comb, or even a little earlier in date. It is decorated by a vertical column of single ring-and-dot patterns, enclosed by two vertical lines to either side, with blank spaces beyond. The decoration is substantially the same as that seen on a comb from the Burwell cemetery, which can be placed in the second half of the 7th century (Lethbridge 1931, 52 and fig. 25). A comb from Thetford, recovered from the fill of a sunken-featured building probably of 7th-century date, includes a variation on this pattern, with additional panels of decoration in triangular frames (Dallas 1993, fig. 159.2). A small fragment of a comb (sf2545) echoes the decoration seen on the example above, with an open lattice frame with two crossing diagonal lines bounded by a dense band of vertical incised lines. The central part of the comb was left blank, as was the other connecting plate, although little of these survive.

Two further antler combs (sf2038 and sf3827) survive to a greater extent. Both retain display sides but the decorated connecting plates include denser meshes of lattice patterning, extending across practically all of the available space. In each case divisions have been made across the connecting plates, separating the decoration into three fields but with the fields conjoined, and with small blank spaces between them and vertical or triangular bounding lines emphasising the divisions. A similar decorative arrangement is present also on several Frisian combs (Boeles 1951, pl. XLV.4; Roes 1963, pl. XVIII.2; Siegmüller 2010, abb 74.84–5 and 75.97). The Frisian parallels also include several combs from Elisenhof of Tempel’s groups B, C and D, which are dated to the 8th century (Tempel 1979, 167 and abbn 2.5, 3.10–11). A similar design can also be seen on a number of combs from Ipswich (Buttermarket and Foundation Street), which come from contexts of 9th-century date (Riddler et al. forthcoming). It is worth noting the transition from combs with blank, undecorated areas across the connecting plates, particularly at the centre, to a situation where dense lattice patterning is predominant, although display sides are retained.

One of the Brandon combs (sf2038; Fig. 8.11) has a large end segment with an angled back line and a curved back and baseline. Over half of the comb survives and it was relatively short, with a total length of approximately 170mm. The connecting plates are curved along the baseline and the upper edge and the teeth vary in length from the ends to the centre. Petitjean has noted that single-sided composite combs with arched connecting plates occur in late Merovingian contexts, and in England they are found from the 8th century onwards (Petitjean 1995, 157). The other comb (sf3827; Fig. 8.12) was originally longer, with a flat baseline. Although fragmentary, it is clear that the line of the winged end segments of the comb was continued on to the adjacent tooth segments, thereby emphasising the size and curvilinear nature of the comb ends. This too, is essentially a 9th-century characteristic within the Ipswich comb series. The blank connecting plate of this comb is made of whalebone, rather than antler. The use of whalebone in comb making is a Middle Saxon characteristic (Riddler forthcoming a).

Table 8.3 Single-sided composite combs

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</table>

The blank connecting plate of this comb is made of whalebone, rather than antler. The use of whalebone in comb making is a Middle Saxon characteristic (Riddler forthcoming a).

An antler connecting plate (sf2040; Fig. 8.11) includes sequences of vertical bands towards either end, with a blank area in the centre. This is a slightly unusual design for an East Anglian single-sided composite comb of the Middle Saxon period although there is a resemblance with a comb fragment that includes two bands (on an otherwise undecorated connecting plate) from Carlton Colville (Riddler 2009, 189 and fig. 4.13.130). Something of the same patterning, but usually with just a few thin vertical bands, occurs on double-sided composite combs of 8th-century date from Hare Court and the Royal Opera House in London, as well as Fishergate in York (Gaimster and Riddler 2004, 58 and fig. 68; Blackmore 2003c, 311.

247
Figure 8.11 Combs: single-sided composite (1:1)
Barrington Grave 105, where the ring and dot frames the end segments of a comb, although there are a number of examples, from Hamwic, Ipswich and Swallowcliffe Hamwic is also of this form, alongside those identified (independently of the phasing information) as amongst the earliest from the site. Both can be regarded as of late 7th or early 8th-century date. In contrast, the lattice mesh decorated combs (sf2038 and sf3827) come from contexts of Phase 2.1 or 2.2 and represent a later stage in comb making at Brandon.

**Illustrations**

| Fig. 8.11 |

s3724 Fragmentary comb consisting of five antler tooth segments and an end segment, secured to two antler connecting plates by four iron rivets, none of which now survive. Winged end segment with back rising to a point, straight outer edge, straight graduation of the teeth, almost all of which are now missing. One blank connecting plate with tooth marks on the lower edge. The other decorated by triple crossing diagonal lines forming lattice pattern at one end; bounded by three vertical incised lines. Tooth segments all riveted on one edge. Six teeth per centimetre. Layer 3708 (comp. 8156), Phase 1.2.

s2042 Small fragment of antler connecting plate including a framing line and row of three incised single ring-and-dot motifs, with double bounding lines to either side. From a broad plate of c. 23mm in width. No tooth marks. Unstratified 0001.

s2545 Fragment consisting of parts of three antler tooth segments, secured to two connecting plates by one iron rivet. From one side of the comb, close to the centre. One connecting plate is blank, the other has broad band of vertical incised lines and small part of a lattice design with double crossing lines. None of the teeth survive; tooth marks on both connecting plates. Ditch 4360 (comp. 6849), Phase 1.2.

s2038 Fragment with end segment, tooth segment and small fragment of second fastened to two connecting plates by two iron rivets, neither of which survives. Three rivet holes. Connecting plates have curved baseline and back. One is blank, other decorated with two sets of lattice patterning separated by two vertical incised lines. Two sets of vertical incised lines at end of the connecting plate. Central panel includes triangular space close to vertical lines. Both panels utilise paired crossing lines. Tooth marks mainly on the decorated connecting plate. Long end segment rises upwards from back of the comb to rounded apex with an angled outer edge. Fastened by two rivets. Teeth graduated to fit along curved baseline. Crude diagonal incised pattern inscribed on both sides of end segment. Most teeth survive, the longest extending to 25mm; five per centimetre. Blunt ends with gradual taper and wear more pronounced on one side than the other. Pit 0045, Phase 2.2.

s2040 Antler connecting plate fractured across rivet holes at either end, with third rivet hole towards centre. Decorated towards either end by bands of four closely spaced vertical incised lines. Lightly curved baseline. Central area blank, no tooth marks. Pit 0147, Phase 2.

s2541 Incomplete antler end segment with lightly inclined, straight back leading to rounded corner and angled outer edge. Teeth mostly absent, short in length with long graduation. No traces of wear. Secured by single rivet. File and knife marks on both sides, Six teeth per centimetre. Layer 4856, Saxon phase.

s3863 Incomplete antler end segment, sloping back rounded end angled outer edge. Short teeth, sinuous irregular graduation. Six per centimetre. Ditch 3839 (comp. 8143), York.

s5257 Incomplete antler end segment, sloping back rounded end, angled outer edge. Teeth cut close to edge, straight short graduation. Five per centimetre. Layer 5247, Phase 2.3.
Figure 8.12  Combs: single-sided composite and doubled connecting plate (1:1)
Double connecting plate combs

Figs 8.12–8.13

Three fragments can be identified from at least two double connecting plate combs. The comb fragment (sf3597) and the tooth segment (sf3628) come from the same context (ditch/2668), and could well be part of the same comb. The connecting plate (sf3628) clearly stems from a second comb.

The connecting plate (sf3628; Fig. 8.12) is elaborately decorated with strips of dense lattice mesh, a running design of interlocked double ring and dot motifs and key patterns. Flamboyant decoration is a common element of this comb type, under which a second connecting plate rises in large curve above a straight, thin connecting plate with the tooth segments elongated to fill part or all of the intervening space. Broadly similar patterning, with a central guilloche design and framing lines to either side, can be seen on one side of a double connecting plate comb from Dover, a comb which also includes bands of vertical incised lines towards either end, in the manner of the connecting plate (sf3628) described above (Philp 2003, fig. 41.31). The Dover comb was retrieved from a context within a sunken-featured building thought to be of 10th-century date, but all of the small finds from that layer date to the mid 7th to 8th century, and that ought to be the date of the layer itself, as well as the comb (Philp 2003, 8).

Key patterning occurs also on an unpublished double connecting plate comb of 8th-century date from Hamwic, as well as a comb of the same type from the Buttermarket at Ipswich, which also includes a running ring-and-dot design and lattice patterning, gathered however on the lower connecting plates (Riddler et al. forthcoming). It is seen also on a number of handled combs, including examples from Canterbury, Hainthabu and Maidenhead (Riddler 1990a, abb 1; 1990b, figs 1b–c and 2e) and is a feature of some contemporary Frisian combs (Siegmüller 2010, abb 74.88).

Approximately one third survives of a second comb (sf3597; Fig. 8.13), which has a rectangular winged end segment and connecting plates decorated with dense lattice patterning, recalling that of the single-sided composite comb series. Bands of lattice patterning can be seen also on a doubled connecting plate comb from Garton Slack Grave 21 and on the lower bar of a further example from the Buttermarket at Ipswich (Mortimer 1905, fig. 671; Riddler et al. forthcoming).

In strict terms, doubled connecting plate combs do not form a distinctive comb type. Rather, they are defined by the addition of a second connecting plate on either side of the comb, placed in juxtaposition to the customary plates. Extra connecting plates were added to a wide variety of late Roman and post-Roman combs, including both double and single-sided composites. The earliest forms of post-Roman doubled connecting plate comb include those with slender additional connecting plates abutted directly on to the principal elements of the comb. This system is seen on several triangular combs from Frisia and on single-sided composite combs from Alamannic graves, as well as an extended triangular comb from Hayton in Yorkshire (Roes 1963, pls IV.2 and VII.2; MacGregor 1985, 87; Petitjean 1995, pl. IX.1; Johnson 1978, 112–3). Doubled connecting plates, similarly grouped, are also seen on zoomorphic barred combs and are an essential characteristic of that comb type (Hills 1981).

Doubled connecting plate combs become more common during the later 7th and 8th centuries and they are based on winged comb designs, with the second connecting plate rising above the first. Both of the Brandon combs belong to this type, which occurs in graves at Dunstable and Garton Slack, and in settlement contexts at Bantham, Cambridge, Canterbury, Dover, Hamwic, Ipswich, New Wintles Farm and West Stow (MacGregor 1985, 86–7 and fig. 49b; Riddler et al. forthcoming; West 1985, fig. 61.3). Smaller fragments have also come from Winchester and York (Biddle 1990, fig. 182; Rogers 1993, fig. 679.5716 and 5718). The latest examples of the comb type come from contexts of 9th-century date.

Illustrations

Fig. 8.13

Comb fragment with end segment, six tooth segments and parts of four antler connecting plates. Long rectangular undecorated end segment, sloping back and wide space beyond teeth. Narrow rectangular lower connecting plates with dense lattice patterning at one end, bounded by two vertical lines. Other side is blank. Similar patterning on one broad upper connecting plate, with just one rivet hole present. Seven teeth per centimetre. Ditch/2668. Phase 2.4.

Handled combs

Figs 8.13–8.15; Table 8.4

The assemblage of handled combs rivals that of single-sided composite combs for its size. There are two substantial comb fragments, as well as five handles, four small fragments of connecting plates, one front end segment (as defined in Riddler 1990b, 10) and four tooth segments. At least eight separate handled combs are present within the assemblage. Table 8.4 indicates that, in contrast to the other comb types, most of the handled combs are made of bone. Unfortunately, few come from stratified contexts.

Three handles (sf2037, sf2542 and sf2586; Figs 8.13–8.14) are decorated in a similar manner to the comb
fragment (sf2173; Fig. 8.14). In each case the end of the handle is marked by a band of lateral lines that encompasses the entire circumference and a second band of lateral lines is located behind the back end segment. This band is limited to one connecting plate only, indicating that each comb possessed a display side. The comb fragment (sf2173) includes another lateral band close to the front end of the comb. In addition, several fragments (sf2523, sf4163, sf4240 and sf4242) stem from the same context and belong to a bone handled comb of this type. Several other fragments probably also belong to this group. A smaller fragment of a bone handle (sf2765) is undecorated at its end, whilst a section of bone connecting plate (sf4265; Fig. 8.14) has a vestige of decoration at the front end. Six of the eight handled combs belong to this group.

Sparsely decorated bone handled combs of this type, all of which include display sides, include examples from Canterbury, Great Wakering, Hamwic, Ipswich, London, North Elmham, Thetford, Westbury and York (Rady 1987, fig. 29.52; Riddler 1990b, 13–14 and fig. 2a; 1995, 390 and fig. 182.2; Riddler et al. forthcoming; Wade-Martins 1980, fig. 259.3–4; Dallas 1993, fig. 162.18; MacGregor et al. 1999, fig. 895.7683 and 7686). A small fragment of a handled comb, almost certainly of this type, was recovered from West Stow (West 1985, fig. 253.15). The comb type was in use during the 8th and 9th centuries, probably during the period c. AD 720–850. The majority of examples are from 8th-century contexts but those from London, Thetford and Skeldergate in York are possibly of Late Saxon date, although they could conceivably be residual finds. Other examples from York certainly belong within this period (MacGregor et al. 1999, 1935). Almost all known examples of the type are made from bone. There is no corroboratory dating evidence from the site phasing itself and only the handle fragment (sf2765) is stratified; it comes from a Phase 2.3.1 context.

The antler handle (sf4194; Fig. 8.14) contrasts markedly with this group. It is decorated across almost all of the available space by lateral bands of lines, alternating with key pattern. The end of the handle is hollow, with two rows of perforations set within an otherwise blank band. A small fragment of a bone handled comb (sf2044; Fig. 8.14) is also decorated across its entire surface by lateral lines, although a second piece of a connecting plate is undecorated. It can be placed into this group of highly decorated handled combs but the precise form of its handle is unknown. Handled combs with hollowed handles and rows of indentations or perforations have been discussed on several occasions (Riddler 1990b, 14; 1990a; 1997; 2002, 40–1, fig. 4.9 and pl. 4.4; Riddler et al. forthcoming). Almost half of the known examples have come from East Anglia. Dating evidence suggests that they belong to the period from the second half of the 9th century to the early 10th century (Riddler 2002, 40–1). Within East Anglia they have been found at Flatford Mill, Ipswich, Saffron Walden, Sedgeford and St Neots (Riddler 1997, 194).

The front end and the handle are now missing of a further handled comb (sf4434/4442; Fig. 8.15), which differs noticeably from the remainder for its construction. The comb includes part of a front end segment and nine tooth segments, a little more than the average for a handled comb. Few handled combs include more than four tooth segments. The connecting plates widen gradually towards the handle and both are decorated by bands of lateral lines, with small gaps between them. It is the closely spaced riveting, however, that stands out in looking at this comb.

Closely spaced even riveting is commonly associated with combs of 11th to 12th-century date, as with those from Dublin and Schleswig, for example (Riddler and Trzaska-Nartowski forthcoming; Ulbricht 1984, tafn 29.4–6, 70.4.7 and 71.6; Riddler 1990b, 15). It is also seen, however, on two undecorated handled combs from the same workshop, retrieved from London and Haithabu, as well as on handled combs from Canterbury, Hamwic and Sedgeford (Riddler 1990b, 15–16; 1990a, 179 and abb 1.2–3; Blockley et al. 1995, 1163 and fig. 513.1174; Hodges 1980, fig. 1.2). Several of these combs have display sides and it suggests that the practice of closely spaced, even riveting goes back to the 10th century in connection with handled combs, if not necessarily with other comb forms. The recovery of the Brandon comb from a Phase 2 context allows for the possibility that it extends back still further perhaps, into the later 9th century, which would accord with the presence of display sides on some examples.

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Table 8.4 Handled combs
Figure 8.13 Combs: doubled connecting plate and handled (1:1)
Illustrations

Fig. 8.13

sf2037 Handle and part of connecting plate produced from small horse
metatarsus. Proximal end of bone sawn laterally and trimmed,
foramen visible along handle. End of handle decorated by six
lateral lines. One connecting plate similarly decorated, highly
polished. Unstratified 0001.
sf2542 Handle and part of connecting plates produced from a cattle
metatarsus. Sawn across proximal foramen and smoothed to
cylindrical shape, leaving traces of cortical tissue. Decorated at
end by three pairs of incised lateral lines, cut with saw blade
0.6mm in width. Central channel has been drilled and sawn
leaving gap of 5mm between connecting plates. One side
decorated by band of five vertical incised lines. Unstratified
0001.

Fig. 8.14

sf2542 Handle and part of connecting plates produced from a cattle
metatarsus. Sawn across proximal foramen leaving cortical tissue
at its end. Decorated by sinuous band of lateral incised lines, cut
by saw in roughly six sections. One connecting plate includes
vertical incised band, with at least ten lines, again cut by saw, blade width of 0.7mm. Part of back end segment survives with no comb teeth. Handle is highly polished. MD hole 5384 (peninsula 6458), unphased.

sf4265 Section of undecorated bone connecting plate for handled comb with teeth marks on lower edge. Fractured across rivet holes at either end. Five teeth per centimetre. 2.5m sq. 4150.

sf4242 Handle and part of connecting plates, produced from a cattle metatarsus. Proximal end of bone sawn laterally across foramen, leaving cortile tissue at end. Trimmed to cylindrical shape, decorated with broad band of eleven lateral incised lines, cut with saw blade of 0.6mm width. One connecting plate retains vestige of similar lateral band. Drill hole can be seen within channel, as well as saw impression 0.9mm in width. Rasp and drawing knife marks visible; highly polished. Additional fragments in sf2532, sf4240 and 4163. 2.5m sq. 4163.

sf4194 Antler handle, perforated axially to channel and decorated by bands of lateral incised lines, alternating with key pattern. Also one band of two rows of perforations, all slightly splayed at apex. One connecting plate continues decorative scheme, other is blank. Tooth marks on decorative connecting plate, five teeth per centimetre. 2.5m sq. 4153.

sf2044 Four small fragments, all stemming from connecting plates and produced from a cattle metapodial. One piece decorated throughout by vertical incised lines, cut by saw blade 0.7mm in width. Pierced by oval foramen at centre, with trace of rivet hole at one end; slightly burnt. Two further pieces contain continuation of foramen on to opposite connecting plate. Unstratified 0001.

sf1611 Fragmentary antler front end segment for a handled comb, with curving back line leading to broad space in front of teeth graduated in a curve. Stubs of teeth survive. Cortile tissue visible on one side. Pit 0511, Phase 1.2.

Fig. 8.15

sf2043 Fragmentary bone tooth segment from a handled comb, with sloping back line which is echoed by straight baseline. Teeth survive only as stubs. Foramen in centre of segment, originally fastened on one edge. Unstratified 0001.

sf4442 Connecting plates and tooth segments of highly decorated antler handled comb. Both connecting plates decorated by bands of vertical incised lines with small spaces between them. Bands cut with saw blade 0.5mm in width, whilst tooth marks that occur on one connecting plate are 0.8mm. One end segment and six tooth segments are retained by ten closely spaced iron rivets, set at 8–13mm intervals. No teeth survive. Connecting plates have been polished. At front end connecting plates are trimmed in a curve, with front end segment projecting beyond them. sf2546, sf4434 and sf4435 are also part of this comb. Pit 4431, Phase 2.

Double-sided composite combs

The only evidence for the use of double-sided composite combs at Brandon is provided by two tooth segments (sf3519 and sf3520; Fig. 8.15), recovered from the same context and probably deriving from the same comb. One tooth segment (sf3519) has teeth with blunt ends, one set of which show signs of considerable wear, and there are six teeth per centimetre on both sides. The second segment (sf3520) is fragmentary but also utilises blunt teeth with some traces of wear. The use of teeth of similar fineness is common in the Middle Saxon period and the presence of four to seven teeth on either side of the comb is the customary situation at Hamwic, Ipswich and Lundenwic (Riddler 2004, 147–8 and figs 77–8).

Illustrations

sf3520 Complete antler tooth segment, both sets of teeth of same fineness and length. Six teeth per centimetre. Originally fastened on one edge. 2.5m sq. 3473.

sf3519 Fragmentary antler tooth segment for which only one set of teeth survive. Six teeth per centimetre. 2.5m sq. 3473.

Comb making

Direct evidence for the manufacture of combs at Brandon is almost entirely lacking. The only fragment of waste material consists of a sawn antler tine end (sf3854). However, the combs themselves can be placed within a regional context. The Middle Saxon assemblage from
Brandon consists almost entirely of single-sided composite combs. Of the three groups of single-sided combs represented, there are at least nine single-sided composites, eight handled combs and two doubled connecting plate combs. Just one double-sided composite comb was recovered. The predominance of single-sided combs is a feature of sites north of Lundenwic, within East Anglia and Northumbria (Riddler 2004, 147 and fig. 76). Brandon shares this characteristic with contemporary assemblages from Ipswich and Sedgeford in East Anglia, as well as Cottam, Flixborough and York further to the north. There are few Middle Saxon combs from Thetford but they do include some of the forms seen at Brandon. The slightly earlier assemblage from Carlton Colville consists mainly of single-sided composite combs, which outnumber double-sided composites in a ratio of 2:1 (Riddler 2009).

The earlier forms of single-sided composite comb are decorated with lattice designs or ring-and-dot patterning and retain large areas of blank space, including entire blank connecting plates on the reverse face. The concept of a display side is seen both with these combs and with the early series of handled combs, which are also sparsely decorated, with simple bands of lateral lines cut by saw. The later types of both comb groups are more elaborately decorated. The single-sided composite combs include two examples that retain display sides, with one connecting plate entirely undecorated, but with a dense mesh lattice patterning across most of the other connecting plate. The perforated handled comb (sf4194) is elaborately decorated and retains a display side, echoing the developments in the single-sided series. The comb with closely-spaced riveting (sf4442) is the only example from Brandon to retain the same decoration on both connecting plates, and it is likely to be the latest comb from the site. A general tendency towards denser decoration within the later part of the Middle Saxon period can be established across the two main comb groups.

Where the number of teeth per centimetre can be established, it varies between four and six for the comb assemblage, with just two exceptions. The small comb fragment (sf2545) has saw marks on the lower part of the connecting plates and these indicate that there were seven teeth per centimetre. The doubled connecting plate comb (sf3597) also has seven teeth per centimetre. Coarser teeth are more suitable for longer hair and finer teeth are generally preferred for shorter hair. The range of fineness of the teeth is fairly restricted and there are no examples of combs with exceptionally fine teeth. These have been found in small numbers at Hamwic, Ipswich and Lundenwic, almost entirely as double-sided composite combs, which were conceivably used as nit combs (Riddler 2004, 148). At Brandon, as elsewhere, doubled connecting plate combs have the finest teeth, with handled combs providing the coarsest teeth.

The single-sided composite combs reflect the handled comb series in terms of their decoration and the number of teeth per centimetre. They differ largely in their choice of material, with the sparsely decorated handled combs being made entirely of bone. The sequence of manufacture of the handled combs can be established from the surviving examples. Cattle metatarsals were used for the handles (although one comb uses a horse metatarsal), set in each case on their side with the proximal end forming the handle, its epiphysis removed by sawing. The handles were trimmed to a conical form, which largely entailed the removal of the outer surface at the proximal end. The distal end was also removed by sawing. The channel for the tooth segments was cut with a saw, utilising a blade 0.9–1.1mm in width. Prior to this it was customary for a drill hole to be made at the end of the channel, which served as a guide and traces of these holes can still be seen on several of the handled combs (sf2542 and sf4242). The tooth segments are made of bone and one (sf2043) retains part of a foramen. Where the back end segment survives (sf2173, sf2353 and sf4240) it is devoid of any teeth at all. This characteristic tends to be seen on handled combs of 8th-century date, as with several of those from London, for example (Riddler 1990b, fig 2a and b) although other combs of this date have graduated teeth across the back end segment. Later forms of handled comb invariably have teeth cut across the back end segment. The decoration was cut with a saw blade of 0.6–0.7mm in width, the same width as the saw used to cut the teeth.

Little remains of most of the combs and it is difficult to reconstruct their original sizes. Of the single-sided composite combs, the early example (sf3724) was probably c.150mm in length, whilst the later examples (sf2038 and sf3827) were 180–200mm. The doubled connecting plate comb (sf3597) was of a similar length. One end segment (2357) retains a suspension hole. A number of single-sided composite combs of 7th-century date, including those from Barrington, Bledlow, Burwell, Melbourn and Polhill also retain suspension holes. Thereafter they are much less common. They do not occur on any of the Middle Saxon single-sided composite combs from Ipswich, with the exception of a doubled connecting plate comb, and they can be seen on two further combs of that type, from Canterbury and York (Riddler et al. forthcoming). They are absent, however, from both single-sided composite combs and handled combs. The fashion for suspending a comb appears to gather momentum in the later 6th to early 7th century and to be a feature of the 7th century, effectively ceasing by the middle of the 8th century. It was revived in the Late Saxon period, if only on a small number of combs. It was noted above that the decoration of this end segment was best compared with combs of the later 7th century and the presence of a suspension hole would also fit that dating very well.

IV. Literacy and communication

Styli
by Ian Riddler
Fig. 8.16; Pl. 8.7
The three copper alloy styli from Brandon (Fig. 8.16 and Pl. 8.7) have been published previously (Webster and Backhouse 1991, 86–7, nos 66(r)–(t)). One stylus (sf2009) was recovered from a Phase 1.2 context at the waterfront, whilst the other two (sf4980 and sf4993), which are similar in design, were found in close proximity in contexts of Phase 2.3.1. The distinctions in dating are reflected in the design of the implements, the earlier stylus (sf2009) retaining a simple shaft of circular section and a spatulate eraser, the object embellished by two sets of lateral incised lines. Two of the styli from Whitby have the same form and sparse decoration, as does a stylus from Sudbourne (Peers and Radford 1943, fig. 15.1 and 4; West 1998, fig. 127.9). The later stylus (sf4980 and sf4993) are more elaborate, with double curved sides to the spatulate
ends and with shafts of octagonal section in part, separated by mouldings. They have more in common with styli from Flixborough, as well as an example from Whitthorn (Webster and Backhouse 1991, 100 nos 69(v) and (w); Ulmschneider 2000, 70 and fig. 3b; Nicholson 1997, fig. 10.65.1; Pestell 2009a and b).

Illustrations
sf2009 Ae. Undecorated spatulate upper end, separated from circular shaft by three lateral incised lines. Cylindrical shaft widening very slightly over lower part, where there are two lateral incised lines, then tapering to point, with rounded tip. Ditch 0135 (comp. 6852), Phase 1.2.

sf4993 Ae. Near complete. Long spatulate end tapered in section from shaft to rounded upper edge. Single framing line on both sides. Widens from shaft in light sinuous curves to apex. Square moulding above shaft, rounded one below which has two vertical lines on each side and a medial line on the obverse. Double roll moulding next to shaft, which is circular in section. Five mouldings further down shaft with lower part of octagonal section, tapering to point, tip missing. 2.5m sq. 4967, Phase 2.3.1.

sf4980 Ae. Long spatulate end with convex curved apex, the sides widening sinuously in two curves and the broad faces tapering in thickness. Collar separates spatulate end from cylindrical shaft, which is octagonal in section with two further collars midway along its length, defining an area of circular section. Shaft tapers to rounded point. 2.5m sq. 4970, Phase 2.3.1.

Gold plaque
A small gold plaque (Fig. 8.16), measuring 33 x 35mm, was found at Staunch Meadow in 1978 by a metal-detectorist (Webster and Backhouse 1991, 82). The plaque includes attachment holes at each corner and a simple niello-inlaid frame on three sides, enclosing a depiction of the evangelist symbol for St John. The symbol is portrayed as a haloed eagle’s head set on a human body, the right hand grasping a pen whilst the left hand retains a book. The inscription SCS/EVA/N/GE/LI/ST/A/IO/HAN/NIS, ‘St John the Evangelist’, surrounds the figure. The plaque can be dated on stylistic grounds to the late 8th to early 9th century and would originally have formed a part of a set of four evangelist portraits, secured to a book cover or the terminals of a cross, or perhaps a shrine (Hinton 2005, 97; Karkov 2011, 98). Webster, Hinton and Brown have all drawn comparisons with the evangelist portraits of the Book of Cerne and have emphasised the high quality of the piece (Webster and Backhouse 1991, 82; Hinton 2005, 97; Foot 2006, 221). Pestell’s observation that ‘Finds such as the plaque from Brandon hint at the former existence of books but only in terms of ownership rather than their production on site’ (Pestell 2004, 37) is a salutary reminder that the plaque may not have been made at
Brandon, although the high status of the site and its material culture would render this perfectly possible.

**Glass inkwells**
by Vera Evison
Pl. 8.8
A few flat fragments of glass have a small circular opening less than a centimetre in diameter, surrounded by a thickening in concentric circular ridges which reveal the procedure of the folding back of the vessel rim with a very narrow diameter. These formed the top of a small cylindrical vessel, probably functioning as an inkwell, pyxis or lamp. Sf2128 (Pl. 8.8) is blue-green with dark streaks, and sf3840 and sf5984 (Pl. 8.8), two joining pieces, are green-blue with dark streaks. The shape seems specifically designed as an inkwell as the perforation is at the bottom of a depression so that when in use droplets would run back into the pot. The upper surface of the olive green fragment sf4229 sinks to a perforation and is surrounded by concentric markings, while the under side is smooth and glossy. Two glossy black fragments sf5954 and sf5955a join (Pl. 8.8), with a concentric thickening of a fold round the 4mm perforation (Evison 2000a, 82, fig. 14c). Other black inkwells were decorated: sf2374 has two concentric channels of a lost trail, but sf5525 shows seven turns of a marvered yellow trail spiralling round the perforation (Evison 2000a, 82, fig. 14d). The eight fragments indicate a total of six inkwells, one each of blue-green, green-blue and olive and three of black.

Fragments of this form may have gone unrecognised amongst other assemblages as only the comparatively tiny area of the aperture gives a clear indication of the function of the vessels. No such form has been attributed to the period AD 400–700 in England, but a variety of forms
with a perforated top are known from the Roman period in north-west Europe, the shape of the vessel being circular, square or hexagonal in plan, and there were usually handles for suspension at the top (Isings 1957, form 77; Guiry-en-Vexin 1993, 74 no. 246). These forms continued in the Middle East between the 6th and 10th centuries (von Saldern 1974, 397, 404; Whittlehouse 1974, pl. 1lb).

The appearance of these vessels in Saxon England at the time of the beginning of manuscript production suggests the probability that they were used as inkwells, although other uses for narrow-necked containers cannot be ruled out. Animal horns were used as ink containers as may be seen from manuscript illustrations of the Carolingian period, and a small glass horn with a decorated rim unsuitable for drinking purposes was found in a male grave at Vendeuil, France (Evison 1990; Heyworth 1990). An antler version from Brandon is described below.

Apart from Brandon, Saxon glass inkwells have only been recorded in England at Southampton and Lurk Lane, Beverley, Yorks (Henderson 1991, 126, no 217, fig. 100; Henderson 1993, fig. 4, 217; Evison 2000a, 82, fig. 14.6). The fragment which occurred at Lurk Lane was regarded as a possible bottle base. It is, however, the top of the vessel, sinking to a perforation diameter 6.6mm, surrounded by concentric ridges. The colour, light green with red streaks is partly masked by surface iridescence. It occurred in Phase 4A of that excavation, allocated to the 9th century.

From Southampton three more colourful fragments have been published, where they were regarded as vessel bases: 99/113 blue, 24/510 blue with yellow trails and 169/770 dark green with yellow trails (Hunter and Heyworth 1998, 16, fig. 13, pl. 5 and pl. 8).

The form has also been noticed at Liège, Belgium (Evison 1988b, 215–6, fig. 140, 1). This is a light green fragment of a similar vessel and the rim of the small hole on this vessel is folded back without being melted in, while the surface is milky and iridescent like the Lurk Lane piece. The deterioration suggests potash rather than soda glass. The Liège fragment has not been analysed, but the analysis of this Lurk Lane fragment (although the surface is milky and iridescent like the Lurk Lane piece. The deterioration suggests potash rather than soda glass. Glossy both sides, few bubbles. With sf3840. Ditch 3819 (comp. 6849), Phase 2 and 2.5m sq. 5386, Phase 2.3.1. Several different forms and functions can be identified within the object type. The shorter, straight examples with lateral perforations, of Becker type A, were almost certainly used as arrowheads (Ulbricht 1978, 83; Becker 1989, 130). Short hollowed tines from Berlin-Spandau and Wolin include chevron patterns at their hollowed ends, similar to the Brandon design (Becker 1989, taf 41.1, Cnotliwy 1970, ryc 24h).

The longer, curved and extensively decorated tines, which are seen here and belong to Becker’s type B, clearly fulfilled a different function, however, which has been discussed on several occasions, without achieving any overall consensus (Kavánová 1995, 222). Indeed, there may be several functions for this small corpus of implements. The Brandon object has four lateral perforations, two containing copper alloy rivets, and a slightly indented surface at the hollowed end. The rivets would not have held anything substantial and were probably used to fasten an outer cover of copper alloy. With a decorative mount at the hollowed end, the tine would resemble a miniature drinking horn, acting effectively as a skemouph of those produced in glass and horn. Several hollowed antler tines from an Alamannic grave were also encased in copper alloy mounts (Veck 1931, 337 and pl. 66.2). The form of the composite object, with its metallic rim, suggests that it may have functioned as an inkwell. Two forms of inkwell are shown in early medieval manuscripts. The first resembles the glass inkwells recovered from Brandon, although it can also occur as an inverted cone, as with the evangelist portrait from the Maeseck Gospels, for example (Alexander 1978, pl. 87). The second form resembles a miniature drinking horn and can be seen in Carolingian manuscripts, and notably the portrait of St Matthew in the Ebo Gospels (Mütherich and Gaehde 1977, pl. 14). Antler inkwells are attested in two of the Riddles (88 and 93) of the Exeter Book, confirming that inkwells were produced in this material during the Anglo-Saxon period (Krap and Dobbie 1936).

**Plate 8.8**

sf5954–5 Black, 1.5–6mm thick. Flat fragment of top of vessel with perforation diameter 4mm. Remains of turned-back rim surrounding the perforation on the upper surface. Glossy. Layer 6003 (peninsula 8116), Phase 2.2.

sf5984 Green-blue dark streak, 1–5.4mm thick. Convex fragment dipping and thickening towards centre. Dull and abraded on upper surface and with a concentric ridge. Glossy inside. Bubbles. With sf3840. Ditch 3819 (comp. 6849), Phase 2 and 2.5m sq. 5386, Phase 2.3.1.

sf2374 Black, 2.5–4mm thick. Flat fragment, part of a perforation 7mm in diameter, surrounded by two concentric channels of lost trails on the concave side, the lower side glossy and convex. This part at the edge show dark red in transmitted light. 2.5m sq. 4158.

**Antler inkwell**

by Ian Riddler

*Fig. 8.17*

A perforated and decorated tine (sf9879) carries a Runic inscription (see below) indicating its raw material. A similar inscription occurs on a section of antler beam from Dublin (Barnes et al. 1997, 39–42 and pls XVI–XVIII). Perforated and decorated tine ends have been found in some numbers at sites of 9th-century and later date, including Berlin-Spandau, Dublin, Haithabu, Mikulčice and York (Becker 1989, 129–31; Kavánová 1995, 220–2; Ulbricht 1978, 83–4 and taf 46; MacGregor et al. 1999, 1993–4). Several different forms and functions can be identified within the object type. The shorter, straight examples with lateral perforations, of Becker type A, were almost certainly used as arrowheads (Ulbricht 1978, 83; Becker 1989, 130). Short hollowed tines from Berlin-Spandau and Wolin include chevron patterns at their hollowed ends, similar to the Brandon design (Becker 1989, taf 41.1, Cnotliwy 1970, ryc 24h).

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Runic inscriptions
by Ray Page

Introduction
Three objects have inscriptions in Anglo-Saxon runes: the gilded head of pin sf8679 has two lines of runes inscribed on its back; the fragment of a pair of silver tweezers sf0836 has a single line of six formal runes on one side; the antler tine sf9879 has a single line of less formal runes, partly worn away towards the end, cut along one side. For the transliteration system used see Page (1999a, 38–48).

There follows on the second line a group of apparently arbitrary scratches which I take to be space-fillers. Line 1 occupies 2.6cm, line 2 0.8cm, each measuring from first to last vertical. Letter height varies between 0.55 (‘f’) and 0.8cm (‘h’). Runes are neatly scratched, but their tiny size.
made it difficult for the rune-carver to be precise. Lines sometimes overcut their joins (‘b’, ‘r’) or fall short of them (‘w’, ‘p’) or in one case both (‘j’). The cross at the centre of ‘j’ is double-cut. ‘i’ has a twig sloping down to the right from its centre, but this is presumably an error, perhaps an accidental slip from a stave of the following ‘j’. Running in from the left edge to the base of ‘f’ is a long and deep scratch, presumably accidental.

Interpretation
From early times the rune-row had a standard order, parallel to but different from that of the Roman alphabet. It is called the futhark, from the values of its first six letters. The earliest examples consist of twenty-four graphs, and in some cases these are divided into three groups of eight graphs each, these subdivisions known to runic scholars by the later (Scandinavian) term ættir. The Anglo-Saxon rune-row has its equivalent futhorc, which differs in certain diagnostic ways from those of the rest of Germany. It has a number of additional runes, while some of its common ones have distinctive forms and values in English use (summarised in Parsons 1999, 32–6). The Brandon pin gives the runes of the first two ættir of an Anglo-Saxon futhorc, though they are not so divided up. Why these two ættir only are on the pin head is not known, but it is possible that the rest of the futhorc was cut on a matching pin of the set.

Anglo-Saxon futhorcs are recorded in a number of manuscripts (for which see Derolez 1954). The only complete epigraphic example known is inlaid in the blade of the Thames scramasax (Page 1999a, 80). Another partial example, the first seven letters, has recently been found near Malton, North Yorkshire (Page 1999b, 11). The purpose of such futhorcs is not established. There are numbers of examples of inscribed futharks in the Scandinavian tradition, and one common explanation, unproveable, is that they have magical purpose, perhaps to protect the inscriber or wearer.

The Brandon part-futhorc has several distinctive features. Its form of ‘s’ is one that is comparatively rare in inscriptions, though found also in some manuscripts. The 7th and 12th runes call for comment. Rune 7 of a futhorc is commonly ‘g’, X. In Brandon, however, it has been replaced by i (‘j’), a graph that occurs a few times in inscriptions denoting a palatalised g followed by i, as in the personal name ‘jilusip’ on the Thornhill III (West Yorkshire) memorial stone. The same rune form is recorded in some manuscripts as an additional letter at the end of the rune-row, with the rune-name ior, iar. Rune 12 has the form § which appears in this place in the early manuscript accounts of the script. It has not as yet been found in any other Anglo-Saxon inscription.
Silver tweezers sf0836

Pl. 8.10

The text reads:

\[
\begin{array}{cccc}
1 & 5 & 10 & 15 \\
\text{+ a l d r e d} \\
\end{array}
\]

The runes and the lines that frame the text are cut along the outer side of the tweezers. The inscription is 1.3cm long (excluding the opening cross). Letter height increases from 0.25 (‘a’) to 0.35 cm (‘r’). Some verticals cut into the framing lines, as ‘r’, ‘e’ at their tops. Indeed, ‘e’ is rather poorly shaped since its top is distorted by colliding with the frame. Otherwise, the runes are quite neatly formed, and have rough attempts at serifs.

Interpretation

A rather crudely shaped cross opens the inscription, which gives the masculine personal name Aldred. This form is presumably Anglian, for it has neither fronting nor diphthongisation of its initial vowel (Campbell 1959, §143). Otherwise it has no distinctive features which would enable us to localise or to date it with any precision.

Antler tine sf9879

The text is poorly preserved towards the end. What certainly survives is to be read:

\[
\begin{array}{cccc}
1 & 5 & 10 & 15 \\
\text{w o h s w i l d u m d e o} \\
\end{array}
\]

The letters run along the line of the antler, the inscription length c.60mm, though the final graph is unclear (Fig. 8.17). The runes are c.5mm high, though this again is approximate as some bases fade away in the curve of the antler and others are perhaps worn with handling. The antler surface is pitted and details of graphs may be lost. There is also the possibility of letter forms being distorted by the surface curve. The text begins some 3mm from a slightly cut line that encircles the wider end of the antler, so we know nothing is lost at the beginning. There is plenty of room after rune 15, but no sign of anything further. Presumably we have virtually all of this text.

The rune forms were not elegantly formed. Some joins were not made (as rune 1 ‘w’, the base of rune 3 ‘h’), others were overcut (as rune 2 ‘o’). The crossing of rune 10 ‘m’ is crudely achieved. Staves are sometimes damaged or obscured by surface wear, so that, for example, the tops of runes 12–13 ‘e o’ are implied but not clearly traceable. Of rune 14 only a fragment of a bow remains, which could be ‘r’ but equally could be ‘w’ or even perhaps ‘þ’. Parsons (1991, 10) left it uncertain of reading, though acceptable as ‘r’ on contextual grounds. Of rune 15 the outline of ‘a’ is faintly visible. Its lower twig seems to run back and overcut its vertical, which enabled Parsons to read here a bind-run ‘a n’. Under high magnification this line does not look as clearly formed as others in the inscription, so I hesitate in accepting it.

Interpretation

The text is not separated into individual words, but there is undoubtedly a meaningful inscription here. Dividing it into at least three words, wohs wifdam deor[,], we have a riddling inscription of a common Anglo-Saxon type (Parsons 1999, 118 reading deoran). Perhaps the object is speaking: ‘[I] grew on a wild beast’. Or less dramatically ‘[This/It] grew on a wild beast’. Both suit the deer’s antler converted into a working object. The problem is the final group of runes, which could be interpreted either as deora or deoran, or, theoretically, deowa/deowan, deopa/deapan. The common collocation of deor with wild makes it most likely that the Brandon carver intended the first of these pairs.

The problem is with the noun ending. Old English deor is commonly a neuter noun and here must be in the dative case; which should be deore. However, the Toronto Old English Concordance and Dictionary of Old English
suggest a very occasional oblique weak form deoran (implying a weak nominative *deora) This is not decisive as, in the examples I have traced, the form could be a late dative plural derived from earlier -um (cf. Campbell 1959, §378, referring however to late West Saxon). Whether a plural would serve in the Brandon case, ‘(I, This) grew on wild beasts’ is doubtful. Moreover, the -um ending remains in wildum, which would cast doubt on its decline in deor an. Derolez (1992, 8) solved the problem by reading here two words deor an. The last is interpreted as the preposition ‘on’ used here in postposition, with deor an unmarked dative singular. The problem remains unsolved. We must be content with saying that the general sense of this inscription is adequately clear, even if details are obscure.

Summary
The three runic inscriptions from Brandon represent three uses of the script. The pin shows it in some sort of semi-learned use (as a Roman alphabet would be in a modern inscription). Its part-futhorc has links with manuscript runes, though they are not cогent ones. The fragment of tweezers evidences the script used for a practical purpose, an ownership mark, but presented rather formally — seriffed — as though by a carver who also knew Roman inscription practices. The antler gives an everyday, undecorated form of runic text which nevertheless, by its very content also implies some awareness of literary forms. The Anglo-Saxon riddle, representing an object speaking on its own behalf and defining itself in somewhat ambiguous terms, is quite common, both in Latin and the vernacular.

There is nothing in any of the inscriptions to suggest a precise date, but they are consistent with the Middle Saxon dating of the site in general. The runes suggest a community with some learning and literacy, not necessarily profound. But it should be stressed that they should not be taken as the only examples of that from this site. Though it is customary to treat runic and Roman inscriptions separately, there is no justification for that. These runic inscriptions should be seen as the work of a community that could also produce the learned and elegant inscribed gold plaque showing St John the Evangelist, and with a professionally cut Latin text naming the saint (Webster and Backhouse 1991, no.66(a)). It was clearly a community with a variety of literate skills.

Recent discoveries have added much to our knowledge of runic usage in East Anglia, both in the earlier Anglo-Saxon period (pre-650) and the later (Page 1999a, 28, 30). Particularly impressive is the mid 8th-century coinage of Beonna, now known to be far more plentiful than previously realised, which shows extensive use of runes as an administrative script (Archibald 1985; Archibald and Fenwick 1995). On the distribution pattern evidence Thetford, a few kilometres from Brandon, is suggested as one of Beonna’s mint towns (Archibald and Fenwick 1995, 5–7). The Brandon finds help to confirm the more general knowledge of runes in the region.

V. Miscellaneous objects
by Ian Riddler

Rings
Fig. 8.18
The eighteen copper alloy rings can be divided into three distinct types. Eight rings have been cast to an annular form, whilst five are penannular wire rings and one is a slip-knot ring. There are also five small, thin oval rings, which were recovered from a sample. Seven of the cast annular rings (sf1128, sf2284 (Fig. 8.18), sf2285, sf2286, sf2774, sf4927 and sf5460) have flat faces of uneven width with bevelled edges. They tend to be oval in shape, rather than circular, and vary in diameter between 22–38mm with the majority, however, lying between 28 and 33mm. One of these rings (sf2774) retains file marks on both the flat faces and the bevelled edges and it shows no signs of use. In contrast, another ring (sf2285) is rounded and worn.

One example (sf4927; Fig. 8.18) comes from a context of Phase 2.3.1, whilst the others are unstratified. Annular rings of this type (with flat surfaces, bevelled edges and an uneven width) are commonly seen in medieval deposits, as at London and York for example, and some of the Brandon rings could be of this date (Egan 1998, 62–4; Ottaway and Rogers 2002, fig. 1430.13329 and 14254). Earlier examples are also known, however. Undecorated copper alloy rings from Early Anglo-Saxon graves are usually circular in section, as at Castledyke South, although the same cemetery produced one example comparable with this Brandon type (Drinkall and Foreman 1998, figs 102.158.6 and 103.163.3). Copper alloy rings of a broad profile and sub-oval shape were found also at Hadleigh Road, Ipswich (West 1998, fig. 67.1–3). The eighth annular ring (sf6888; Fig. 8.18) has a D-shaped section and a neater, circular form. It is similar in both size and shape to examples from Cottam and York (Haldenby 1992, fig. 5.2; MacGregor 1982, 91 and fig. 47.453).

All four penannular rings are made from wire and two examples (sf2013 and sf7130; Fig. 8.18) are of a similar thickness throughout, whilst a third ring (sf5171; Fig. 8.18) has flattened terminals. The fourth ring (sf5017; Fig. 8.18) tapers towards its terminals, which are fractured, and it may originally have been a slip-knot ring. One ring (sf2013) is of a similar diameter to the annular series, whilst the remainder are smaller. Three of the four penannular rings come from stratified deposits. One (sf2013) came from a context of Phase 1.1, whilst two others (sf5017 and sf5171) are assigned to Phase 2.3.1. All four differ from the penannular finger rings with overlapping, tapered terminals seen at Middle Harling and Thetford (Margegon 1995, fig. 38.26–32; Rogerson and Dallas 1984, fig. 110.17 and 20–21). They are similar, however, to copper alloy rings of even circumference with butted and overlapped terminals, also from Thetford (Rogerson and Dallas 1984, fig. 110.19 and 22; Dallas 1993, fig. 115.5; Andrews 1995, fig. 67.18–19). Single examples of both annular and penannular rings were recovered from Fishergate, York, where they were thought to have been used as suspension rings on belt fittings (Rogers 1993, 1354 and fig. 653.5323–4). Two copper alloy penannular rings from Mill Hill, Deal were found at the waist area in female graves, confirming this suggestion (Parfitt and Brugmann 1997, 69 and figs 37.65m and 38.68c).
A slip-knot ring of copper alloy wire (sf3303; Fig. 8.18) has ends joined by single, tightly-bound loops. A distorted fragment of wire of circular section (sf2021) may also stem from a slip-knot ring. Slip-knot rings of copper alloy were used in conjunction with pins, ear-scoops and tweezers (Evison 1987, 119), usually suspended from belts.

Five small oval rings (sf2802) from a Phase 2 context are made from thin sheet metal and have soldered terminals. They are undecorated and may originally have formed part of a relatively insubstantial chain.

Illustrations
sf2284  Ae. Annular ring, oval section, slightly uneven, traces of wear. Unstratified 0001.
sf4927  Ae. Annular ring with bevelled edges and flat surfaces, more oval than circular. 2.5m sq. 5062, Phase 2.3.1.
sf8688  Ae. Complete ring of D-shaped section, relatively even in width and thickness throughout. Undecorated. 2.5m sq. 9122.
sf2013  Ae. Penannular ring, oval section, slightly widened at one point. Pit 0249, Phase 1.1.
sf5017  Ae. Penannular wire ring of circular section, tapering slightly at the terminals. Undecorated. 2.5m sq. 5227, Phase 2.3.1.
sf5171  Ae. Penannular wire ring of circular section, the ends flattened and bent towards each other. Layer 5214, Phase 2.3.
sf7130  Ae. Undecorated ring of square section, tapering slightly towards surviving terminal. Oval in shape with terminals separated. Unstratified 0001.

Silver mount
A triangular section of silver (sf5200; Fig. 8.18) resembles the middle section of a hooked tag but there are no rivet holes present on the surviving fragment. Its interlace decoration links it with one of the hooked tags (sf9868) of copper alloy, but equally it may stem from a book cover or a drinking horn vandyke. A similar triangular mount from Cottam of gilded copper alloy also includes an interlace design (Haldenby 1992, fig. 4.7).

Illustration
sf5200  Ag. Triangular plate with curved apex, no rivet holes apparent, decorated with interlace pattern and beaded border. Possibly the lower end of a cut down drinking horn vandyke. Layer 5240, Phase 2.2.

Strips
Most of the strips of copper alloy are rectangular in shape; some are decorated with single ring-and-dot patterning. One strip (sf5196) comes from a context of Phase 2.3.1. A decorated irregular strip with a rounded, raised centre (sf2019) resembles the middle section of an ansate brooch but lacks any attachments for a pin on the reverse. A curved strip (sf2097; Fig. 8.18) may stem from a finger ring.
Illustrations

sf2014 Ae. Small fragment of rectangular strip. Undecorated. Layer 0034, Period III.


sf2097 Ae. Curved rectangular strip with punched single ring-and-dot decoration. Unstratified 0001.

sf2282 Ae. Narrow sheet metal strip tapering to a rounded terminal. Curved throughout, possibly a finger ring. Unstratified 0001.

Unidentified objects

A lightly curved tapering shaft (sf8537; Fig. 8.18) of copper alloy has a raised terminal of octagonal section. It is hollow and was originally fastened at the upper end to a shaft of a different material. The style of the object recalls both the styli and the pins but its function is not clear. The function of a curved section of tubular sheet with a rounded moulding at the centre (sf2116; Fig. 8.18) is likewise uncertain. A heavy cast, flat section of copper alloy with small punched ring-and-dot motifs on each side (sf9981; Fig. 8.18) is V-shaped and stems from an object that could not be identified.

Illustrations

sf2116 Ae. Curved tubular sheet with raised, rounded transverse moulding at centre. Unstratified 0001.

sf8537 Ae. Lightly curved tapering shaft of circular section, hollow with three roll mouldings at upper end and small lateral perforation. Three further mouldings at lower end above raised conical point of octagonal section. 2.5m sq. 8760.

sf9981 Ae. Fragment of cast object with two converging rectangular arms, with a small single punched ring-and-dot motif on each side. Unstratified.

VI. Weaponry

by Nicola Rogers with Patrick Ottaway

Swords

Fig. 8.19; Pl. 8.11

The base of a two piece pommel (sf2827; Pl. 8.11), and two sword hilt guards, all made of iron (sf2240, sf4422; Fig. 8.19) represent the remains of at least three different swords, neither of the hilt guards being an appropriate match for the pommel. Sf2827 was recovered from a Phase 1.1 pit, and is the base of a bipartite pommel, with the characteristic central slot flanked on each side by a sub-square perforation; originally rods fitted into these perforations and attached the base to the reminder of the triangular-shaped pommel which would have had matching holes at its ends. The base is decorated on all sides with vertical grooves inlaid with silver alloy, and on one face they can be seen between the slot and holes, and also in the sides of the slot and holes.

The hilt guards are both lentoid, with slots for the insertion of the sword tangs, that on sf2240 being rectangular, and that on sf4422 being lentoid. Sf2240 is the larger of the two guards, being some 20mm longer and 5mm wider than sf4422. As on the pommel guard, sf2240 also has inlaid decoration around the edge: the inlay has been identified as brass. It survives only in patches on the guard, but the original design appears to have been made up of groups of three vertical lines alternation with a single saltire. Sf4422 is largely complete although in fragments, but does not appear to have been decorated.

The classification of Viking period swords from Norway created by J. Petersen in 1919 still forms the basis for the current typologies of swords and their hilts from north-western Europe (Petersen 1919). Sf2240 is part of a pommel of a form which fits into Petersen’s Type H (Petersen 1919, 89–100); as on sf2827, elements of the hilts of this group were noted as usually having decorative inlaid wires of non-ferrous metals (Petersen 1919, 91). Similarly decorated, the hilt guard sf2240 may also belong to a Type H sword, although the form of hilt guards is less distinctive than that of pommels; several of Petersen’s types have similar such guards, and guards of other forms also have inlaid decoration (Dunning and Evison 1961, fig.3). While the guard may also derive from a Type H sword, as the inlay is of brass, and the pattern differs from that on sf2827, this suggests that the pieces derive from two different swords. It is not possible to identify the form of sword to which sf4422 belonged.

Petersen noted that Type H held an exceptional position within his typology due to the broad time period it extended across; it was also the most numerous of all the sword types from the Viking Age, no less than 213 specimens being known to him at the time he was writing (Petersen 1919, 89). These swords had been found across northern Europe, and included examples from Islandbridge in Ireland, and another from Ronsay, Orkney but none from England (Petersen 1919, 100). Since
Petersen’s time, a Type H sword has been recovered from England, however, in a Viking grave at Sonning, Berks, dated by all its grave goods to late 9th–10th century (Evison 1969, 330, 333). Petersen dated these swords between c.800–c.950 AD, but it has been suggested recently that the start of this time frame should be pushed back slightly to c.775 AD (Peirce et al. 2002, 18–19).

Swords were used only in warfare, borne by warriors of thegnly status, so the occurrence of parts of three swords on the site must suggest the possibility of inhabitants of high status living there. Indeed, the swords to which the decorated sf2240 and sf2827 originally belonged would have been particularly prestigious items. It should be noted here that sf2240 was found in a spread in an area that produced other high status artefacts, comprising a copper alloy stylus (sf2009), a silver pin (sf2001) and a fragment of possible claw beaker (sf2063).

Swords are uncommon finds on excavated sites, but nine pieces of sword were found in Anglo-Scandinavian levels at 16–22 Coppergate, York where the more mundane explanation for their presence was that they had been destined for recycling as scrap (Ottaway 1992, 718). Sf4422 was recovered from one of the 2.5m squares, within the area of the Phase 3 enclosure ditch, towards the eastern edge of the site. This area also produced numerous strips and sheet fragments, suggesting that metalworking could have been undertaken in this area (see Chapter 9.VI), and that sf4422 might have been scrap.

Illustrations
sf2240 Sword hilt lower guard, lentoid, of rectangular section, with central rectangular slot, with worn and incomplete inlaid non-ferrous metal decoration around the edge in pattern of three-lined bands linked by saltries. Analysis of non-ferrous inlays: copper, zinc. Spread 0065, Phase 2.

sf4422 Sword hilt guard, largely complete but in 12 fragments, lentoid, of rectangular section, with central lentoid recess. 2.5m sq. 4283.

sf2827 (Pl. 8.11) Iron sword pommel base from bipartite pommel, Petersen Type H, elongated oval of rectangular section, ends rounded, with central rectangular slot, with sub-square perforation to either side. Vertical grooves inlaid with silver alloy are present on all the sides, and on one face where they can be seen between the slot and holes, and also in the sides of the slot and holes. Pit 0054 (adjacent building 8137), Phase 1.1.

Possible spear parts
Spearhead or arrowhead socket
Sf4498 was recovered from a 2.5m square, and may be a socket from a spearhead or arrowhead. It was found not far from the sword guard sf4422 (see above), and may also have been destined for recycling.

Collar
A large but incomplete collar or ring (sf3623) has a decorative non-ferrous applied strip around it. One end appears to taper to a point, indicating that the ends may originally have been overlapped to form a scarf joint. The precise function of sf3623 is uncertain, but its size (diameter of 46mm) and decoration indicate that it may have been used to secure a socketed handle to a large tool or weapon, such as a spearhead.

Ferrule
Of uncertain function, but possibly a large ferrule, sf9852 comprises a long tapering socket. It appears to have strips of iron wrapped around it close to the tip, which are unlikely to have been attached to the object in use. Possibly destined for recycling, it was found in unphased ditch fill.

Seax
A long but incomplete knife, comprising the blade only (sf2530; Fig. 8.19) was found in topsoil. The blade back is horizontal, but the end of the blade and most of the tang are missing. The blade is of a size (length 268mm, width 27mm) which suggests it could be part of a seax (Birbeck et al. 2005, 59); functionally, it has been noted that the form of the seax is very similar to that of knives, making distinction between them difficult, but the length of the
blade is generally taken as indicative of function, with 180mm cited as a borderline between the two (Geake 1997, 72). The width of the blade, being less than 40mm, types sf2530 as a narrow, rather than a broad, seax. Narrow seaxes are found predominantly in 7th-century deposits, mainly graves, but may have continued in use into the 8th century (Geake 1997, 74). Although it seems that seaxes are generally accepted to have been used as weapons, others have suggested hunting as a more likely activity in which seaxes would have been used (Gale 1989, 80).

Illustration

sf2530 Incomplete seax, tang and part of blade broken off, back horizontal. L. 268mm, W. 27mm, T. 7mm. Unstratified 0001.

VII. Knives and hones

Knives
by Nicola Rogers

Fig. 8.20

Thirty knives and sixteen blade fragments were recovered from the site: fourteen of the knives and two blade fragments came from Saxon deposits, while eleven of the knives and twelve blade fragments came from 2.5m squares. The remainder was from unphased layers or topsoil. All of the knives which retained a complete or partial tang are of the whittle tang type: in this form, the solid but tapering tang was fixed into a socketed handle. This type of knife was used exclusively in the Anglo-Saxon period, only being supplemented by the scale tang form in the mid 13th century (Ottaway and Rogers 2002, 2751). Ottaway divided whittle tang knives into five groups (A–E) on the basis of the form of the blade back (Ottaway 1992, 559), and this classification has been applied to the Brandon knives, fifteen of which were sufficiently complete to be typed.

Angle-backed knives (Type A)
The most numerous grouping (ten) is that of Type A knives: in this form, the back of the blade is initially horizontal or slightly sloping, but then angles down obliquely to the knife tip. This form of whittle tang knife appears to have originated in the later Roman period, but became particularly common in the 8th to early 10th centuries (Ottaway 2009a) eventually falling out of favour by the early 12th century (Ottaway 2004, 107). Seven of the nine Type A knives from Brandon were recovered from Saxon deposits, the remainder coming from 2.5m squares. Although forming only a small assemblage of knives compared to those found at other sites of Middle Saxon date, such as Flixborough (Ottaway 2009a), the Brandon knives do follow the trend noted at Thwing, East Yorkshire where 55% of knives in Middle Saxon contexts had back form A (Ottaway unpublished report a) and Hamwic where, in a sample examined by Ottaway, nearly 40% of knives also had this back form (Ottaway 1990, 420–78).

Illustrations

sf2470 Whittle tang knife, slightly sloping shoulder to back which appears horizontal before angling down to tip, extreme tip broken off. Depression 3796, Phase 2.

sf8281 Whittle tang knife fragment, most of tang broken off, slight shoulder up to blade back which is straight but angles down sharply towards tip. Ditch fill 6794 (comp. 8135), Phase 2.2.

Straight back with convex front part (Type C)
Six knives are of this form where the blade back is initially straight, but approximately two-thirds of the way along, becomes convex and curves down to the tip. Ottaway breaks Type C into three sub-groups according to whether the straight part is horizontal (form C1), sloping up (C2) or sloping down (C3). Four of the Brandon knives appear to be of Form C2, and there is one each of Forms C1 and C3. Four knives come from Saxon layers, the other two from 2.5m squares. Ottaway notes that all these forms are usually found in 8th–10th-century contexts (Ottaway 2004, 107), where they often outnumber Type A knives, as at both 46–54 Fishergate and 16–22 Coppergate in York (Rogers 1993, 1275), and also Flixborough, where they made up 77% of the knives of which back form could be determined (Ottaway 2009a). At Thwing however, as at Brandon, the Form C knives were fewer than the Form A (Ottaway unpublished report a).

Illustrations

Form C1

sf5956 Whittle tang knife, incomplete, in three adjoining fragments, angled shoulder to horizontal blade back which appears convex towards tip which is broken off. 2.5m sq. 5052, Phase 2.3.1.

Form C2

sf2451 Whittle tang knife, ends of tang and blade broken off, slight shoulder up to blade back, back appears sloping upwards but curving down slightly to broken tip. Depression 3796, Phase 2.

Figure 8.20 Knives (1:2)
was also the source in historic times (Mitchell et al. 1984) were able to

differentiate between the dark grey schist honestones [PP] and the light grey schist ones [NR], the former recording

scleriform ages while the latter were Precambrian in date. While able to suggest a likely Norwegian origin for Purple Phyllite, the actual quarries have yet to be located and other possible sources have also been put forward, ranging from Scotland, the Shetland Isles and Greenland to Germany, Belgium and central Europe, though these

the close association of Purple Phyllite and Norwegian Rag on English sites, possibly a separate facies of the Eidsborg Schist (Ellis 1969; Moore 1978). Potassium-argon/isotopic analyses (Mitchell et al. 1984) were able to

differentiate between the dark grey schist honestones [PP] and the light grey schist ones [NR], the former recording

scleriform ages while the latter were Precambrian in date. While able to suggest a likely Norwegian origin for Purple Phyllite, the actual quarries have yet to be located and other possible sources have also been put forward, ranging from Scotland, the Shetland Isles and Greenland to Germany, Belgium and central Europe, though these

differentiate between the dark grey schist honestones [PP] and the light grey schist ones [NR], the former recording

scleriform ages while the latter were Precambrian in date. While able to suggest a likely Norwegian origin for Purple Phyllite, the actual quarries have yet to be located and other possible sources have also been put forward, ranging from Scotland, the Shetland Isles and Greenland to Germany, Belgium and central Europe, though these

have tended to be ruled out on archaeological, isotopic and petrological grounds (see Crosby and Mitchell 1987a and b).

Hones

Norwegian Rag

This is a fine-grained metamorphic schist rock, composed of quartz, muscovite and biotite mica, with lesser amounts of chlorite and magnetite (Moore 1983, fig. 9.2b). The stone was quarried at Eidsborg, Telemark, in southern Norway until fairly recently and a number of isotopic and petrological analyses on archaeological examples from England and northern Europe have clearly shown that this was also the source in historic times (Mitchell et al. 1984).

Four of the Brandon hones were made from this material, of which two were unstratified and two were from 2.5m squares. They varied in length from 73mm to 196mm.
Illustration
sf2587 A long broken piece of purple phyllite with two saw marks across the centre. Unstratified 0001.

Coal Measures Sandstone
Two hone stones were in this material, a burnt fragment (sf6297) recovered from a charcoal layer in Phase 2.1.1, and two fragments with narrow shallow sharpening grooves (sf2673; Fig. 8.21) from a 2.5m square. There was also a U-shaped fragment (sf3796) from a Phase 2.2 hollow which seems to have a series of small sharpening notches around one edge. It is possible that these are Pennant Sandstone from the Bristol region, which was certainly being used for hones during the Saxon and medieval periods (Moore 1978).

Illustration
sf2673 Two non-joining broken pieces (one illustrated), but possibly from the same hones, of a dark grey coal measures sandstone. There are a number of narrow shallow sharpening grooves scattered on the surfaces. 2.5m sq. 4687.

Fine-grained sandstone
Eleven objects, including five formed from pebbles, were of this stone type. Most were from 2.5m squares or the upper layers of the site, but a small tabular block with no signs of wear was from a Phase 2 spread (0090). It is uncertain whether the stones would have been picked up locally as erratics or imported from some distance, but the pebbles appear to suggest a local source.

Illustrations
sf2189 Fine-grained dark grey sandstone pebble. Slight tapering to one end which is also broken and with some shallow narrow sharpening grooves on one of the edges. Unstratified 0001.
sf2584 Pebble of light grey fine-grained micaceous sandstone, with a flat surface, possibly used as a hones. Unstratified 0001.

Other stones
Seven other hones were identified. One was in coarse mica-schist (sf2585, unstratified) which could have been obtained from the local drift although, like the Norwegian Rag, it could also have been brought from Scandinavia. Two were basic igneous pebbles, sf2190 and sf2586 (Fig. 8.21), both unstratified, the former with a series of deep, narrow sharpening grooves on one of the long surfaces; again this material may be from the local drift geology. Three quartzite pebbles with evidence of wear or sharpening grooves (sf3396, sf3357 and sf7674) were found in 2.5m squares and may originally have been obtained from a local stream. One small possible hone (sf7040) from a 2.5m square was made of a sandy limestone.

Illustration
sf2586 Basic igneous oval-shaped pebble, tapering towards both ends with a flaky surface and a deep groove along one surface. Unstratified 0001.

Discussion
The area around Brandon suffers from a dearth of good reliable stone deposits, especially stone with those properties suitable for hones and quernstones (cf.
Moore 1983). The vast majority of the stones found during the excavation, therefore, were either most probably imported to the site from some distance away or were found as isolated pebbles in the local streams, boulder clays or drift deposits and if at all suitable utilized as hones. Identification of the original source of much of the Brandon material is therefore often difficult and beyond the scope of the present report. The four Norwegian Rag honestones and the large flake of Purple Phyllite were direct imports from Scandinavia and moreover part of a large and well-distributed trade in these highly desired commodities, which were presumably better for sharpening than the local English equivalents. However, with a few exceptions, it is not at all clear where much of the remaining hone material from Brandon was obtained: local erratics, sources in England much further to the west or south of the site or brought from Scandinavia along with the more popular Norwegian Rag and Purple Phyllite. Wherever the stone came from, not all of it was already formed into separate hones ready to use when it reached the site, some at least seems to have been made or modified at Brandon. There are at least two examples at Brandon of honestones being made on the site by splitting a suitable stone along its length by scoring deep central grooves on either side and then by applying pressure, splitting it into two (sf4542 and sf5529, both sandstone). In addition, the large ‘flake’ of Purple Phyllite might have been imported in that condition or it could have been a broken flake from a pre-existing hone. However, the saw cuts suggest that it was either being modified or someone was starting to make a hone from scratch.
Chapter 9. Trade, Agriculture and Manufacturing

I. Introduction

Objects associated with trade include contemporary and earlier coinage (which may have been reused as a form of currency in the Saxon period), and weights. Agriculture is represented by a number of important objects associated with animal husbandry, such as bells, harness fittings and Middle Saxon horseshoes, and further evidence for farming at the site is included in Chapter 10. Finds associated with manufacturing include a range of tools, waste materials and scrap, indicating that iron smelting, lead working, woodworking, leatherworking, antler and bone working and textile manufacture were carried out on site.

II. Saxon coins

by Michael Metcalf
Pl. 9.1

The sceattas, sixteen out of the twenty Anglo-Saxon coins recovered, are a distinctive group in two respects. First, they are concentrated within an unusually narrow date-range, in the late secondary phase and into the coinage of King Beonna, up to a date in the 750s. This is problematic in so far as there are much earlier dates from some of the timber remains from one of the buildings and the causeway. The sceattas are almost all debased or severely debased. In this respect Staunch Meadow is quite different in character from other finds from Brandon itself, from the area between Brandon and Lakenheath, and from Thetford and its surroundings. These other finds are a typical mixture of primary and secondary-phase sceattas, with no particular emphasis on the late secondary phase. It would seem that the Staunch Meadow settlement enjoyed only a short period of integration into the general monetary circulation of East Anglia (which was widespread and intensive), from c.735 into the 750s. With sixteen sceattas, the finds are just about numerous enough to be statistically significant. Thus, the dating of Saxon Phase 1 acquires additional interest. The only close parallel is Middle Harling, where (apart from the well-known hoard) there are as many as eight topographically unrelated stray finds of sceattas (three) or of coins of Beonna (five). The stray finds from Middle Harling thus exhibit a similarly compact, late chronology.

Secondly, but all one of the Staunch Meadow sceattas were minted in the region, belonging to Series R (East Anglian mints) or Series Q (Middle Anglia/Fenland edges), including Q/R ‘mules’. These last are very scarce coins, late secondary in date, of low weight, and severely debased, with a distribution pattern focussed on west Norfolk (three from Bawsey and a singleton from Castle Acre, as well as the Brandon finds), plus outliers from Quidenham, Norfolk, Burrow Hill, Suffolk, and Ongar, Essex.

These two characteristics of the Staunch Meadow finds may well be aspects of the same historical development, namely a nationwide severe monetary recession marked by a collapse in the silver contents of the coins, together with a decline in the volume of inter-regional monetary transactions which had been normal in the earlier stages of the sceatta coinages. Even within the more limited sphere of East Anglia, monetary circulation became to some extent compartmentalised, witness the absence of the quite plentiful Type R8 among the Staunch Meadow finds. The find-series continues into the beginnings of recovery, with coins by the moneyers Wigred and Tilbeorht (Types R10 and R11 respectively) which, although still very debased, are of more careful manufacture and better weight. The coins of Beonna, thereafter, marked a restoration of a respectable alloy standard, i.e. they are a reform coinage. They constituted a currency which was able to circulate extensively throughout East Anglia.

One must remember that the date of accidental loss of a coin will be, on average, some years later than its date of issue. Individual coins may easily have been a decade or more old when they were lost. Sceattas of significantly different silver contents were evidently able to circulate together, presumably at par. This delay-factor could mean that the date-range of the Staunch Meadow finds is even narrower than at first sight, because the earliest of the sceattas could be survivors, whereas the end of the date-range is more tightly defined. (The earliest of the sceattas could well be sf3401 (Pl. 9.1), struck in the 710s, and sf7122 (Pl. 9.1), struck in the 720s, and both found in quite fresh condition. The other relatively early issue, a Series K, Type 42, minted in Kent, is noticeably in poor condition.) The fact that there is only one coin of Beonna in the group (cf. Middle Harling, five of Beonna to three sceattas, or Burrow Hill, with numerous Beonnas) strongly suggests a terminus ante quem for the floruit of monetary circulation at Staunch Meadow not very far into the period of currency of Beonna’s coins.

Although there is only the one coin of Beonna from the site, one can more or less exclude the idea that it is an unrelated later loss which does not help to define the floruit, because there are three of the very late coins of Series R, Types 10 and 11, which probably closely preceded the reform of Beonna. These are scarce coins, and to find three of them in a group of sixteen strikes one as well above statistical expectation, although of course the numbers are quite small and are therefore subject to relatively wide margins of statistical imprecision.

Only four of the sceattas were recovered from stratified contexts and are capable of being assigned to a phase. Sf5103 (Pl. 9.1) and sf5104 (Pl. 9.1) are from a destruction layer (5038 on peninsula 8155), Phase 2.1.1 (Types QII and a coin which unfortunately is in poor condition, but which seems to fall late in the sequence of
R, and which may be a Type Q/R). Sf4876 (Pl. 9.1) is from the subsequent phase of expansion, Phase 2.2, found within the floor layer of building 4886 (a Type Q/R, still with c.30% silver content, and belonging to the earlier end of the type). The evidence suggests that the destruction layer is to be dated later than the introduction of QII, and perhaps later than late Q/R. The better-quality Q/R from Phase 2.2 may have been some years old when lost, for all we can say to the contrary. One is inclined to date QII somewhere in the 720s, leaving room for QI (which occurs in the Hallum hoard from the Netherlands) at the beginning of the secondary phase (around 715?). The destruction phase could accordingly be dated ‘somewhere in the 720s or later’, so far as the numismatic evidence is concerned. It is reasonable to assume that it was well before the introduction of Beonna’s coins in the 740s.

The spatial distribution of the coins is shown on Figure 4.70.

Catalogue

<table>
<thead>
<tr>
<th>Coin Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>sf0603 Copper (?) coin, totally illegible. 2.5 m sq. 7031.</td>
</tr>
<tr>
<td>sf2168 Northumbria, copper alloy stycia, Æthelred II, c.844–53 or c.850–58, moneyer Aldhere. Unstratified 0001.</td>
</tr>
<tr>
<td>sf3401 Series R, Type 3b/a. Runic epa, outwards, 0.55g. 2.5m sq. 3376.</td>
</tr>
<tr>
<td>sf4318 Series Q. Type QIIIB. Triquetra above bird (see Metcalf 1994, 495), c.30% silver, 0.76g. 2.5m sq. 4341.</td>
</tr>
<tr>
<td>sf4320 Series Q/R. Runes er, outwards. Debased style and very poor alloy, c.20% silver or less? 0.54g. 2.5m sq. 4341.</td>
</tr>
<tr>
<td>sf4876 Series Q/R. Runes er retrograde, outwards (cf. Metcalf 1994, cat. nos 389–90), c.30% silver, 0.54g. Layer 4840 (building 4886), Phase 2.2.</td>
</tr>
<tr>
<td>sf5103 Series Q, Type IID (obverse)/IIB (reverse), 87% silver, 0.50g. Layer 5038 (peninsula 5391), Phase 2.1.1.</td>
</tr>
<tr>
<td>sf5104 Series Q (or R?). Narrow head in left half of field. Runes (?) ‘er’ outwards. Reverse very obscure, but (?) cf. Metcalf (1994, 498, lower illus.). Extremely base, or core of plated coins. 0.46g. If the runes are correctly read as ‘er’, the coin is probably from the same workshop as Q/R. Layer 5038 (peninsula 5391), Phase 2.1.1.</td>
</tr>
<tr>
<td>sf6207 Type R10 (Metcalf 1994, 535). The large crosslet in the standard is distinctive. 0.37g. There is insufficient evidence to determine the mint-place of this type. Layer 6241 (peninsula 6893/6396), Phase 2.</td>
</tr>
<tr>
<td>sf7122 Series R, imitative. The obverse, with runes ‘epa’ retrograde inwards, preceded by O, copies Type R1, but without the pyramidal neck of that type. The reverse very clearly copies Type R3. Unstratified 0001.</td>
</tr>
<tr>
<td>sf7189 Series R. Type R10 (moneyer Wigræd). Runes ‘wigrd’. 2.5m sq. 7043.</td>
</tr>
</tbody>
</table>
sf8669  Series R. (?)Type R5, imitative. The first rune is certainly ‘e’, outwards. Epi or Epa? 2.5m sq. 9088.
sf9800  Series R. Type 11 (moneyer Tilbeorht). Reverse with four letters T, opposed (cf. Metcalf 1994, cat. no. 426). 2.5m sq. 9114.
sf9864  Series R. Type 5. Runes ‘epa’ outwards. The diagonally repeated pattern in the standard is distinctive. Regression analysis suggests that the mint-place is east Norfolk, perhaps Caister-on-Sea. Unstratified.
sf9875  Series K, Type 42, var. b (with hawk). In poor condition. An attempt has been made to pierce this coin for suspension, but the hole has broken through the edge. Trench 9300.
sf9923  Mercia, Coenwulf, moneyer Wigræd (partly runic). East Anglian mint, from c.798 (Blunt et al. 1963, 59, no. 107 — BMA 91). 2.5m sq. 9081.
sf9990  Series R. Type 10. Wigræd. Early in the type? Ditch 9149 (comp. 9128), Period IV.

Figure 9.1  Lead weight (1:1) and bells (1:2)

III. Weights
by Jane Cowgill
Fig. 9.1

Three weights (sf7304, sf7372, sf8593) were found in the 2.5m grid squares but their date is uncertain. At least one (sf7372, a small round weight with integral suspension loop) was probably late medieval and intrusive. Balances and weights in the form of copper alloy and lead ingots and pre-Saxon coins have been found in Early Anglo-Saxon contexts (mainly graves, Scull 1990), but they are noticeably absent from Middle Saxon sites, none for example, were found at Fishergate, Hamburgh or Carlton Colville (S. Lucy, pers. comm.). Lead weights in a variety of shapes and forms become common from the late 9th–10th century onwards as is evident from the variety found at Coppergate (Mainman and Rogers 2000).

Identifying objects that were actually used as weights is always problematical and it is quite possible that sf7304 (a rolled thick sheet with wide base and pointed top) was not intended to be used as such. However, the identification of sf8593 as a cone weight is much more certain. A similar but larger weight has been recorded.
from an 8th-century context at the Royal Opera House site in Lundenwic (Malcolm and Bowsher 2003, 188, 271, M328 weight 30g), where two disc weights were also found in later contexts (3g and 50g).

Six other objects were identified as possible weights, four of which were from Saxon contexts (sf5666, sf7307, sf3348, sf2753a). These may be over-generous identifications, given their generally crude form and taking into account the paucity of lead weights (and finds) of this date.

Illustration
sf8348 Weight? Biconical object with seven uneven cut facets at one end and five at the other; no central perforation. Wt. 13g. Post-hole 8715 (building 7500), Phase 2.2

IV. Objects related to animal husbandry

Iron bells
by Nicola Rogers

Twenty-eight finds comprise fragments of bells (Fig. 9.1), of which fourteen come from Saxon deposits (one being from Phase 1.1, and eleven being from Phase 2.3, of which nine are from 2.3.1 and nine from 2.5m squares: other finds are unphased). As many of these are fragmentary, and their original sizes are difficult to ascertain, it is not possible to be certain of their function, but most are assumed to have been used on sheep, goats and cattle. The bells were made of a single piece of iron forged to shape, and folded across the centre, the seams at the sides being brazed together. Two small holes across the centre allowed the attachment of a suspension loop, to which the clapper was fixed on the interior. Many of the bells appear to have been coated with a non-ferrous metal: the coatings have been analysed on four of the Brandon bells (sf3488, sf2654, sf3664, sf2335/6), and in each case has proven to be composed of copper with traces of lead and tin (or tin and lead). The coating metal would probably have been the same metal as that used for brazing the seams together (Ottaway 1992, 557–8), and it would have served to protect the bells from rust (Goodall 1980, 77). The presence of these coatings may explain the relatively high number of bells that have survived from the site, compared to other iron objects (see also padlocks, Chapter 6.IX).

Iron bells with non-ferrous coatings have a long history. Examples having been found on sites of the Roman period such as Maiden Castle (Wheeler 1943, fig. 97, no. 2). Early Anglo-Saxon examples come from Sutton Courtenay, Berks (Leeds 1923, 181, pl. 27, fig. 2B) and a grave of probable 7th-century date at Tattershall Thorpe, Lincs (Hinton 1993, 156, fig. 10), while elsewhere in Suffolk, an almost complete iron bell was found at Pakenham (West 1998, 87–88, 120.15). There are also numerous 8th–11th-century examples, including several from Flixborough, Lincolnshire (Ottaway 2009a).

Apart from use on grazing animals, iron bells coated with non-ferrous metal and with clappers are also known to have been used as portable ecclesiastical hand-bells (Bourke 1980, 52–54). These were considerably larger than the animal bells, and at least one of the clappers from Brandon (sf9966) is of a size that suggests it might have come from such a bell: it was recovered from a 2.5m square. Anglo-Scandinavian levels at 16–22 Coppergate, York produced three similar iron clappers (Ottaway 1992, 558, 2751, 2754–55).

Copper alloy bells
by Ian Riddler

Part of a copper alloy sheet metal iron bell (sf5455; Fig. 9.1) was recovered from a Phase 2.3.1 context and a small fragment from the upper part of a second bell (sf5466; Fig. 9.1) came from a context of the same phase. Both bells are fragmentary and survive in poor condition. Bells are relatively common finds from the 7th century onwards. The majority are made of iron, including those from graves of the second half of the 7th century (Faussett 1856, pl. 10.17 and 21; Geake 1997, 102; Hinton 2000, 44–7) whilst a copper alloy bell has come from a cremation grave at Spong Hill (Hills 1977, 26 and fig. 122.1281). Iron bells are known also from Mucking and Sutton Courtenay. Copper alloy examples include two bells possibly of Anglo-Saxon date from Barrington, as well as the Cottam, Flixborough and Frewick examples, which are cast (MacGregor and Bolick 1993, 256–7; Malim and Hines 1998, 226–7; Batey 1988; Haldenby 1990, 57 and fig. 6.1; 1994, 54 and fig. 3.1; Hinton 2000, 45).

Most of the remaining bells are made of iron although Brown has drawn attention to several from Shakenoak which were coated in copper alloy (Brown 1972). The bells from Hamwic and Tattershall Thorpe form further examples of this type and both of the Brandon fragments probably belong to this group as well. The upper part of one bell (sf5455) is rectangular in shape with a curved apex and evidence of copper alloy staining on the outer surface appear random and not part of the object. Analysis of non-ferrous coating: copper with traces of lead, tin. Cleaning layer 3669, unphased.

Illustrations
sf2335 Bell fragment comprising part of one side, one face and convex top, with part of suspension loop surviving. Three smaller fragments (sf2336) also belong. All fragments retain non-ferrous coating, which on sf2335 appears in a superimposed strip around lower end as well as on main body. Analysis of coating: copper with traces of lead, tin. Unstratified 0001.

sf2654 Possible bell fragment, convexly curved, with non-ferrous coating. Analysis of coating: copper with traces of tin, lead. Peninsula layer 5384, unphased.

sf3555 Bell fragments (2), adjoining, comprising parts of both faces and shoulders with seam going part way down one side. Within, another fragment of the bell is corroded to the body, with possible traces of the clapper also corroded within. 2.5m sq. 3291.

sf3664 Possible bell, incomplete, in two fragments. Larger fragment has sub-rounded top with remains of possible nail through it, parts of two sides remain. Iron fragments on interior within corrosion may be the remains of a clapper, and there are traces of non-ferrous coating. (Mineralized organic remains (probably wood) on outer surface appear random and not part of the object). Analysis of non-ferrous coating: copper with traces of lead, tin. Cleaning layer 3669, unphased.

sf5455 and sf5466 Weighted bells with a rectangular shape, made of copper alloy. Analysis of coating: copper with traces of lead and tin. Cleaning layer 3669, unphased.

Illustrations
sf5455 Fe and Ae. Sheet metal bell, folded with seam on one flat side, the apex rounded with a perforation that holds a fragment of an iron shaft. 2.5m sq. 5785, Phase 2.3.1.

sf5466 Fe and Ae. Thin sheet metal perforated at centre with vestige of iron shaft present. 2.5m sq. 5795, Phase 2.3.1.
Horse equipment
by Nicola Rogers
Fig. 9.2

Thirty-three horseshoes and horseshoe fragments and part of a horse bit were recovered, and also a possible harness fitting. Perhaps surprisingly, no individual horseshoe nails were identified, although eleven nails were identified in situ on six horseshoes.

In categorising the Brandon horseshoes, an established typology of medieval horseshoes has been followed: this is based predominantly on shape, size, nail holes and presence or absence of thickened tips or calkins (Clark 1995, 85–91). This divides medieval forms into four groups, to which many of the Brandon horseshoes can be assigned, although some are too fragmentary to type.

The earliest form (Clark Type 1) is characterised by having relatively wide and thin branches, the outer edges being smooth, and with a maximum of three rectangular countersunk nail holes per branch; calkins are rarely found. Five of the Brandon horseshoes are of this type (sf2244, sf2463, sf2510, sf9708, sf9740), while incomplete horseshoe sf9709 may also be of this type (Fig. 9.2, 2244 and 9709).

Clark’s Type 2 horseshoes are narrower and thicker than those of Type 1. They have wavy edges, being lobed around the deeply countersunk nail holes which usually number three per branch, and calkins are typical; sf7424, sf7429, sf8533, sf9710, sf9718 and sf9897 (Fig. 9.2) are of this type. Clark’s Type 3 are larger and broader than Type 2 shoes, and calkins are less common. This form has narrower countersunk nail holes than Type 2, typically with three or four per branch but the edge of the shoe is smooth, not wavy. From Brandon, only sf2496 is of this form (Fig. 9.2). Finally, Clark’s Type 4 has three or four nail holes per branch, as does Type 3, but these holes do not have a countersunk slot for the nail-head: calkins occur on approximately 50% of this form. At Brandon sf7380, sf8564 (Fig. 9.2) and sf2737 are of this type.

Apart from a modern horseshoe (sf8584) found in a 2.5m square, all the remaining horseshoes are too fragmentary to type.

It is generally accepted that the earliest example of a Type 1 horseshoe appears to date from the late 9th century (Ottaway 2009b, 5) with the form becoming more common during the 10th century (Goodall 1990c, 1054). An unpublished horseshoe from Wicken Bonhunt, Essex is said to be from a well-stratified 8th–9th-century context, but considerable doubt has been expressed about this earlier date (see e.g. Clark 1995, 94). In the light of this long accepted date of the late 9th century as the earliest from which horseshoes have been found, it is difficult to account for the slightly earlier dates (mid 7th–8th centuries) attributed to three of the Brandon horseshoes (sf2463 — ditch 3816, comp. 8168, Phase 1.2; sf2244 — spread 0065, Phase 2; sf2510 — post-hole 1029, building 1094, Phase 2.1) by their contexts. With no evidence from elsewhere to push back the origin of these
horseshoes into the 8th century, it seems most prudent to suggest that these three horseshoes might be intrusive in their deposits, or derive from contexts of 9th-century date.

Type 2 horseshoes are thought to date from the mid 11th to 14th centuries (Clark 1995, 95–6). All those of this type from Brandon were recovered from either 2.5m squares or unphased levels. Type 3 horseshoes are dated between the 13th–14th centuries; the only example from Brandon comes from a post-Saxon level (sf2496; layer 0010). Finally Type 4 horseshoes date from the late 13th century and possibly remained in use into the post-medieval period (Goodall 1990c, 1056). SF2737 from the upper layer of a Phase 3 ditch appears to be an intrusive find, while sf8564 and sf7380 both came from 2.5m squares.

The shoeing of horses is primarily undertaken to provide protection to hooves which may be required to pass over hard surfaces such as metalled roads, and where heavy labour may cause additional wear. Horses do not seem to have been used for haulage before the 12th century (Clark 1995, 7), so the most likely functions for them at Brandon would be for personal transport or as pack animals, or perhaps for use in hunting.

As noted above, there is a complete lack of individually recovered horseshoe nails in the assemblage: this may suggest that shoeing of horses was not done on the site itself, as nails pulled out from old shoes would surely have been discarded. Alternatively, it may be that this particular debris was dumped away from excavated areas or they simply did not survive in the acid sand soil.

The bit sf2792 is a mouthpiece link from a snaffle bit, the form of bit used universally until the 11th century, and in continuous use thereafter, for controlling a horse when riding (Ottaway 1992, 704). It was found in a 2.5m square, and comprises a shank with a looped eye at each end: these are at 90° to each other. Similar examples of Middle Saxon date come from Wicken Bonhunt (Ottaway 1992, 705), and of 9th–11th-century date from 16–22 Coppergate, York (Ottaway 1992), and Thetford, Norfolk (Goodall 1984, 100, fig. 138, no. 255). SF7400 comprises a ring, with four strap fittings attached via loops at the end of each; the ring appears to have non-ferrous plating on it. A similar object with three strap fittings found at Goltho Manor, Lincs, was identified as a strap distributor, which joined straps together on the harness, and was dated to the late 11th century (Goodall 1987, 184, fig. 160, no. 164). The less complete sf1989 may also be a strap distributor.

Illustrations
sf2244 Horseshoe, Clark Type 1, largely complete apart from end of one branch, three rectangular nail holes per branch, but one missing on broken branch. Spread 0065, Phase 2.
sf9709 Horseshoe fragment, Clark Type 1, both branches incomplete, the more complete has three sub-square countersunk nail holes. 2.5m sq. 6743.
sf9897 Horseshoe, Clark Type 2, incomplete, ends of both branches broken off, three sub-square nail holes, probably countersunk, on each branch, edge appears wavy. 2.5m sq. 6701.
sf2496 Horseshoe branch fragment, Clark Type 3, with four countersunk rectangular nail holes, tip appears slightly thickened. Layer 0010, Period III.
sf8564 Horseshoe, Clark Type 4, virtually complete, tips bent up, three rectangular nail holes in each branch, two nails surviving in situ. 2.5m sq. 8733.
sf2792 Horse bit. Mouthpiece link, from snaffle bit, comprising shank of sub-rectangular section, with looped eye at each end, one at 90° to other. 2.5m sq. 8759.

V. Objects related to crop processing

Lava querns
by Cathy Tester

A total of 3656 fragments of lava stone weighing 52,892g was recovered from 224 contexts. The material is presumed to come from hand-operated rotary querns (although only one stone is sufficiently large to provide a diameter) which could be Roman or Middle Saxon in date. The stone is grey vesicular lava which is almost certainly of Rhenish origin although its exact source cannot be confirmed without petrological examination of each fragment.

Almost all of the lava quern fragments are too small, decayed and fragmentary to provide data for discussion about their size, type and date. On only a very small number of pieces is there additional evidence for the original form, dimensions, dressing of the stones and other tooling. Many of the pieces were single fragments when first recorded on site but broke up when lifted, and disintegrated further during processing and storage.

The lava stone was quantified by count and weight by context. All recordable dimensions, diagnostic features and surface finishing and wear patterns were noted when possible. A catalogue is available in archive.

The assemblage

Because of the condition of the material, not much can be said about the number of stones represented. All quantities by context are relatively small and it is thought that most of the groups of lava quern in each context were originally part of single larger fragments which, judging by their weight, still did not represent very large proportions of the original stones. Although the lava quern comes from 224 contexts, it does not have to represent that many stones.

Sixty-five pieces had full measurable thicknesses ranging from 19mm to 74mm. The most frequent are in the ranges between 20mm and 49mm; only eleven pieces were more than 50mm thick. External diameter and diameter of the central hole were only measurable on one piece (a topstone from structure 5390, sf5260, see below).

Most edges were no longer identifiable due to the crumbling and flaking off of the surfaces and close examination of every face present revealed evidence of tooling/dressing on only two pieces. Apart from uniform use-wear across entire grinding surfaces, two pieces had worn striae from the rotary motion and one upper stone had worn to a concave section through use.

The three examples listed below are the most complete or diagnostic stones from the site (not illustrated):

1. A topstone fragment from ditch 3804 with a thickness of 46mm has vertical grooves on the outside edge and is Roman.
2. A near-complete flat upper stone from structure 5390 on the waterfront (sf5260; Pl. 4.14) has an external diameter of 420mm and a central hole used as a hopper with a diameter of approximately 50mm at both faces, narrowing in to 28mm at the middle in an ‘hourglass’ shape. It has a thickness of 70mm at the centre and the outer edge and weighs 13,50g. The grinding surface is worn smooth and any tooling or dressing on the opposite face and edge has been eroded. The piece appeared to be substantially complete when first excavated, but only 46% of the outer edge circumference was present for measurement and about 25% of the total stone is missing.
The piece can possibly be classified as a Dorestad Type II which is plain and flat (Parkhouse 1976). There are no handle holes but enough is missing from the crucial part of the outer stone to make it impossible to say with certainty whether they are actually absent — or were on the missing portion of the stone. Middle Saxon.

3. A fragment from layer 5214 may be from a Dorestad Type III topstone which has a flange or collar around the central hopper on the non-grinding surface (Parkhouse 1976). The piece is 22mm thick and 39mm thick at the ‘collar’. Middle Saxon.

Deposition by feature and phase
A total of 2812 fragments (25,932g) was collected from grid squares and other layers across the site. The distribution by weight of the lava quern recovered from the 2.5m squares is illustrated in Chapter 4 (Fig. 4.64). This would appear to show that fragmentary quern was widely distributed across the site. It even appears in the halls area immediately north of the churches. Given that lava quern could be classed as a utilitarian product, its widespread distribution may owe more to site formation processes than reflect on areas of primary use. The majority of the material was probably Roman and therefore imported to the site for secondary use over two centuries. Two areas that might be called ‘hotspots’ occur: one was over the waterfront, the other over and around the site of the smithy, building 4491; both these areas were used as rubbish tips in the later stages of the settlement and this would be sufficient to explain the slight concentration of quern debri.

The majority of the lava quern by weight from stratified deposits came from ditches and linear features. This appears to reflect the evidence from the finds distribution plots that lava quern fragmented and became dispersed as rubbish. An exception was the single stone (sf5360) from structure 5390, which had been reused with flint and clay to provide a solid base.

Discussion
Because the assemblage is in such poor condition, it was not possible to record any of the typological features of Roman or Saxon querns on any but a few of the pieces. Although there are no Roman-dated features on the site, one piece is definitely Roman and there is a good possibility that many other pieces of the lava quern are Roman and that they arrived on the site along with other Roman material (mainly CBM and some pottery) collected for re-use during the Saxon period. It is also likely that some of the lava quern is of Middle Saxon date as lava stone trade to Britain had recommenced during the Middle Saxon period after a phase of inactivity during the Early Anglo-Saxon period (Parkhouse 1977). Once again, there is very little diagnostic material to support this as only two pieces have Middle Saxon features.

The distribution plots do not appear to offer any insight into the pattern of lava quern usage at Brandon. As the settlement expanded it would have become more organised with a complex division of crafts and functions but this cannot be seen in the quern distribution, which shows a fairly even spread of debris. If the majority of the material was Roman and reused on the site (much as it was used in structure 5490), once exposed to frost it would soon have fragmented, becoming widely scattered over time to all parts of the site.

Stone querns
by Sue Anderson with stone identifications by David Williams
Three quern fragments in stones other than lava were also recovered from the site. A fragment of a puddingstone quern, likely to be of Roman date, was recovered from a 1m square (0771). A fragment of possible rotary quern in a coarse micaceous sandstone was found in a 2.5m square (5358); this too could pre-date the Saxon settlement. A fragment of millstone grit, also possibly from a rotary quern and with one intact grinding surface, was collected from ditch 6801 (Phase 2.2).

VI. Metalworking
Metalworking tools
by Nicola Rogers
Fig. 9.3
Hammer
Part of a hammer which has broken across the eye for the handle (sf3168) was an unstratified find from grid square 9156, the area of smithy 4491. Probably part of a large hand-held hammer, it has a cross pane arm, the end being wedge-shaped (Goodall 1980, 12). Such hammers were used by medieval blacksmiths during forging and are known from at least the medieval period, but have changed little in the centuries since. As this example is unstratified, it seems it could date from any period within this time frame.

Punches
A metalworking punch would have been held by the blacksmith either with tongs or with the hand. Punches such as sf2529 have long shafts which would have prevented the hand being too close to the heat. The heads were struck directly, often resulting in burning. Both punches recovered from the site (sf2529, sf2540) were found in topsoil (the latter during machining close to the river), and could be of any date from the Saxon period onward.

Another form of punch which may have been used in metalworking has a tang for a socketed handle (Fig. 9.3, 3544), and there are four possible examples of this tool from Brandon (sf3450, sf3544, sf7015, sf5258), the first two coming from 2.5m squares in the area of the smithy, the third from a 2.5m square in the halls area, and the fourth from the waterfront. Ottaway notes that these tools are similar to awls, but are generally larger and thicker, and that if not used in metalworking, they could have been used in wood-, leather- or bone-working (Ottaway 1992, 517).

The identification of sf3426 is uncertain, but it is similar to an object recovered at 16–22 Coppergate, York from a 10th-century context which was identified as a possible punch or other tool used in metalworking (Ottaway 1992, 521, 2244). Sf3426 was retrieved from a 2.5m square at Brandon, again close to the smithy area.

Illustration
sf3544 Possible tanged punch, Working arm of rectangular section, tip broken off. 2.5m sq. 3479 (Grid sq. 9057).

Soldering lamp or reservoir
Sf2428 (Fig. 9.3) has a form similar to tools from 16–22 Coppergate, York (Ottaway 1992, 523–5, 2251–2), and
the Royal Opera House site, London (Blackmore 2003a, 253–4, M349) which have been identified as possible soldering lamps. It is suggested that these boat-shaped vessels would have been filled with ox-tallow, and the flame from a wick directed to the point to be soldered via a blowpipe (Ottaway 1992, 524). One of the Coppergate lamps has a hole in the base which may have been for the attachment of some form of handle (Ottaway 1992) but no hole is apparent on sf2428. A similar but larger vessel was found in the 10th-century hoard of tools from Mästermyr in Gotland, Sweden (Arwidsson and Berg 1983, 31, pl. 27, 56). The Coppergate lamps were recovered from 9th–10th-century deposits, and the London lamp from a late 9th-century context: sf2428 came from an unphased cleaning layer in the south-west of the site, but a 9th–10th-century date seems likely for this tool.

**Illustration**

sf2428 Complete apart from tip of one end, in two adjoining fragments, made of plate, comprising channel of U-shaped section, sides pinched together at surviving end. Cleaning layer 0744, unphased.

**Metalworking debris**

In addition to the metalworking tools, bars, strips and sheet/plate fragments, all possibly associated with ironworking, were also found (see Ottaway 1992, 492–502 for bar, strip and sheet or plate classifications).

Bar iron is the form taken by freshly smelted iron as it arrived at a smith’s forge — only one bar fragment was found at Brandon (sf2197; pit 0147). Most of the forty-one strips that were recovered have a rectangular or rounded cross-section and are more or less straight, although some have been partially folded up (e.g. sf2450; cleaning over ditch 6848, smithy area), and one has been partially twisted (sf3481; 2.5m sq. at waterfront). Some of these may be smiths’ offcuts or incomplete forgings, while others may be incomplete objects destined for recycling. Approximately a hundred sheet fragments were identified: most of these are irregularly shaped and as with the strips, probably represent a mixture of unfinished objects, offcuts, and broken objects destined to be scrapped.

**Metalworking at Brandon**

The metalworking debris noted above does not form a large assemblage, particularly when compared to sites such as Flixborough which produced approximately 460 finds of similar debris, and also 31 tools (Ottaway 2009a). This is perhaps surprising given the vast quantity of slag collected at Brandon which superseded that found at Flixborough by a huge margin (see below), and with which one might expect to find concomitant smithing offcuts and scraps. One possible explanation is that debris was dumped outside the areas of excavation but it is certainly true that ironwork survived poorly in the acid Brandon soil, which contrasts with the concentrated, dumped deposits at Flixborough for example.

Most of the bars, strips and sheet fragments were found in Saxon levels, and in the 2.5m squares. Distributions of the material suggest some concentrations in Phase 2.3.1 in the waterfront area, and in the 2.5m squares within the area of the northern enclosure ditch, and predominantly towards the eastern edge of the site. Three of the metalworking punches (sf3450, sf3544, sf3426) were found in 2.5m squares close to the smithy. However the possible soldering reservoir (sf2428) was found in the south-west corner of the site, some distance from the other metalworking tools and scraps.
Stone mould
by David Williams
An incomplete ingot mould sf5179 (Fig. 9.3) was recovered from layer 5214 (Phase 2.3). The stone was identified as a fine grained glauconitic sandstone; Lower Greensand deposits can be found to the north-east of Brandon, around King’s Lynn, and also to the south-east, just to the west of Cambridge.

Illustration
sf5179 Ingot mould, broken along two sides. Top face smoothed, with three broad grooves cut into it, each of different width and depth. Layer 5214, waterfront area, Phase 2.3.

Iron slag and related debris
by Lynne Keys

Introduction and explanation of terms
Just under 416kgs of slag and related debris were examined, a very large assemblage for a small, non-urban, single-period site. The identifiable slags are those of secondary smithing: hot working of single pieces of iron to create or repair an object. The tiny amount of smelting slag (produced when making iron from ore and fuel in a furnace) was tap slag (116g) and dense slag (80g). Run slag (696g) could represent either smelting or high temperature smithing. Most of the smelting slag was recovered from grid square clearance; the date of all pieces and their degree of residuality is not certain. It is possible the run slag is residual Iron Age or Early Anglo-Saxon although there is no evidence for smelting at Staunch Meadow. Several unusually large smithing hearth bottoms were recovered from post-Saxon (medieval to modern) deposits. They probably found their way there by chance, as dumped material. Their sizes are within the range for medieval and later smithing hearth bottoms. Much of the slag assemblage is described as undiagnostic because it was broken up during deposition, re-deposition or excavation. Other types of debris may derive from a variety of high temperature activities — including domestic fires — and could not be taken on their own to indicate iron-working. When found in association with iron slag they were considered as by-products of smithing. These include fired clay (7.1kg), vitrified hearth lining (28kg), cinder (10.9kg), and fuel ash slag (16.8kg). Fuel ash slag is a lightweight, porous, whitish-grey to grey-brown residue produced by a high temperature activity where these two constituents are such as a clay lining or surface. It is produced by any high temperature smithing. These include fired clay (7.1kg), vitrified hearth lining (28kg), cinder (10.9kg), and fuel ash slag (16.8kg). Fuel ash slag is a lightweight, porous, whitish-grey to grey-brown residue produced by a high temperature reaction between alkaline fuel ash and siliceous material such as a clay lining or surface. It is produced by any high temperature activity where these two constituents are present. If the quantity of fuel ash slag from Brandon seems superficially significant it should be noted it can be produced in domestic hearths and by accidental fires (e.g. burning down of wooden structures of the type that would have been ubiquitous at Brandon). One type of debris more easily identified with metalworking was iron rich cinder (172g), which is very magnetic and was created in an iron working hearth. Cinder is a very porous, highly vitrified material, resembling honeycomb, formed at the interface between the alkali fuel ashes and siliceous material of a hearth lining.

Ferruginous concretions are made up of a redeposition of iron hydroxides (rather like iron panning), enhanced by surrounding archaeological deposits, particularly if iron-rich waste is present as a result of iron working. Almost six kilos of this material were found; given the quantity of slag and iron objects present in the soil, this is to be expected. Amongst the slag were a number of unusual ferruginous lumps; it soon became obvious that, beneath the surface concretion, there was a void and then an iron object; over time a protective concretion of iron corrosion and sand had formed on the objects’ surfaces and later, when the corrosion dissolved, the iron was left preserved inside the sandy lump. With experience it became possible to distinguish these lumps from other ferruginous concretions and they were removed for x-radiography. One proved to be an inlaid sword hilt fixture, sf2827 (Chapter 8.VI) taking the number of these from the site to three. A smithing hearth bottom is a plano-convex-shaped slag formed from high temperature reactions between iron, iron-scale and silica from either a clay furnace lining or a silica flux used by the smith. The iron silicate produced by this reaction dripped down into the hearth base forming slag which, if not cleared out, developed into the smithing hearth bottom. Before it could grow large enough to block the tuyère hole (where the air from a bellows entered the hearth) it was removed and dumped in the nearest pit, ditch or unused area. Three hundred and eighty-four complete smithing hearth bottoms (total weight 121kg) were recovered (Table 9.1) but it was obvious there were many, many more incomplete examples among the undiagnostic slags.

<table>
<thead>
<tr>
<th>Range</th>
<th>Mean</th>
<th>Std dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>weight</td>
<td>48–1374g</td>
<td>313.6</td>
</tr>
<tr>
<td>length</td>
<td>50–150mm</td>
<td>89</td>
</tr>
<tr>
<td>breadth</td>
<td>40–130mm</td>
<td>70</td>
</tr>
<tr>
<td>depth</td>
<td>14–75mm</td>
<td>35</td>
</tr>
</tbody>
</table>

Table 9.1 Statistics for all smithing hearth bottoms (384 examples)

Several smithing hearth bottoms in grid squares 8957 and 8958 have tapering sides indicating a very shallow hearth — merely a scoop in a surface — with a gradual slope toward the rim. The upper edges of these slags were so thin they had broken off when dumped and current measurements are smaller than original size. An example from structure 5353 (peninsula 5427/6466, Phase 2.2) was reminiscent of a palm cup in shape suggesting a vessel had been used to contain the charcoal and fire on the hearth. The perfectly rounded bases of some from ditch 8168 (Phase 1.2) certainly suggested they were formed in a vessel and, as confirmation, an example from context 5403, a slag group from grid square 8962, still retained on its base broken pieces of the ceramic vessel in which it had been formed.

Smelting activity and forges
Unless carrying out mere straightening or shaping of small, thin pieces of iron, a smith is likely to have worked in a building (‘forge’ or ‘smithy’) rather than in the open air. Working in a shaded or darkened environment allows the colour of the heated iron to be seen so it may be quenched and tempered at the correct moment; colour is the way smiths judge the temperature of the heated metal.

If significant numbers of smithing hearth bottoms are found in adjacent features it is often indicates smithing
took place nearby. If the features are adjacent to or associated with a building there is a strong possibility it may have been a smithy. It is possible to investigate this premise by examining other evidence for smithing activity: micro-slags such as hammer scale, the amounts of other slags, tools, whetstones, and hearths. Hearth(s) may be at ground level or raised (the latter using stone, brick or tile) so the smith could work standing up. If a raised hearth collapses or is dismantled after a smithy goes out of use there will be little or no evidence to indicate where it stood and other evidence must be used to locate foci of smithing.

It is relatively easy to determine whether some features contain more smithing hearth bottoms and other slag than others and whether they cluster in one or more areas. Using this method, four grid squares stood out as potential foci of smithing. These were 9162, 9161, 9157 and 8961 (Table 9.2). The distribution of smithing hearth bottoms and undiagnostic slags was examined in an attempt to locate any building which may have served as a smithy.

Table 9.2 Weight of slag and number of smithing hearth bottoms (SHBs) by grid square

<table>
<thead>
<tr>
<th>Grid sq.</th>
<th>SHBs</th>
<th>Total wt (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9162</td>
<td>61</td>
<td>47962</td>
</tr>
<tr>
<td>9161</td>
<td>45</td>
<td>44107</td>
</tr>
<tr>
<td>9157</td>
<td>40</td>
<td>31445</td>
</tr>
<tr>
<td>9156</td>
<td>20</td>
<td>24620</td>
</tr>
<tr>
<td>8961</td>
<td>31</td>
<td>22170</td>
</tr>
<tr>
<td>8962</td>
<td>15</td>
<td>20471</td>
</tr>
<tr>
<td>8861</td>
<td>16</td>
<td>17600</td>
</tr>
<tr>
<td>9061</td>
<td>18</td>
<td>17148</td>
</tr>
<tr>
<td>9059</td>
<td>5</td>
<td>13626</td>
</tr>
<tr>
<td>9158</td>
<td>10</td>
<td>13131</td>
</tr>
<tr>
<td>8960</td>
<td>9</td>
<td>11860</td>
</tr>
<tr>
<td>9057</td>
<td>5</td>
<td>11627</td>
</tr>
<tr>
<td>9062</td>
<td>13</td>
<td>11536</td>
</tr>
<tr>
<td>8959</td>
<td>14</td>
<td>11206</td>
</tr>
</tbody>
</table>

Table 9.3 Statistics for smithing hearth bottoms

<table>
<thead>
<tr>
<th>Gr. sq. 91/57</th>
<th>Range (g/mm)</th>
<th>Mean</th>
<th>Std dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>weight</td>
<td>80–1310</td>
<td>378</td>
<td>312</td>
</tr>
<tr>
<td>autolength</td>
<td>65–140</td>
<td>90</td>
<td>20</td>
</tr>
<tr>
<td>breadth</td>
<td>45–130</td>
<td>71</td>
<td>19</td>
</tr>
<tr>
<td>depth</td>
<td>15–75</td>
<td>38</td>
<td>13</td>
</tr>
</tbody>
</table>

Building 4491: the forge and its products

Although it was third largest in the distribution table, grid square 9157 was the area where a forge was most easily and definitely identified. The smithing hearth bottoms there clustered outside and respected the outline of post-built building 4491 (Fig. 4.29). The undiagnostic slag also respected this building and, additionally, was seen to lie in what may be a narrow passage between it and another building to the southern end, previously it had been thought the posts of these buildings were one structure. Inside what will now be referred to as ‘the forge’, at its northern end, was a hearth (4493) of burnt chalk, chalk fragments, flint and pebbles. Layer 4494, forming part of and overlying 4493, was a mixed layer containing burnt and unburnt clay and was not an in situ oven floor. Just beyond, to the north of the hearth was post-hole 4529, packed with clean yellow clay; Roman tile fragments lay horizontally around the top of this fill.

Having identified a forge, the distribution of iron objects in and around building 4491 and in layers moved upward by natural disturbance was examined. Almost all the objects were tools (a tanged punch sf3544, a broken hammer sf3168, a possible tool sf4189) and knives/blades (eight found next to the building or in immediate surrounding area). Other objects were several flat iron strips (two perforated, one with a nail in situ); these point to hot working of single pieces of iron (as opposed to high temperature welding). To the north of the building’s truncation, in grid square 9158, smaller quantities of smithing hearth bottoms (ten examples) and other slag were found. It was here that one (sf4422) of the three inlaid iron sword hilts from the site (the others being sf2240 and sf2827) was recovered; given the forge’s association with knives and blades it is tempting to suggest the sword fitting may be related to the work carried out there. To the south of building 4491, in grid square 9156, the twenty smithing hearth bottoms were probably waste from the forge in 9157; there was no other evidence for a focus of smithing in that square.

Other smithing evidence

Hearth 5353 (waterfront peninsula 8116) saw two phases of use and may have been used for smithing: it contained the palm cup-shaped smithing hearth bottom; other smithing hearth bottoms and slag were associated with it. Its base (5418/5567) was of tightly packed Roman tiles covered with fired clay. Above this was hearth 5353, an area of solid clay with flints set in the top. The two phases were seen during excavation as being a layer of yellow clay with charcoal ash on top, followed by a repetition of the same above that. The clay layers themselves were not burnt on top suggesting the fire was raised above the clay on a fire bed (the layer of flint etc.) which was removed for renovation at least once. Some vitrified hearth lining in the Brandon assemblage revealed some hearths had been re-lined by putting clay over the original, fired lining; perhaps horizontal fired surfaces were peeled off these hearths before a new fire bed was laid. Worth considering is the theory that a vessel might be set into the upper surface (the charcoal and fire being contained in this), which would inhibit firing of the clay surface. Layer 5354 in peninsula 6894, described as being similar to 5353, contained a piece of quern which seemed to the excavator to be providing a firm working surface; whether the quern formed part of the raised feature or whether it was serving another purpose is not understood.

Grid square 9162, with the largest number of smithing hearth bottoms, did not lend itself so easily to interrogation. It was noticed in early post-exca VATION
analyses that large quantities of different material, including slag, had been moved to and heaped up either side and behind the northern waterfront area. The slag evidence suggests some kind of smithing did take place in the vicinity of hearth 5443 (peninsula 8117): one layer (5442), associated with or overlying the debris near the hearth, contained eleven smithing hearth bottoms alone. No building or structure, however, could be associated with this hearth. Various iron objects — pieces of sheet, strip metal, four bars, four blades, a hook and a hasp — were found in the vicinity.

It is possible some slag in grid squares 9162 and 9161 is residual or redeposited, brought there for reclamation of the waterfront or removal from the island for use elsewhere. Other areas were difficult to interpret because of disturbance and removal of slag deposits. Unfortunately, any early smithing activity could not be located. The beautifully-formed smithing hearth bottoms and others found in ditch 8168, grid square 9055, and those from pit 3826, 9056 at the ditch northern end, are likely to have come from building 4491.

Hammerscale is a term used to describe two diagnostic micro-slags produced by smithing. Silver flakes are produced during smithing of a single piece of iron, small spheres during high temperature welding to join two pieces of iron. Hammerscale is so tiny it usually remains in the immediate area of smithing activity (around the anvil and between it and the hearth) when larger (bulk) slags are cleared out, and is usually recovered by sampling floor deposits. The further away from the focus of smithing or the more re-distributed the deposits containing bulk slags, the less of it there is likely to be.

No hammerscale samples are recorded for Brandon; during specialist examination, however, hammerscale was found in the soil adhering to bulk slags from 2.5m squares 3271 (grid sq. 9060), 4141 (grid sq. 9156 just south of building 4491); and 4151 (grid sq. 9157, building 4491). In all cases it is flake hammerscale, indicating simple hot working of single pieces of iron rather than high temperature welding; this supports the evidence of the iron knives, blades and strips from the forge area.

Although not completely understood, the hearths used for metalworking and other activities are of some interest. Flint played a significant role in their construction and slags from many contexts were found to contain flint. Although it may occur naturally in the local clay and so found its way into hearths, some of the excavators’ descriptions reveal this was not always the case. In a number of instances clean clay hearth bases had a layer of flint placed on top. The heat-retaining properties of flint were probably being utilised in all kinds of hearths, domestic and industrial, but it may also have served as a convenient flux in smithing hearths. At Brandon we see flint being deliberately used in the construction of hearths and laid on top of clean clay or mixed other material to form a surface on which a fire bed could be made. It was noticed that many hearths appeared to have been created by constructing an upstanding wooden frame filled with debris (A. Tester, pers. comm.). This is a method of construction used for smithing hearths until very recent times and we know the fire bed would be on the top of the raised hearth, allowing the user to stand up while working.

Finally, it should be noted that the distribution of iron objects from the site tends to show clusters in areas where there is evidence for smithing (Fig. 4.63).

**Lead (alloy) working debris**

by Jane Cowgill

There are 669 pieces of lead waste, weighing in total 3679g, and these have been broadly subdivided into four categories — casting waste, sheet metal, ingots and strips (only six pieces weighing 27g). There was no evidence for the sheet fittings found at Wearmouth and Jarrow that are thought to have been used to attach lead tiles or sheeting to roofs (Trueman and Cramp 2006, 41–9). The casting debris, mainly spills, flows and droplets, form the largest group (81%), consisting of 542 pieces (c.2.4kg) with the heaviest individual piece weighing 323g (waterfront peninsula 8116, sf8356), but only seven pieces weigh over 25g and thirty-four over 10g. The average weight, if these heavier pieces are excluded, is only 2.6g. The distinction between these three main categories of casting waste is that the droplets are air-cooled and therefore have no flat surfaces, whereas the spills are in the form of small ‘pools’ and the flows have evidently flowed — the difference between the two latter types was sometimes marginal and no doubt there is some overlap. The droplets tend to be the smallest pieces, with all those weighing over 10g being spills and flows, but again many of them are very small. Only two pieces, both spills, have an imprint of the material onto which they solidified, both are very small but the piece from 2.5m square 7039 (sf7313) appears to have a grainy wood imprint while an unstratified piece (sf8371b, grid sq. 9063) has a textile impression on its flat surface. This has been identified as an impression of a medium-coarse textile in tabby weave which is impossible to date (P. Walton Rogers, pers. comm.).

Three small fragments of hand-made pottery were identified as possible crucibles (Chapter 6.II). Such vessels are a fragile form of evidence and are easily crushed or trampled, especially if they are as vitrified as the examples from Carlton Colville (Cowgill 2009a), so the small quantity is unsurprising. Only one stone (ingot) mould was found (see Williams above), and the quantity of copper-alloy waste is minuscule (see Riddler below). Amongst the lead assemblage there are no runners, sprues or flashings (trimmings of excessive metal from the edges of cast objects) to indicate that objects were being cast at the site, forms of waste that would be expected amongst an assemblage of this size if this was the case. There are a few pieces that have been catalogued as being possible miscasts, but these are all very tentative identifications and in no instance could the intended object type be identified.

There are 110 (552g) pieces of sheet offcut, 16% of the total assemblage by count (15% by weight). Fifteen pieces weigh 10g or over with only four exceeding 25g, the heaviest weighing 39g (2.5m square 7027, sf7314). The average weight of the sheet, excluding the heavier pieces, is 2.6g — the same as the casting waste. The thickness of the sheet will inevitably be variable and these pieces range from <1mm to 7mm, no doubt due in part to the difficulty of casting sheet, particularly if they are required in any great size. Lead cools very rapidly and when casting (throwing) a sheet all the lead must be fully molten and thrown at the same time; a single sheet cannot be made in stages (for further discussions on Middle Saxon lead sheet production see Cowgill 2009b and 2009c). Inevitably there will be flaws, particularly around the sheet edges, and many of these offcuts may be trimmings removing these, especially when ‘miscast’ or ‘fractured edges’ have been recorded as being present on a piece. The edges are
also likely to be more variable in thickness, unless the sand casting bed is very carefully prepared and the thrown lead levelled with skill. The majority of the lead sheet is less than 4mm thick. The sheet used to produce the lead vessels found at Bottesford, Lincolnshire, was of similar thickness and B. Lockwood of C.E.L. Traditional Sandcast Lead Manufacturers and Suppliers suggested only experienced and skilled lead casters could have achieved sheets this thin (Cowgill 2009c). Lead sheet in the late 7th–8th century may have been thrown close to the Derbyshire lead source and then exported in that form to the monastic houses and other consumers around the east coast (Cowgill 2009b and 2009c). If the Brandon sheet is contemporary, possibly a similar scenario could be envisaged.

There are eleven potential ingots weighing 735g. Once again some of these identifications may be over generous. Only one is confidently described as a bar ingot end (2.5m square 8731, sf8552, weight 5g), while another three are possibilities. The piece from 2.5m square 7034 (sf7317, weight 8g) could be a small rectangular ingot but with a triangular section (22 x 10 x 8mm), another is a miscast bar measuring 12 x 10 x 5mm with an oval section and weighing only 4g (layer 5584 in clay feature 8119, peninsula 6892, sf7263), while the third is more tentative but again has been cast and measures 18 x 9 x 9mm (2.5m square 9098, sf8683h, weight 10g). Some of the remaining pieces may be ‘informal’ ingots, namely pieces of waste melted down and cast in a convenient container. One is a roughly rectangular block 41 x 44 x 11mm in size (2.5m square 8744, sf8525, weight 123g), another is a very irregular square lump with cut marks measuring 16 x 17 x 15mm and weighing 24g (layer 9143, sf9979). The heaviest ‘ingot’ at 440g is unstratified, but in this instance the lead has been cast in the base of a bowl giving a diameter of c.76mm and a height of 24mm (sf9748). The thick folded pieces of sheet weighing 84g (2.5m square 8732, sf8526) were probably folded to make them a tidier package for ease of storage and perhaps transport. All this lead was probably intended for reuse, as no doubt were the larger pieces of casting waste and sheet. They may well also have been tradeable, their weight perhaps dictating their value. Not all of the lead in ‘ingot’ form need necessarily have been intended for reuse at Brandon.

**Distribution of lead finds**

When plotted, the majority of all the categories of lead waste are from the excavated 2.5m grid squares to the east of grid line 92 (Fig. 4.68), with just a thin scattering of finds in the southern part of the site to the west of it. The focus for these finds appears to be within square 9453 with just a thin scattering of grid line 92 (Fig. 4.68), with just a thin scattering of finds in the southern part of the site to the west of it. The focus for these finds appears to be within square 9453 with just a thin scattering of grid line 92 (Fig. 4.68), with just a thin scattering of finds in the southern part of the site to the west of it. The focus for these finds appears to be within square 9453 with just a thin scattering of grid line 92 (Fig. 4.68), with just a thin scattering of finds in the southern part of the site to the west of it. The focus for these finds appears to be within square 9453 with just a thin scattering of grid line 92 (Fig. 4.68), with just a thin scattering of finds in the southern part of the site to the west of it. The focus for these finds appears to be within square 9453 with just a thin scattering of grid line 92 (Fig. 4.68), with just a thin scattering of
it, but if it is 8th to early 9th-century in date something unusual may be happening. Until a site on this scale employs metal detecting as a recovery method to such a thorough degree, it will remain uncertain as to how common lead finds are on comparable sites. All that can be concluded is that the site has produced a large casting, sheet and perhaps ingot assemblage when the metal is almost invisible on any contemporary site. As Cramp has commented ‘lead seems to be a prized commodity during the Anglo-Saxon period’ (Cramp 2006, 36).

Copper alloy waste
by Ian Riddler
Fourteen fragments of sheet metal were mostly recovered from metal detecting, with three pieces (sf2022, sf4942 and sf5457) stemming from stratified Saxon contexts (e.g. sf4942 Fig. 9.3). Several of the fragments have been folded, probably for recycling. The unstratified pieces could be Anglo-Saxon or medieval in date.

Illustration
sf4942 Ae. Small fragment with incised lattice patterning towards one end. 2.5m sq. 5382, Phase 2.3.1.

VII. Woodworking

Evidence for timber-working based on the timber artefacts from buildings and structures on the site is discussed by Richard Darrah in Chapter 5. Some implements related to woodworking are described here.

Woodworking tools
by Nicola Rogers
Fig. 9.4
A complete axe head (sf2241) found in topsoil, is a woodcutter’s axe, used for felling trees, and cutting and splitting trunks. Its form is known in the medieval period (Goodman 1964, 28, fig. 19, no. 1), but has changed little up to the present day. The solidity of this axe head, and its recovery from topsoil, must suggest a recent date is a possibility.

Wedges such as sf2646, which was found in a 2.5m square, were used to split large timbers. A similar wedge was recovered from a mid 9th to early 10th-century context at 16–22 Coppergate, York (Ottaway 1992, 529, 2257). Sf1796 may also be a wedge.

SF9904 appears to be a tanged chisel (Fig. 9.4) which would have had a short handle, and thus would probably have been used in woodworking rather than in the heat of metalworking. Chisels are not common finds of the Saxon period, but examples have been found in Thetford (Goodall 1984, 77, fig. 115, 5–6) and York (Ottaway 1992, 521, 2245).

One large spoon bit or auger (sf9707), and a second possible spoon bit (sf4890), used for drilling holes in wood, were both recovered from 2.5m squares. Although lacking its spoon-shaped tip, sf9707 has the flat, wedge-shaped tang which is characteristic of spoon bits (Ottaway 1992, 533), and which would probably have been inserted into a winged, transverse handle (Ottaway 1992, 532). SF4890 retains the tip of its working end, but while rounded, this is not clearly scooped, and so its identification as a spoon bit has to remain tentative.

Changing little in form from the Roman period to the present day, spoon bits appear to have been made in a range of sizes. Some carpenters of the Saxon period probably possessed sets of spoon bits of varying sizes, as in the six examples found together in the 10th-century Mästermyr tool chest from Gotland, Sweden (Arwidsson and Berg 1983, pls 13 and 28). There are other examples of bits of many different sizes from contexts of Anglo-Saxon and Anglo-Scandinavian date from sites in Britain (Ottaway 1992, 532–6), including 16–22 Coppergate, York which produced examples which are both larger (Ottaway 1992, 533–6, 2262) and smaller (2264, 2266) than the Brandon bits, and Late Saxon Thetford from which the complete bits are all smaller (Goodall 1984, 77, 14–15).

Illustration
sf9904 Tanged chisel, with sub-rectangular blade broadening out slightly to cutting edge, tang of sub-square section slightly bent at top with sub-discoidal guard. 2.5m sq. 9105.

VIII. Leatherworking

Iron awls
by Nicola Rogers
Seven awls were recovered which are differentiated from tanged punches, to which they are very similar, by their generally thinner tangs and working arms, which are often of roughly equal length. Apart from the awls with working arms of diamond-shaped section, such as sf9705, which must have been used to make holes in leather (Ottaway 1992, 552), these tools, could, like the tanged punches, have been used in other crafts such as metal-, bone- or wood-working.

One only of the awls from Brandon (sf3281) appears complete, and at 192mm long, it is the largest by a considerable margin. It is also larger than the largest awls from 16–22 Coppergate, York which measured 164mm in length (Ottaway 1992, 552–4, 2725), and from Thetford, which measured 160mm (Goodall 1984, 81, fig. 120, no. 34) while the longest of the twenty-eight awls recovered at Flixborough was 128mm in length (Ottaway 2009a).
**Bone awl**
by Ian Riddler
Fig. 9.5
A fragment from a bone implement of flattened oval section with a rounded apex and oval perforation can be described as an awl, in part as a means of distinguishing it from the series of bone needles. It differs from them both for its size and material, cortile tissue on one side indicating that it was produced from domestic mammal bone. Large implements of this type with rounded or flattened apices occur in small numbers on Middle and Late Saxon sites. They include examples from Wharram Percy and York, as well as further afield at Elisenhof, Haithabu and Mikulice (MacGregor 2000, fig. 71.102; Rogers 1993, fig. 667.5542; MacGregor et al. 1999, fig. 911.7968; Westphalen 1999, 65–6 and taf 12.28; Ulbricht 1978, taf 44.3; Kavánová 1995, abb XXVII.4).

**Illustration**
sf2033  Head and small part of shaft of bone awl, with rounded apex and circular perforation, set off-centre. Flattened oval section, highly polished. Pn 0281, Period III.

**Lead stamped pad**
by Jane Cowgill
A lead pad (sf9799; Fig. 9.5) was an unstratified find. It is disc-shaped with a diameter of 64mm, 14mm thick and weighs 448g. On the upper surface are two clear imprints of patterns consisting of a number of squares and rectangles sunk into the surface of the lead. Each set of imprints measures 11mm (6 boxes) by 10mm (5 boxes). Additional, less clear imprints exist on the surface including other faint patterns that appear to have been made in antiquity. There is a ridge around the circumference of the pad which is up to 1mm high in places, while the back is slightly concave and a number of ?knife cut marks of varying depths occur around the periphery.

The lead pad was examined using light microscopy and scanning electron microscopy, and at high magnification the pattern appeared to be a simple one, as no further detail was observed (Blakelock 2005). In each patterned area, some of the depressions are almost square while others are clearly rectangles and form a pattern that is the same for both sets of marks. Overall, each pattern has two rows of large almost square depressions, followed by a row of thinner rectangles and then two more rows of large square marks. The depressions are all of variable depth but none is more than 0.5mm deep and some of the edges are sharp but others are more rounded. The bases of many are flat but a few, particularly in the thin rectangular row, are angular and almost V-shaped at the bottom. Twisting also seems to have occurred and some of the square impressions have been distorted.

There are three possible theories as to how the marks were produced. Each depression could have been made individually by a single punch, or alternatively by a die with a narrow rectangular face, cut with a line of upstanding squares, which could produce a single line of square depressions. The third possibility is that a stamp was produced to replicate the entire pattern and that this was the case is supported by the fact that the shapes of the individual depressions in each pattern are very similar and in some cases traits are repeated between the two. The only problem is that, in one set of marks, one of the lines of depressions is at a slightly different angle to the other lines and this is not repeated. Differences in the spacing, however, may have occurred due to the unevenness of the lead pad, accidental twisting of the stamp during use or distortion of the pad afterwards. Using a single stamp explains some of the irregularities that occur in the same location in both patterns, which would be extremely difficult to replicate using a single punch. The lead pad is perhaps a convenient size for delicate working. The raised edges may have been deliberately left, perhaps because they could be used to hold a small item while it was being worked.

The stamp was probably made in either a copper alloy or from a steel tipped iron rod, but if the latter were the case such a stamp would be almost impossible to identify from the archaeological record. The sharp edges of the depressions suggest that the punch may have been tried out directly on the pad prior to being used on another material; the fainter marks on the surface may be the impressions left when something was placed between the die and the pad.

The most important parallel is the stamped impressions on the remains of a decorated leather sheath from Southampton. It was made from calf leather, possibly lined with haired skin and in the blade area it was decorated with an embossed double ribbon of interlace against a stamped-grid background (Cameron 2005, fig. 32). The grided pattern appears to be of a similar size and quality as that on the lead pad. This is, however, to date a unique find.
as other published 7th-century English examples are more commonly tooled (Cameron 2000, 51–2).

Other possible parallels for this are stamps found in Denmark and Holland (Tulp and Meeks 2000), but the die used at Brandon would have been very crude by comparison with these finely tooled examples. These dies were used for creating finely-patterned foils, which were placed behind garnets to reflect light through the stones (Meeks and Holmes 1985). No dies for punching patterns into foil are known from Britain. Meeks and Holmes (1985) carried out experiments in foil reproduction including what constituted suitable backing material, and found that when a lead backing was used (thin sheet 4mm to 8mm produced the best results), sharply-defined patterns resulted. It is unlikely, however, that the lead pad from Brandon was used for creating cross-hatched foils to back garnets, because the pattern is coarser and cruder than any found on gold foils.

Apart from the sheath and gold foils, the grid motif is repeated on some antler stamps used by potters. The best examples are those from Maastrict which could be related directly to stamped ceramics (Dijkman and Ervynck 1998, fig. 37), but there is some suggestion that the more elaborate examples may have been used on leather (Riddler 1986, 19).

That the lead pad was used as a backing seems likely, the other faint depressions present on the surface suggest that something, such as sheet metal or leather, had been placed between the stamp and the pad. A possible explanation is that it was used for some kind of fine copper-alloy working but none of the copper-alloy waste or objects found at Brandon had stamped decoration and very few had even punch marks (I. Riddler, pers. comm.).

The Brandon lead pad appears to have been used as a backing for decorating either non-ferrous alloys or leather, using a single stamp to create each impression.

Illustration
sf9799 Disc-shaped lead pad. Unstratified 001.

IX. Textile production and treatment
by Penelope Walton Rogers

Research of early medieval settlements in Britain and Scandinavia has shown that the status of a site is reflected in its textile tools (Andersson 1999; Walton Rogers 2007a and 2009). The process can now be reversed and analysis of the textile tools from individual sites can be used to predict the general range and quality of the fabrics being made, so that, with the aid of other evidence, the site may be characterised as agrarian, high-status or a centre for specialist production. As will be shown, Brandon in general terms falls in the agrarian category, but it also incorporates some features of high-status and specialist workshops.

Since the manufacture of textiles entails not one, but a series of crafts, each of which would have been practised at different times of the year, some indoors and some outside, the separate processes have to be judged individually (Walton Rogers 1997; 2007b, 9–47). At Brandon there is evidence for a full range of procedures, from fibre preparation through dyeing, spinning, weaving and needlework to laundry. It is all relatively small-scale, but shows that the Brandon community, like many early medieval settlements, was capable of being self-sufficient in textiles and clothing.

Wool

The study of the sheep bones and their age at death has suggested that wool production was important at this period (Crabtree 1994, 45–6; 1996; and Chapter 10.II), although there is no evidence in the Brandon artefacts to indicate large-scale production of wool textiles. There is a fragment of iron casing from a wool comb, sf9964, a single spike from a similar comb, sf9733b, and two further fragments of spikes, sf2632, which represent a less certain identification. Anglo-Saxon wool combs of the 7th to the 11th century have a double row of iron spikes set into a rectangular wooden head encased in iron, with a wooden handle on one side. The Brandon casing has a double row of square perforations where the teeth would have been fitted and a pin or rivet to fix the casing to the head. More unusually it has remains of an organic cover on one face, which is comparable with the leather cover on later wool cards (cards were finer-toothed implements introduced in the 14th century). The spike, sf9733b, has a rounded-rectangular cross-section, the typical length, 96mm, of a wool comb tooth, and a line of corrosion on the shank where it would have been in contact with the casing. The other two fragments, sf2632, are short pieces with rounded rectangular section, but both have remains of textile twisted around the shank, which is not a feature to be expected of a wool comb spike.

sf9733 and sf9964 were found in the same area of the site, at the eastern end of the range of buildings 8832, 8893, 8892, 8927 and 9289. Woolcombs were used in pairs to open out the fleece prior to spinning and on other sites they have usually proved to cluster around domestic buildings. All the archaeological and historical evidence indicates that wool combing was an indoor craft, although it is unclear in which of the Brandon buildings it is likely to have been practised.

This small amount of evidence does not compare with Middle and Late Saxon Flixborough, where there was a complete wool comb and 193 spikes, of which perhaps half were wool comb teeth (Walton Rogers 2009, 282–3). From Anglo-Scandinavian Coppergate, York, where preservation was better, there was one wool comb, a fragment of casing from another, and 187 spikes (Walton Rogers 1997, 1720–21, 1727–31).

Flax and hemp

Pollens, seeds, capsules and broken stem-parts of flax, *Linum usitatissimum* L., and pollen and fruits of hemp, *Cannabis sativa* L., indicate that both of the common Anglo-Saxon fibre plants were cultivated in the vicinity of the site (see Chapter 10 Sections V–VI). Flax and hemp were used interchangeably for textiles at this time and have been recorded in the clothing of the dead in a number of Early Anglo-Saxon cemeteries, hemp mostly in the eastern counties, especially East Anglia, and flax throughout the country (Walton Rogers 2007b, 14–15).

Both flax and hemp have to be ‘retted’ or rotted before they are processed. In East Anglia, this was probably done by soaking the bundle of stems in tanks dug into the peat, or by submerging them on rafts in the river. After retting, the stems would be taken back to the settlement and dried over a kiln, or in the case of hemp sometimes dried in the open, after which begins the long process of fibre extraction (Markham 1683; Baines 1989; Evans 1985, 20–8). This incorporates pounding (breaking the stems with a cylindrical wooden tool), scutching (scraping the
decayed stem away from the fibre with a long knife- or bat-shaped implement), bunching (a second stage of pounding applied to hemp) and heckling (splitting the fibre bundles into individual filaments). At Brandon, typical flax scutching waste, known as ‘boon’ (the woody core of the stem) and ‘shives’ (the outer part of the stem), has been recorded along the edge of the waterfront in Phase 2 (Chapter 10.V).

Most of the tools used to process flax and hemp were made from wood and therefore rarely survive, but a single iron spike, sf3565, 66mm long and with a square section, has been tentatively identified as one of the teeth from a flax heckle: this is from non-phased context, 2.5m square 3275, in grid square 9158, north-west of buildings 4670 and 8864. Later historical sources reveal flax and hemp being processed outdoors or in a large barn, and at Flixborough flax heckle spikes clustered at a distance from the main buildings (Walton Rogers 2009, 282–3). Flax remains and a flax-pounder were found at the edge of a cemetery at 7th/8th-century Westbury, Bucks (Ivens et al. 1995, 74–8, 393–5), and at Anglo-Scandinavian York heckle spikes were mostly at the riverside end of the tenement plots, well away from habitation and close to pits containing scutching waste (Walton Rogers 1997, 1719–27, 1797–9). It therefore seems reasonable to conclude that at Brandon the area of open land close to the peninsula where the scutching waste was recovered, represents a zone for plant-fibre preparation.

Dyes were rarely applied to linen textiles and, after heckling, the prepared fibre would be taken indoors for spinning.

Dyeing

There is some evidence for dyeplants among the botanical remains collected at the northern end of the site. These include seeds from weld (sometimes called dyer’s rocket), Reseda luteola L., cleavers, Galium aparine L., and an undetermined species of Galium (Chapter 10.V). The weld plant is the source of the most frequently identified yellow dye in medieval wool textiles, and the roots of G. aparine, can be used on wool for orange shades of red, although it seems to have been less popular than other members of the family Rubiaceae (Cardon 1990, 39–40, 165; Schweppe 1993, 238–40). More contentiously, quantities of seeds from the elder tree, Sambucus nigra L., have been recovered from the same area (see Chapter 10.V). Elderberries make an unreliable dye and, although there are second-hand sources which claim their use in antiquity as a dyestuff, there is as yet no scientific evidence to support this (Cardon 1990, 104). Elderberry colorant is easily detected analytically, but it has never been encountered in some 450 analyses carried out on early medieval textiles, of which 111 come from Early and 92 from Late Saxon England (Walton Rogers 2007b, 62–4).

Perhaps the best evidence for dyeing at Brandon is the red staining on the inner face of potsherds. Four were selected for analysis by absorption spectrophotometry (visible spectrum) and thin-layer chromatography (methodology is available in archive), two, 0092 and 5205, because they had well preserved colour, and two, 0194 and 5215, because they came from significant levels of the site. Other potsherds on which a faint purple staining was observed but not tested came from 0001, 0090 and 3816. The colorants proved to be extremely well preserved, considering the relatively poor preservation of visible colour on the potsherds. Each extract gave the absorption spectra of a madder-type dye, and chromatography showed that the principal components were alizarin and purpurin, which almost certainly indicates the use of the roots of the plant Dyer’s Madder, Rubia tinctorum L. The ratio between alizarin and purpurin varied from sample to sample: the colorant from 5205 was mostly alizarin, while that from 5215 was particularly rich in purpurin. The variation in the chemical makeup of the dyes suggests that they came from different sources (that is, not from the same crop of plants or the same dyebath).

A review of Early Anglo-Saxon textiles has shown that only a limited range of blue, brown and perhaps yellow dyes was used on full-size fabrics, while reds and purples were mainly reserved for smaller items, such as garment trimmings. The reds were mainly a madder-type dye, probably derived from lady’s bedstraw, Galium verum L. There was some export from France of true madder, Rubia tinctorum L., transported in E-ware vessels into Scotland and Ireland (Walton Rogers 2001), and by the 7th century this had begun to put in an appearance in textiles from high-status sites in England (Walton Rogers 2007b, 63). By the 10th century, dyes such as R. tinctorum, were firmly established and used across the social scale on a broad range of wool fabrics in York and London (Walton Rogers 1997, 1766–71). Extensive remains of dyeplants have been found in Anglo-Scandinavian York, including R. tinctorum, R. luteola, Genista tinctoria L. (dyer’s broom or greenweed) and Isatis tinctoria L. (woad) (HALL in Walton Rogers 1997, 1767–9). The evidence from Brandon stands between the early small-scale use of dyes and the later more prevalent practice, but at present it seems to be relatively slight.

Spinning

Fig. 9.6

The craft of spinning is represented by thirty-two spindle whorls, of which twelve are chalk, one sandstone, one shale, two clay, four bone, two antler and ten lead. Each of these would have been mounted on the end of a spindle and used to keep up the momentum when spinning yarn with the ‘suspended spindle’ technique. Since spindles were mostly made of wood, they are only preserved in rare conditions, but spindle whorls are ubiquitous and have been the subject of a recent review (Walton Rogers 2007), which allows the Brandon evidence to be placed in context.

The whorls belong to Types A1 and A2 (Fig. 9.6), which incorporate all those shapes that may be loosely termed plano-convex, such as hemispherical, flattened hemispherical, rounded conical and cup-shaped (Walton Rogers 1997, 2007). These arrived in Britain during the course of the 6th century and remained in use in Yorkshire, Lincolnshire and East Anglia until the 10th century. The Brandon whorls have spindle hole diameters of 6–9mm, which is typical of Early and Middle Saxon whorls, Late spindle holes being mainly 9–11mm.

The spindle whorls are mostly made from local materials, although the shale and lead may have been collected from derelict Roman sites (Evison 1987, 112–3). That some whorls were made at the site is witnessed by four unfinished or poorly made discsards, one of bone, sf9093, and three of lead, sf9751 (Fig. 9.6), sf8238 and sf2743. Of the finished examples, some have
been lathe-turned and others, such as chalk whorls sf3280 and sf4850 (Fig. 9.6), have been cut to shape with a sharp implement. The spindle holes have mostly been drilled, but in two instances they have been cut by hand, sf2616 (bone) and sf9752 (lead; Fig. 9.6).

The presence of four bone whorls made from the naturally rounded heads of cattle femurs, sf2616, sf3670 (Fig. 9.6), sf3476 and sf9093, is particularly interesting, as this is a type that mostly belongs to the Late Anglo-Saxon and Anglo-Norman period (Woodland 1990, 217; Walton Rogers 1997, 1743). There is a femur-head whorl from Upton, Northants, which may be dated to the late 6th or 7th century (Jackson et al. 1970, 211), but most early bone whorls are lathe-turned from other parts of the skeleton. The Brandon examples have spindle hole diameters of 7–9mm and two come from secure Saxon contexts, which proves that in this region at least, the femur-head type was already established during the Middle Saxon period.

Most of the whorls, apart from the wasters, have seen extensive use, to judge from their degree of polish, and the range of their weights indicates that a variety of yarns was being produced. The weights of the nineteen whorls of stone, lead and clay were mainly between 15g and 35g, with one each at 8g, 45g and 60g (the weights of bone and antler whorls were not recorded because they can change during burial). This is comparable with the Anglo-Saxon settlement at Mucking, where eighteen whorls weighed 14–35g but six were 40–60g (Hamerow 1993, 65), and similar ratios have been recorded for Anglo-Scandinavian sites in Yorkshire and Lincolnshire (Walton Rogers 1997, 1735–45; 2009). Brandon has slightly more lightweight whorls than the other sites, but it does not compare with Flixborough, where the thirty-eight Middle Saxon stone whorls of Type A1 were all below 33g and most were between 10 and 20g (Walton Rogers 2009, 283–7). The lighter whorls at Flixborough were taken to indicate an emphasis on fine quality yarns, whereas the other sites were probably producing yarns of different quality for use in a variety of fabric-types.

Ten whorls were from securely dated deposits in Phases 1 and 2. The remainder were recovered from the topsoil, or from non-phased contexts, but since they have Middle Saxon characteristics, it seems safe to attribute them to the main period of occupation. They were found scattered through much of the site, but the main concentration was in the vicinity of building 8139, its successor 8135, and the area to the north.
Illustration

Fabric identification for stone and clay whorls by Dr G.D. Gaunt (GDG).

Form A1

sf0947 Complete ?clay spindle whorl. Plano-convex with slightly rounded upper face. Surface poor and very worn original surface present. Spindle hole slightly waisted, and flared at base. GDG: uncertain, probably baked ferruginous clay. Wt.15.0g. Ditche 0865, Phase 2.

sf2183 Complete chalk spindle whorl. Plano-convex. Lathe marks and grooves top and sides. Spindle hole funnel-shaped. Surface darkened from use. GDG: Chalk, probably Grey Chalk, i.e. upper part of Lower Chalk. Wt.23.3g. Spread 0090, Phase 2.

sf3554 Complete chalk spindle whorl, surface deteriorated. Plano-convex. Lathe-turned original, surface deteriorated. GDG: Chalk, probably Middle Chalk. Wt.30.1g. 2.5m sq. 3525.

sf3850 Near-complete chalk spindle whorl. Plano-convex (cup-shaped); surface poor; complete apart from damage. GDG: Chalk, probably Middle Chalk. Wt.21.6g. Ditche 3581, Period III.

sf3634 Near-complete chalk spindle whorl. Rounded conical. GDG: Chalk, probably Middle or Upper Chalk. [Wt.7.7g]. Unstratified 0001.

sf4167 Incomplete chalk spindle whorl. Hemispherical, lathe-turned. Estimated original weight c.60g. GDG: Chalk, probably Middle Chalk. Wt.51.0g. 2.5m sq. 4155.

sf4325 Complete chalk spindle whorl. Plano-convex (cup-shaped); surface deteriorated; complete apart from slight surface damage. GDG: Chalk, probably Middle Chalk. Wt.15.2g. 2.5m sq. 4272.

sf5004 Incomplete ?clay spindle whorl. Rounded conical. Estimated original weight 13g. GDG: uncertain, probably baked clayey silt. [Wt.10.6g]. 2.5m sq. 4687.

sf5691 Complete antler spindle whorl made from butt (identified by I. Riddler). Cup-shaped. Lathe-turned, with a deep turning groove. Layer 5739, peninsula 6892, unphased.

sf5973 Incomplete chalk spindle whorl. Surface much abraded; probably originally hemispherical. GDG: Chalk, probably Lower or Middle Chalk [Wt.7.1g]. 2.5m sq. 5377.

sf9750 Complete lead spindle whorl. Shallow hemispherical; cast and trimmed; polished from use. Wt.30.1g. 2.5m sq. 3253.

sf9751 Lead object, possibly a failed casting for a whorl. Cup-shaped; spindle hole not fully pierced. Wt.9.7g. Unstratified 0001.

sf9752 Complete lead spindle whorl. Conical; cast then cut; spindle hole cut with knife. Wt.5.5g. Unstratified 0001.

Form A2

sf2203 Complete chalk spindle whorl. Plano-convex. Lathe marks including two fine grooves on top. Spindle hole slightly waisted but narrow at base. GDG: Chalk, probably Grey Chalk (cf. 2183). Wt.45.0g. Unstratified 0001.

sf4850 Complete chalk spindle whorl. Plano-convex (cup-shaped) with shaved base; cut by hand, not lathe-turned, but spindle hole drilled. GDG: Chalk, probably Middle Chalk. Wt.34.6g. Baulk 9161.

sf5470 Complete antler spindle whorl, cut from butt (identified by Ian Riddler). Plano-convex (cup-shaped); lathe-turned and well polished. 2.5m sq. 5360.

sf5521 Near-complete chalk spindle whorl. Shallow plano-convex with shaved base, surface poor. GDG: Chalk, probably Middle Chalk. [Wt.19.7g]. 2.5m sq. 5362.

sf5864 Almost complete stone spindle whorl. Irregularly made disc-shaped whorl with sloping sides. GDG: uncertain, probably highly bituminous or ‘oil-shale’ variety of Upper Jurassic Kimmeridge Clay. Wt.5.6g. Layer 5038, Phase 2.1.1.

Cattle femur caput

sf3670 Complete bone spindle whorl. Segment from a femur caput, chopped into a thin plano-convex shape; upper face polished/worn. Wt.3.7g. Peninsula 3657, Phase 1.2.

Weaving

Weaving is represented by loom-weights, pin-beaters and a possible weaving batten. These are all associated with the warp-weighted loom, except for some single-ended pin-beaters which will have been used with a different form of loom (see below). The warp-weighted loom has two uprights, a lower fixed cross-beam, and a rotating upper cross-beam slotted into the top of the uprights. The loom is used on the slant, usually leaning against a wall, and the prepared warp is bound to the upper cross-beam so that it hangs down in a fringe. The loom-weights are attached to the lower ends of the warp, so as to tension it. As weaving progresses, the batten is brought into play to beat the weft (crossways yarn) upwards, and the double-ended pin-beater is used to strum across the warp in order to even out the tension, to pick out misplaced threads and to beat the weft loosely into place before using the batten.

Loom-weights

Fig. 9.7

There is a single fragment of a Romano-British triangular clay loom-weight, sf3766 (context 3759), which may have arrived on the site by the same process that brought Roman tile (see Chapter 5.IV), but the remaining loom-weights are all of the circular Anglo-Saxon type (Fig. 9.7). They have been made by pushing a hole through the middle of a ball of clay, which is typical of the 7th to 10th centuries, earlier weights being a roll of clay coiled into a ring. Loom-weights are usually made from whatever clay is available locally, at Flixborough estuarine clay (Walton Rogers 2009), at Mucking brickearth (Hamerow 1993, 68), and at Brandon the same material as used for daub, hearth linings and oven domes (see below).

The weights are mostly fragmentary, but the eight complete examples, together with forty where the original shape could be reconstructed, are mostly of the ‘intermediate’ form, in which the diameter of the central perforation is roughly equal to the thickness of the ring. There are also six or seven bun-shaped weights with a smaller perforation. Circular Anglo-Saxon loom-weights include the annular form, which is limited to the 5th and 6th centuries; intermediate which first makes an appearance at 6th-century Mucking (Hamerow 1993, 66) and is common from the 7th to the 9th century; and bun-shaped, which runs from the 8th century until the demise of the warp-weighted loom in the 11th century (Hurst 1959, re-assessed in Walton Rogers 2009, 288).

Although there is a tendency to regard bun-shaped as later than intermediate, at two Middle Anglo-Saxon sites, Flixborough and Brandon, although there is considerable overlap, the intermediate being 100g to 600g (84–107mm diameter) and the bun-shaped 280g to 700g (75–160mm diameter).

A set of loom-weights is selected by the weaver when deciding the type of fabric to be woven. There is no exact correlation between the weight and the fabric quality, since some fine weft-faced weaves require heavy weights, but broadly speaking lighter weights are used on finer fabrics. The full range of Anglo-Saxon loom-weights is from 100g to 1460g, but weights over 700g are comparatively rare and the Brandon collection, at 100–700g, represents a standard group. At early agrarian sites such as Mucking, a wide range of fabrics would be needed, from summer linens to heavy bedding, and this is reflected in the range of weights, which have two main clusters at 200–300g and 400–450g (Hamerow 1993, 66–7). At high-status Flixborough, on the other hand,
Figure 9.7 Loom-weights (1:2)
weights of 100–250g dominate, especially in the phases which coincide with evidence for linen production (Walton Rogers 2009, 293). Some other Middle Anglo-Saxon sites such as James Street, London (Riddler 2004, 19–22) and Old Erringham, Sussex (Holden 1976), have yielded discrete groups of heavier weights, though none of these represents evidence from a complete settlement. The Brandon loom-weights therefore match the standard agrarian pattern, but with a slight bias towards lighter weights.

The greatest concentration of loom-weight fragments lies in Phase 2, especially Phase 2.1.1. Of the total of 13.7kg collected from the site (plus a few small fragments from the fired clay bulk finds: see Chapter 5.V), 10.4kg comes from Phase 2, and 7.5kg of this is from 2.1.1. Most of the loom-weights from Phase 2.1.1 cluster in three layers, contexts 5038 (coined to after AD 725–730), 8155 and 5116, which lie close together at the north end of the site. Only six fragments pre-date these finds, in Phases 1.1 (sf3805) and 1.2 (sf2182, sf2360, sf2664, sf5120b and sf5169). Of the later finds, some lie above the main area of deposition in grid squares 9061 and 9161 and may represent residual material, or continued use of the same dumping ground. There are, however, a small number of weights scattered over the site in poorly dated contexts and in the topsoil which are noticeably heavier than those in the northern dumps. The northern group are 100–400g (75–125mm diameter), while non-phased loom-weights such as sf0873, sf3473, sf4706, sf2180–1, sf2572, are 400–700g (100–160mm diameter). It is difficult to say where the latter originated, but they seem to represent a second area, or phase, of deposition of loom-weights.

The main group of loom-weights in Phase 2.1.1 (contexts 5038, 8155 and 5116) was associated with a dense spread of charcoal, representing the remains of a fire of some sort. Layer 6188 (a charcoal spread, part of 8155 on peninsulas 6893/6393) seemed to be primarily manufacturing debris, including part-worked clay, sf6260, sf6262, unfired loom-weights, sf6287, sf6292, and wasters, sf6259, sf6274, sf6276, sf6278, sf6279, sf6281, sf6285 and sf6287, but the other contexts have yielded only fired loom-weights. There is similar evidence from early to mid 9th-century Flixborough (Flixborough site phase 4ii), where loom-weights were recovered from two contiguous contexts in the same dump, those in one group being unfired and part-made, those in the other being fired and associated with a pin-beater and other domestic debris. There is further evidence for the manufacture of loom-weights from Eriswell site ERL101, where a hut seems to have burned down while loom-weights were in the process of being fashioned from wet clay (Tester 2006). The remains from Brandon may have come from the building immediately to the south, 8139, where there was a large oven or kiln of suitable proportions for firing loom-weights (A. Tester pers. comm.).

Fabric analysis
by Sue Anderson
The fabrics used most commonly were similar to those chosen for daub, i.e. ‘fsv’ and ‘msf’ (see Chapter 5.V). The same treated clay could easily have been used for both functions, particularly if it were readily available and a few handfuls could be taken to produce loom-weights. Most of the other fabrics were also in use for making hearth-linings and oven domes. The presence of one sherd which contained common mica was unexpected, as none of the other fired clay showed much evidence for this. It may well indicate that this particular loom-weight (sf2234, unstratified) was brought to the site from elsewhere.

Illustrations
sf4926 Near-complete but outer face much chipped. Fabric various shades of grey. Rounded D-section. 2.5m sq. 4706.
sf5143 Near-complete, dark grey and pale brown exterior, triangular shape. Irregularly shaped, rounded triangular. Peninsula layer 5038, Phase 2.1.1.
sf5545 Complete, pale brown with dark grey patch. Shallow D-section. 2.5m sq. 5050, Phase 2.3.1.
sf5550 Near-complete, pinky-brown with pale grey core; well fired. Carninated section. Peninsula layer 5575 (8117), Phase 2.3.
sf6281 Complete, brown. Damaged pre-firing. Irregular section, squashed on one side. Peninsula layer 6188, Phase 2.1.1.

Pin-beaters
Fig. 9.8
Double-ended pin-beaters, Type 1
At least twenty of the thirty-five pin-beaters are of the Type 1 double-ended form used with the warp-weighted loom (Walton Rogers 1997, 1755–7). They are made of animal long-bones and antler, have a point at either end, a circular or near-circular cross-section, and where polish has survived it extends the full length of the object (Fig. 9.8). There are also seven fragments with a near-circular cross-section which probably belong with the same group. The complete examples range from 108mm to 163mm in length, and more importantly for interpretation of their function, their thickness at the widest part is from 6mm to 11.5mm. The most common thickness for Anglo-Saxon pin-beaters is 8–12mm, although the pin-beaters from 8th- and 9th-century Flixborough were particularly slender with a diameter of around 6–8mm and belonged to the same phase as the lighter loom-weights and spindle whorls already described. Brandon has produced both the fine types and the more standard ones.

The double-ended pin-beaters were broadly spread over the northern half of the site, the earliest in Phase 1.2 at the northernmost end. There is a cluster inside the northern enclosure in Phase 2.1, some in the vicinity of buildings 8137/8. It is possible that they and the loom-weights of the destruction layer in Phase 2.1.1 belong to a period of weaving on the warp-weighted loom in buildings 8137 and 8138. In Phase 2.2 there is a further group of seven pin-beaters in the triangle between buildings 4531, 2920, 0734 and 7500, although they are not associated with any one building, or with loom-weights: this group includes three of the finer pin-beaters, sf4379, sf3521, sf4248. Although pin-beaters continued to be deposited in Phase 2.3, they show no obvious clustering.

Illustrations
sf2543 Antler. Almost complete, but in fragments; oval section; hollow bone; slight polish. Unstratified 0001.
sf3521 Antler: Complete, double-ended; flattened oval section, slightly faceted; some polish, most at tips. 2.5m sq. 3473.
Figure 9.8  Weaving tools (1:1, except 9889 1:2)
Single-ended pin-beaters, Types 2 and 3

The bone pin-beater, Type 2, sf2029 (Fig. 9.8), from context 0154, Phase 1.2, is of particular interest as it represents an unusually early example of the single-ended Type 2 form. It is 130mm long, wedge-shaped at one end and pointed at the other, with the characteristic polish over tip and lower shank of this type. Fragments, sf2544 and sf6293 (Fig. 9.8), may be tentatively identified as further examples of Type 2: sf2544 includes pieces of two antler tools, both with chisel-shaped ends and these and antler fragment sf6293 have the flatter cross-section which is usual in Type 2 pin-beaters. In addition, sf7211, a roughly cut piece of bone, 189mm long, with one end tapered and the other truncated, may well be a rough-out for a single-ended pin-beater of Type 3, which is a long, curved variant of Type 2 (Walton Rogers 1997, 1756–7).

The single-ended pin-beater has been associated with the two-beam vertical loom since the Roman period; it is illustrated on a weaver’s tombstone from Roman Gaul (Walton Rogers 2001, 161), and is still used today on the hand-weaver’s tapestry loom, which is the modern variant of the two-beam vertical loom. Its function is to pick out threads and beat down the weft, as an adjunct to the short-toothed weaving comb, which is used instead of a weaving sword on this loom. Whether the two-beam loom reached Britain in the Roman period is unclear, but it survived at sites in northern France (Walton Rogers 2001, 163–4) and there is reason to suppose that it crossed the Channel around AD 900, which is the date that single-ended pin-beaters start to appear in urban and manor-house workshops in England. At this time there was a change in the structure of textiles, from the balanced weaves typical of the warp-weighted loom to non-balanced weaves such as 2/1 twills, and a loom answering the description of the two-beam vertical loom appears in an early 11th-century list of weaving equipment, where, most tellingly, the term for the weaving comb is a French loan-word, pihten (Walton Rogers 2001, 165–6).

The 10th century may mark the main thrust of the two-beam loom into workshops in Britain, but there has always been the possibility that some of the less common textile types of the 6th and 7th centuries, which include 2/1 twills, had been made on this loom (Crowfoot 1983, 440–2) (few textiles dated to the 8th or early 9th century have been recovered in Britain). There has been no evidence to support this view among the weaving tools of the early settlements, or at Middle Saxon Ipswich or Flixborough, but the Brandon pin-beaters at last show that such a loom may have had a limited use in some workshops of the Middle period. The complete example, sf2029, is from a ditch in Phase 1.2, close to building 0734; sf2544 is from a non-phased context in grid square 9161; sf6293 is from Phase 2.2 at the northern edge of the site; and the rough-out sf7211 is without phasing, but is from the halls area of the site, grid square 9453.

Illustrations

sf2029 Bone. Complete single-ended; irregular section; wedge-shaped end; slight polish, on tip and lower shank only. Ditch 0154 (comp. 6849), Phase 1.2.

sf6293 Antler. Incomplete, tip and shank; flat section, commensurate with Type 2 (single-ended); surface poor. Peat layer 6354, Phase 2.2.

Probable weaving tablet

There is also some doubt over the identification of sf2036 (Fig. 9.8) as a weaving tablet. It is a square bone plate, 27 x 27mm, with a perforation at each corner and comparable with an example, 33 x 33mm and reputedly of ivory, found in a box with other textile tools in a woman’s burial at Kingston Down, Kent, Grave 298 burial 299 (Faussett 1856, 92–3), another of bone, 36 x 30mm, from the settlement at West Heslerton (Powlesland in prep), and a third of bone, 27 x 24mm from Anglo-Scandinavian Coppergate, York (Walton Rogers 1997, 1786–7). Plates or ‘tablets’ of this kind were used in sets, with a yarn threaded through each perforation, and employed to weave the narrow bands which the Anglo-Saxons used as girdles and as strengthening edges for garments. Tablet-weaving was also practised in Scandinavia and a part-woven linen band with the warp still threaded up on fifty-two wooden tablets, each c.40 x 40mm, was found in the 9th-century royal ship burial at Oseberg, Norway (Grieg 1928, 180–1; illustrated in Collingwood 1982, 16). When used for any length of time, the tablets develop distinctive wear-marks radiating from the holes, but when new and unused, as the Brandon and Coppergate examples appear to be, they are difficult to distinguish from bone plates used as mounts on books or caskets. Nevertheless, sf2036 comes from a pit in Phase 2, context 0321, and is therefore contemporary with the evidence for other textile crafts on the site.

Illustration

sf2036 Square flat plate, with two opposing corners chamfered. No radiating wear-marks. Pit 0321 (ditch 8129), Phase 2.

Spear or weaving batten

A socketed iron blade, sf9889 (Fig. 9.8), is either a spearhead of Swanton’s Group G2 (Swanton 1973, 100–1; 1974, 17–19), or a spear-shaped weaving batten. When new, a weaving batten would be immediately recognised by its short wooden handle and the bluntness of its blade, but it is less easy to make the distinction in heavily corroded finds such as the Brandon example. The object is now c.500 mm long and the missing tip would have extended it by another 30mm or so; it is 30mm wide and parallel-sided for at least half of its length. The socket is not cleft as is usual for spearheads, but burred over the haft, a feature seen in spear-shaped weaving battens from S earby Lincs (Swanton 1973, 188–9; Walton Rogers 1998, 1973), and Coppergate, York (Walton Rogers 1992), although this is not in itself diagnostic since some spears may have been ‘parade’ weapons where a slovenly made socket would not matter.

Spear-shaped weaving battens appeared in northern England in the 6th century and are counterparts to the sword-shaped battens of the south. Other East Anglian weaving battens, from Spong Hill Grave 24 (Gilmour 1984), Edix Hill Grave 18 (Malim and Hines 1998, 52, 219, 234) and the West Stow settlement (West 1985, 138–40), are the sword-shaped form, but it is possible that spearheads from 7th-century women’s graves at Shudy
Camps, Cambs, and Lechладе, Gloucestershire, should be re-interpreted as spear-shaped battens (Geake 1997, 60). The form is relatively common in Viking Age Norway (Petersen 1951, 285–95, 522; Hoffmann 1974, 279–82) and John Hedges has suggested that two supposed Iron Age currency bars from fields near Cambridge are in fact Viking Age spear-shaped weaving battens (Hedges 1980, 120). There was a lengthening of the blade in both forms of batten over the 6th to the 9th century and the length of the Brandon example is closest to the spear-shaped batten, 535mm long, from Coppergate, York, and dated to the 8th or 9th century (Walton Rogers 1992). The Brandon blade comes from unstratified levels in the peat, but is likely to derive from the Middle Saxon occupation.

### Illustration
sf9889 Socketed iron blade, heavily corroded, tip missing; re-constructed as c.530mm long. Buried-over socket with remains of wooden haft still present. Blade elliptical cross-section. Unstratified find at the riverside to the north-east of the excavated area (Grid sq. 9565).

### Needlework
Iron shears suitable for cutting cloth have been described separately (Rogers, Section XI below), and a fragment of a copper-alloy needle, sf4944 (Fig. 9.8), represents a single piece of evidence for needlework. It has a long tapering groove on either side of the eye, which is a feature seen in 8th-century copper-alloy needles from Flixborough, although there the eye itself was usually punched. The eye of the Brandon needle seems to have been made by splitting the shank and then joining together the ends, which is a process seen more often in iron needles (Ottaway 1992, 542–7; Walton Rogers 2009, 298–300). Iron needles were more common than copper-alloy at Flixborough, but it is possible that the sandy Brandon soils have destroyed fine iron objects such as needles.

### Illustration
sf4944 Fragment of copper-alloy needle, tip missing. The shank has a circular section. The eye appears to have been constructed by splitting the head and then re-joining the ends of the split. There is a long tapering groove on either side of the eye. 2.5m sq. 5381, Phase 2.3.1.

### Laundry
The glass tools called linen-smoothers or slick-stones, are described by Vera Evison (below). These tools have sometimes been regarded as part of the finishing process for linens, due to confusion with much larger glass and marble balls used in the later linen industry, but in Norway, where the smaller hand-held variant survived into the 20th century, it was a laundry tool (Noss 1965). It was used on linen garments to smooth the seams and to put in pleats, in the way that an iron is used today. Fine pleated linens are particularly a feature of the Middle period and have been recorded in the clothing of East Anglian women buried at Harford Farm, Norfolk (Crowfoot 2000, 89), and Buttermarket, Ipswich (Crowfoot 2009).

The slick-stones are distributed in two main zones, one in the open ground north of buildings 8137/8, mainly in Phase 2.3.1, and the other to the west and north of buildings 8832/7500, in contexts loosely attributed to the Saxon phase.

### Illustration
Plate 9.2 Glass linen-smoother

**Linen-smoothers**
by Vera Evison
Pl. 9.2

The thirty-eight fragments of linen-smoothers at Brandon are all of the form which was blown as a flattened, globular bun shape. The fragments are between 2mm and 3mm thick, occasionally a little more or less, the inner surface smooth and glossy and the outer surface mostly covered with parallel scratches resulting from use. The colours here are limited to three only, olive green (29), blue-green (8) and green-blue (1), and the fragments are durable and so no doubt soda glass.

The appearance of a complete linen-smoother may be judged from the large fragment sf3367 (Pl. 9.2), for this has a diameter of 75mm and is very worn at the centre top of the globe with scratches radiating from this area and diminishing outwards in density. The parallel scratches on the surface resulted from contact with sand grains present in the water used in washing or treating the textiles.

Fragments of corresponding colour from the same context may belong to the same smoother, e.g. blue-green sf5306 and sf5968, and sf5972 was found nearby. There is a join between olive green sf5906 and sf5908, and possibly between olive green sf2686 and sf2687.

As to distribution, an equal number of linen-smoothers are recorded from the northern group and from the central group. Of the blue-green fragments two are from the Saxon phase, three from Phase 2.3.1 and one from Phase 2.2. The green-blue is from Phase 2. A smaller percentage of the olive green fragments are from known phases, one from Phase 2.1.1, one from Phase 2.3 and five from Phase 2.3.1.

Glass linen-smoothers were in use in north-west Europe and Scandinavia from the 2nd century AD and continued in use until the 20th century. For most of this time they consisted of solid glass, but between the 7th and 9th century some were hollow-blown, e.g. at Hedeby (Steppuhn 1999, 114, abb 8; Evison 2000a, fig. 4, III, 15, fig. 4, IV, 4). In England this type has been noted in London at Jubilee Hall and the Peabody site (Evson 1988c, 120–1, fig. 34.3), and at Barking, Essex, where there are fifteen fragments in the same three colours (Evison 1991, 92, no. 67(n)). None, however, has been found at Ipswich or amongst the large number of fragments at Hamwic. Solid linen-smoothers have been noted at Dorestad (Isings 1980, 233, fig. 156) and the hollow-blown variety has also been found there. As these linen-smoothers have no distinguishing features such as rim or base, some fragments may have escaped identification. None of the later solid type made from
potash glass were found at Brandon, although they have been noted in later Saxon contexts in England at Thetford, York and Winchester (Evans 2000a, 89, fig. 4, IV, 4).

Textile production and the Brandon economy

A consistent pattern has emerged from this review of the individual crafts, of the practice of a standard range of textile crafts, geared towards producing a full range of fabrics. Within this framework, however, there seem to be more lightweight spindle whorls, lightweight loom-weights and thin pin-beaters than at early agrarian sites and it is possible that this reflects an emphasis on finer fabrics and especially linen. The smaller tools were found in a much higher proportion at high-status Flixborough, where their main period of use coincided with evidence for flax heckling as well as wool-combing. At Brandon there is reliable evidence for the production of linens in the scutching waste, and for the laundry of linen clothing in the glass slick-stones. Wool was also being processed, but not to the extent seen at other sites and it is possible that many of the fleeces produced by the Brandon growers (Chapter 10.II) were passed on to markets such as Ipswich, where there was little local wool production (Crabtree 1996).

The recovery of at least one, possibly four, single-ended pin-beaters almost certainly indicates the presence of a two-beam loom, at a much earlier phase than it has been identified elsewhere. In the Middle Saxon period, the two-beam loom is most likely to have been used for 2/1 twill and tapestry-woven coverlets and hangings. The coverlets and hangings would require specialist skills and the evidence of 7th-century burials indicates that they were limited to the well-to-do. Thus, Brandon, unlike Flixborough, may have housed some form of specialist weaver or workshop.

The main area of production seems to have been in the northern half of the site. Flax was processed outdoors at the northernmost waterfront area, but would have been taken indoors for spinning and weaving, probably in buildings 8137 and 8138; clothing was then laundered outside in the open area between the buildings and the waterfront. There may have been a second area of textile-making and laundry focused on buildings 4531, 2940, 0734 and 7500 although most of the evidence comes from the triangle of land between the buildings. The distribution of much of the spinning and weaving equipment at Brandon follows that of the bone combs (Chapter 8.III), just as it did at Flixborough and, since textile production was a woman’s craft at this date (Walton 2012, 154). Thus Brandon is not alone in providing a decent range of antler and bone objects that is not matched by any quantity of waste material. Antler waste can be found close to the location of workshops but where waste is stored in middens it tends to be moved around settlements and is often dispersed well away from the site of its original deposition. Crabtree (Chapter 10.II) has drawn attention to twenty-five red deer metapodia, found with cattle and horse metapodia in context 4947, within the principal manufacturing area of the site. Evidence from Hamwic shows that red deer metapodia were utilised in the manufacture of bone handled combs. They form a rare raw material resource, amounting to just 0.2% of the waste from Hamwic, and this undoubtedly reflects the small number of occasions on which red deer bone would have become available to bone workers. At Brandon the red deer bones are entirely restricted to metapodia. At Hamwic, they are also centred on the metapodia, but extend also to offcuts of the proximal tibia. These are the principal bones used in the manufacture of handled combs and there is little doubt that the red deer metapodia from Brandon were intended for that purpose.

XI. Non-specific or unidentified tools

Iron objects

by Nicola Rogers

Shears

Fig. 9.9

Five pairs of shears were recovered, all being found in either Saxon contexts (SF8490, SF2499, SF2512) or within 2.5m squares (SF2624, SF7436). SF2512 is the most complete example of the five (Fig. 9.9), with an original length of approximately 200mm, close to the upper limit of length known in the Anglo-Saxon period (Ottaway forthcoming a). All appear to be of similar form; where it can be seen, the shoulder between the arm and blade is concave, and the bows are U-shaped, the latter being a characteristic feature of shears of the Early and Middle Saxon periods (Ottaway 1992, 548). Shears could be used in a range of activities including sheep shearing, leather working or textile manufacture as well as in domestic tasks or for personal use, as in cutting hair for example.

Illustration

SF2512 Shears, virtually complete, in two fragments, comprising U-shaped bow and arms, shoulders at joins of arms and blades unclear, tip of one blade broken off. Ditch 0678, Phase 12.2.
Possible tools
SF2538, sf4189 and sf8494 appear to be tools, but they are now too fragmentary to identify any further.

Antler composite handle
by Ian Riddler
An enigmatic object (sf1610) from a stratified Middle Saxon context consists of two connecting plates of D-shaped section, secured by iron rivets at either end to a rectangular segment of antler (Fig. 9.9). The object is decorated by a band of thin, lateral lines at one end. It has no means of suspension and appears to be almost complete in its present state. However, the connecting plates are fractured at their ends and the central segment may have been sawn laterally as a later modification to the design, rather than an original feature. There is a resemblance with one of the handled combs from North Elmham, for which the connecting plates extend beyond the tooth segments to form a three-part handle (Wade-Martins 1980, fig. 259.5).

Illustration
sf1610 Antler object, consisting of two fragmentary connecting plates of D-shaped section, with antler segment between, fastened by two iron rivets. Polished. Pit 0511, Phase 1.2.

Figure 9.9 Miscellaneous tools: antler handle (1:1) and iron shears (1:2)
I. Introduction
This chapter presents the evidence relating to the exploitation of mammal, bird and fish resources, as well as the information recovered from some preserved coprolites. Valley sediments and pollen are also considered to provide a broader view of the environment from prehistory to the recent past, and the exploitation of cereals and wild plants is discussed in relation to charred plant macrofossils.

II. Animal bone
by Pam Crabtree and Douglas Campana

Introduction
The excavations produced a total of 158,712 bird and mammal remains. The analysis of these animal bones provided an opportunity to examine the animal husbandry and hunting practices of a Middle Saxon estate centre. Most of the bones were recovered from the 2.5m squares. As a result, relatively few bones and fragments could be assigned to specific chronological phases within the Middle Saxon period. Most of the bones were recovered by careful hand troweling without fine screening. However, a number of more finely screened flotation samples were also examined. A majority of the faunal remains was identified by the authors during the summer of 1990, and the remainder of the birds and mammals were identified by one of us (PC) during January of 1991. An initial report on the bird and mammal remains was completed in the spring of 1991; the current report includes updated comparisons to faunal reports published during the past twenty years. The presentation of the data and the main conclusions drawn from them remain largely unchanged from the 1991 report.

Methods
Measurements were recorded following von den Driesch (1976), and withers heights were estimated for the large domestic mammals following the recommendations of von den Driesch and Boessneck (1974). The greatest lengths of complete mammal long bones were measured to the nearest 0.5mm using an osteometric board (measuring box). All other measurements were taken to the nearest 0.1mm using a Helios 15cm dial caliper.

Estimates of ages at death are used to reconstruct the mortality profiles of the domestic livestock. These estimates can be based on both dental eruption and wear (Grant 1982; Payne 1973) and epiphyseal fusion of the long bones (Silver 1969). A range of taphonomic studies (Brain 1967 and 1969; see also Lyman 1994 and references therein) has shown, however, that unfused epiphyses may be more vulnerable to destruction by carnivores such as domestic dogs. For that reason, estimates of ages at death for the Brandon domestic animals were based on dental eruption and wear following Grant (1982).

In order to expedite data recording, a simple coding system was used to record butchery traces. For each incidence of butchery, the location of the mark (proximal, distal, midshaft), the nature of the mark (knife cut, chop, or split), and the direction of the trace (axial, mediolateral, etc.) were recorded. Multiple butchery traces were also recorded for a single bone where appropriate.

The mammals
Figs 10.1–10.3; Pls 10.1–10.5
The Brandon faunal assemblage produced a total of 154,616 mammal bones and fragments, of which 67,968 could be identified to species or higher order taxon (Table 10.1; Fig. 10.1). The vast majority of the animal bones are the remains of domestic species, including caprines (sheep and goats), cattle, pigs, and horses. Wild mammals are rare, as they are at nearly all other Anglo-Saxon sites in East Anglia (Crabtree 1994, table 5.2). At Brandon the most common wild mammals are red deer (Cervus elaphus) and roe deer (Capreolus capreolus, Pl. 10.1). Other wild mammals present in small numbers at Brandon include otter (Lutra lutra, Pl. 10.2), grey seal (Halichoerus grypus, Pl. 10.3), small whale or dolphin (cf. Delphinus delphis, Pl. 10.4), badger (Meles meles), and hare (Lepus sp., Pl. 10.5). The remains of rabbit (Oryctolagus cuniculus), a burrowing animal, are almost certainly intrusive since rabbits were not introduced to Britain until later in the Middle Ages.

The presence of seal and dolphin/small whale bones in the Brandon assemblage must reflect some economic contacts with the coast. In addition, the consumption of

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Table 10.1 Total mammal bones
Figure 10.1 Species ratios for the large domestic mammals from Brandon based in MNI and NISP

Plate 10.1 Roe deer bones
Plate 10.2 Otter mandible
Plate 10.3 Grey seal humerus
Plate 10.4 Vertebra of a small whale
marine mammals, albeit in very small quantities, may well be an indicator of high social and economic status. Documentary records from the Late Saxon period indicate that cetaceans were occasionally recorded as tributes paid to elites during the Late Saxon period, and the consumption of these animals might have been controlled during the Middle Saxon period as well (Loveluck 2001, 114; Gardiner 1997, 175; Hooke 1998, 51). Small numbers of cetacean bones were also recovered from the Anglo-Saxon site of Flixborough in north Lincolnshire (Loveluck 2001; Dobney et al. 2007), a site that, like Brandon, appears to be both ecclesiastical and high-status.

The animal bone evidence indicates that the Brandon animal economy was based primarily on the raising of livestock including sheep, cattle, pigs, horses, and goats. Although a small number of goat bones was present in the faunal assemblage, the vast majority of the caprine bones that could be identified to species were sheep rather than goat remains. Sheep also outnumber goats at the Early Anglo-Saxon site of West Stow (Crabtree 1989; 1990a), and the Domesday records for East Anglia indicate that sheep markedly outnumbered goats at the time of the Norman Conquest. Sheep also outnumber goat at the Middle Saxon estate centres of Ramsbury, Wilts (Coy 1980) and Flixborough, Lincs (Dobney et al. 2007, table 4.1).

Species ratios for the main domestic species were calculated using both the Minimum Number of Individuals (MNI) and the Number of Identified Specimens Per Taxon (NISP) methods. The species ratios for the main domestic mammals from Brandon are shown in Table 10.2. The data clearly indicate that sheep were the predominant species at Brandon, followed by cattle, and then pigs. Horse remains are relatively rare. The species ratios are generally similar to those seen at the Early Anglo-Saxon village of West Stow (Fig. 10.2), although the Brandon assemblage shows a slightly higher proportion of sheep and a corresponding decrease in cattle.

A small proportion of the Brandon animal bones could be assigned to the Saxon phases. Species ratios based on NISP have been calculated for the main domestic animals recovered from these phases (Fig. 10.3 and Table 10.3). The species ratios for the smaller Late Saxon site at Brandon (BRD 071) have also been included in this table. Although the sample sizes are relatively small (Table 10.3), there does appear to be a slight increase in the importance of cattle and horses through time, with the exception of Phase 2.1 (see below). There is a corresponding decrease in the importance of sheep and pigs. This trend seems to represent a reversal of the earlier patterns seen at West Stow. At West Stow, the pre-Roman Iron Age features include substantial number of cattle and horses (Crabtree 1990b). The small faunal sample from the Roman kilns and the larger assemblage from the Early Anglo-Saxon village reveal a gradual increase in sheep and pigs that appears to continue into the earliest phases at Brandon.
The distribution of animal bones was not uniform across the site. There was clear evidence for the development of surface rubbish-heaps that were often located adjacent to enclosure boundaries (Carr et al. 1988, 373). Analyses of the spatial distribution of the faunal remains revealed a concentration of cattle remains between buildings 8893 and 8927 (Fig. 4.56). These buildings have been dated to Phase 2.3 and are the final buildings in this region of the site. The distributional data suggest that not everyone at Brandon may have had equal access to beef. The area around buildings 8893 and 8927 may represent a wealthier part of the site. The peak in cattle bone noted in Phase 2.1 is partly a result of the inclusion of the fill of large ditch 7518 (a component of ditch 8134) which ran between the halls and the church 7098 in this phase; it is possible that this backfill relates to the Phase 2.3 use of the area.

Other lines of archaeological evidence point to significant dietary variations within Anglo-Saxon communities. Stable isotope analyses of human and faunal remains from the Anglo-Saxon cemetery at Berinsfield in Oxfordshire (Privat et al. 2002) reveal significant dietary differences between wealthy and poorer individuals within the cemetery, as well as dietary differences between males under and over the age of 30. Similar dietary differences may well have existed at Brandon.

Spatial variations in species and body part distributions are seen at a number of other rural Anglo-Saxon sites. The Early to Middle Saxon site at Cadley Road, Collingbourne Ducis, in Wiltshire produced a small faunal collection that was dominated by sheep and cattle. At this site there were substantial differences in the proportions of the various species recovered from the sunken-featured buildings. Hamilton-Dyer (2001, 109) concludes that ‘this variation should be considered when analysing future rural Saxon assemblages’.

Analysis of intra-site variation may allow us to identify activity variation between households and status differences within sites. The concentration of cattle between buildings 8893 and 8927 at Brandon seems to point to status differences, while the concentration of deer metapodia in context 4947 (see below) may indicate an area where more specialised bone working was carried out.

The overall body part distribution for the main domestic mammals from Brandon is shown in Table 10.4. The most striking feature of the distribution is the systematic under-representation of the carpals, tarsals, phalanges, and sesamoids of pig and sheep. While sheep...
bones outnumber cattle remains in the overall faunal assemblage, cattle phalanges are much more common than sheep phalanges. This anomaly is clearly the result of poor recovery. Fine sieving is needed for the recovery of the smaller bones of medium-sized mammals such as pigs and sheep (Payne 1975).

Table 10.5 presents the distribution of the different portions of the main limb bones for cattle, pigs and sheep and goats. This distribution reveals a high proportion of shaft fragments and a relatively high proportion of early fusing elements such as sheep/goat distal tibia and sheep/goat distal humerus. Late fusing elements, such as the proximal humerus and the proximal tibia, are less well represented. This distribution may reflect the destruction of fragile, late fusing limb bone elements by domestic dogs (cf. Brain 1967).

Sheep
Figs 10.4–10.6; Pl. 10.6
Sheep played a major role in the animal economy of East Anglia in the Anglo-Saxon period. At Brandon sheep comprised just over half the identified mammalian specimens and just over half the minimum number of individual domestic animals. While sheep also played an important role in the economy of the Early Anglo-Saxon village at West Stow, the Brandon sheep show significant differences in both morphology and ages at death.

The measurements taken on all sheep bones from Brandon are summarised in Table 10.6, and the withers heights calculated for complete sheep long bones are summarised in Table 10.7. The distribution of the withers heights for sheep from Brandon and West Stow is shown in Figure 10.4, which shows an appreciable size decrease between the Early Anglo-Saxon sheep from West Stow and the Middle Saxon sheep from Brandon. The average estimated withers height for the West Stow 6th-century (Phase 2) sheep was 61.9cm, while the Brandon sheep had an average estimated withers height of only 56.6cm. The differences between the two samples are significant at the p = .001 level.

In order to test the significance of this size change more systematically, a series of two-tailed Student’s t-tests were used to compare a number of Brandon and West Stow sheep measurements. The following measurements were compared: humerus (BT), radius (Bp), metacarpus (Bp, Bd, GL), femur (Bp, DC), tibia (Bd), calcaneus (GL), astragalus (Gll), and metatarsus (Bp, Bd, GL). The t-tests show that the proximal breadth (Bp) and the greatest length (GL) of both the metacarpus and metatarsus of the sheep from Brandon were significantly smaller than their West Stow counterparts at the p = .01 level. In addition, the distal breadth of the metatarsus (Bd) and the greatest length of the calcaneus (GL) were significantly smaller at the p = .05 level. The proximal breadth (Bp) of the sheep femora from Brandon, however, were significantly larger than those from West

300
Stow at the p = .05 level. In short, detailed measurement analysis suggests that the Middle Saxon sheep from were generally smaller than the early Anglo-Saxon sheep from the nearby village of West Stow.

Not all Early Anglo-Saxon sheep from East Anglia were as large as those from West Stow. The small sample of sheep bones from the Early Anglo-Saxon site of Bloodmoor Hill included three complete long bones. The mean estimated withers height for the Bloodmoor Hill sheep is 54.9 cm, with a range of 51 to 57 cm (Higbee 2009). The Bloodmoor Hill sheep appear to be similar in size to the Brandon animals, but the small sample size precludes more detailed statistical comparisons.

Several possible explanations can be suggested for the size differences between the Brandon and the West Stow sheep. It is possible that we see the introduction of a new breed of sheep at Brandon, possibly a more specialised wool producer (see the discussion of ages at death below). It is also possible that overgrazing and poor nutrition led to a decrease in the size of the sheep at Brandon. Several female sheep showed the ‘fingertip’ depressions that may indicate poor nutrition (Pl. 10.6). Alternatively, it is possible that the early Anglo-Saxon sheep from West Stow maintain some of the size increase that was introduced to Britain by the Romans. The sheep recovered from the initial excavations at the 2nd to 4th-century site of Icklingham are even larger than those from West Stow (Crabtree 1991; see also Crabtree 2012, table 4.4). The reduction in the size of the sheep from Middle Saxon Brandon may represent a return to a smaller native breed of sheep, similar to the sheep of the Iron Age.

The kill-patterns and ages at death for the Brandon sheep also show marked differences from the West Stow data. The mandible wear stages (MWS, following Grant 1982) for the sheep from Brandon are depicted in Figure 10.5, as are the broader age classes following Payne (1973). The distribution indicates that the majority of sheep from Brandon survived to adulthood. The Brandon sheep bone measurements (mm)

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Table 10.6 Sheep bone measurements (mm)

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Note: Wethers heights were calculated using Teichert’s factors for prehistoric and early historic sheep, following von den Driesch and Boessneck (1974).

Table 10.7 Distribution of wethers heights calculated for Brandon sheep
Figure 10.4 Estimated withers heights for West Stow and Brandon sheep

Figure 10.5 Age profile for the Brandon sheep

Figure 10.6 Age profiles for the sheep from Brandon and early Anglo-Saxon West Stow
kill-pattern is broadly comparable to the mortality profile for sheep from Middle Saxon Flixborough (Dobney et al. 2007, fig. 7.22). The main difference is that the Brandon assemblage includes a small number of very young sheep that are absent from the Flixborough assemblages.

These Brandon mandible wear stages were combined into six broad age classes, following Bourdillon and Coy (1980, 86). When the Brandon kill-patterns are compared to those from West Stow (Fig. 10.6), it is clear that the West Stow faunal assemblage includes a higher proportion of animals killed during the first two years of life. The Brandon faunal collection includes a higher proportion of mature sheep. A Kolmagorov-Smirnov test was used to compare the two age profiles; the differences between the two age profiles are significant at the p = .001 level. The ageing data indicate that there were significant changes in animal husbandry practices between the Early and Middle Saxon periods in West Suffolk.

One likely explanation for the differences in kill-patterns is a shift toward more intensified wool production (Crabtree 1995). In a wool-producing flock, one would expect to find a higher proportion of adult animals (Payne 1973), including a substantial number of adult males. In particular, wethers (castrated male sheep) are excellent wool producers. Of the 521 sheep horn cores and pelves whose sex could be determined with reasonable certainty, 309 (approximately 59%) were males. While sheep produce their best wool before three years of age, they continue to produce high quality wool for several years thereafter. They are generally not killed until about 5–7 years of age (O’Connor 2010, 12). A large number of the Brandon sheep were culled between 4 and 8 years of age. The ageing and kill-pattern data can be used to make a strong circumstantial case for specialised wool production at Brandon (Crabtree 2007). These data complement the archaeobotanical evidence for flax (Linum usitatissimum), hemp (Cannibis sativa), and dye plants suggesting that textile production and dyeing took place at the waterfront industrial area (Chapter 9.IX).

Cattle
Figs 10.7–10.8
Cattle were the second most common animals recovered from the Brandon faunal assemblage. They would, however, have provided the bulk of the meat in the Middle Saxon diet, since a single cow can provide ten times as much meat as a sheep (Harcourt 1979, 155). The spatial concentration of cattle bones around buildings 8893 and 8927 suggests that some of the inhabitants of Brandon may have had greater access to beef than others. Cattle were probably grazed in the marshy areas surrounding the Little Ouse.

A detailed summary of the measurements taken on the Brandon cattle bones is included in Table 10.8, and the withers heights calculated for complete cattle long bones are summarised in Table 10.9. The Brandon cattle had an average estimated withers height of 113.9cm and appear comparable in size to the Early Anglo-Saxon cattle from West Stow. The 6th-century (Phase 2) cattle had an average estimated withers height of 114.0cm, and the differences between the Brandon and the West Stow withers heights are not statistically significant.

The Brandon and West Stow Phase 2 (6th-century) cattle measurements were compared using a series of Student’s two-tailed t tests. The following measurements

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Note: Withers heights were estimated following the recommendations of von den Driesch and Boessneck (1974), using Fock’s factors for metapodia and Matlocsi’s factors for other long bones.

Table 10.9 Distribution of withers heights estimates for domestic cattle (Mean = 113.9, s.d. = 6.1)
were compared: humerus (BT), radius (Bp), metacarpus (Bp), femur (DC), tibia (Bd), astragalus (GLl), and metatarsus (Bp). Only one significant difference was found. The greatest lateral length (GLl) of the cattle astragali from Brandon were significantly larger at the $p = .05$ level. This is about what would have been expected on the basis of chance alone. Metrical analyses therefore provide little evidence for size changes in cattle from the Early to the Middle Saxon period.

The distribution of mandible wear stages for the Middle Saxon cattle from Brandon is shown in Figure 10.7. The distribution indicates that the majority of cattle from Brandon survived to maturity and that very few animals were killed during the first year of life. The Brandon cattle mandible wear stages were combined into broader age classes and compared to the cattle kill-patterns from West Stow (Fig. 10.8). Figure 10.8 reveals that the Brandon faunal assemblage includes a higher proportion of mature animals. When the two cattle age profiles were compared using a Kolmogorov-Smirnov test, the differences between the two were significant at the $p = .001$ level.

The reasons for the differences in the mortality profiles are not entirely clear. It is possible that Brandon was provisioned with market-age cattle through tribute or exchange from other Anglo-Saxon sites in East Anglia. It is also possible that the Brandon assemblage includes a higher proportion of draft cattle that were slaughtered after their working lives were over. There are, however, relatively few pathologies on the Brandon cattle bones that can be directly attributed to their use as traction animals. Since the Brandon faunal assemblage was studied, zooarchaeologists have developed more sophisticated methods for identifying traction animals (Bartosiewicz et al. 1997), and it is possible that many of the more subtle traction pathologies may have been overlooked.
Pigs

Fig. 10.9

The role of pigs in the Anglo-Saxon economy has been widely debated. Documentary sources suggest that pigs played a major role in the economy of Anglo-Saxon England (Clutton-Brock 1976, 374; see also Banham 2004). However, pig bones are much less common than cattle and sheep remains on Anglo-Saxon settlement sites such as West Stow (Crabtree 1990a) and Kilham in East Yorkshire (Archer 2003). Recent research indicates that large numbers of pig bones are found in certain specialised Anglo-Saxon sites and horizons. For example, pig remains comprised the majority of the identified animal bones from the Anglo-Saxon contexts at the monastic site of St Albans Abbey (Serjeantson 1990; Crabtree in press) and at the Middle Saxon site of Wicken Bonhunt (Crabtree 1996), a royal farm Hodges (1982, 142) identified as a food-rent collecting centre.

At Brandon, as at West Stow, pigs are third in importance behind both cattle and sheep. This is not surprising, since the Breckland regions of East Anglian are more suited to sheep- and cattle-rearing than they are to pig husbandry. The Brandon region was never heavily wooded, and pannage for pigs would have been at a premium.

Measurement data for the Brandon pigs are summarised in Table 10.10, and the few withers height estimates that could be calculated for complete pig long bones are listed in Table 10.11. The greatest lengths of the maxillary and mandibular third molars from Brandon are well within the domestic pig range, and the other measurements provide no evidence for the presence of wild pig at the site.

A series of Student’s two-tailed t tests was used to compare the pig bones measurements from Brandon to the remains of swine from the 6th-century (Phase 2) contexts at West Stow. The following measurements were compared: maxilla (M3L), mandible (M3L), humerus (Bd), radius (Bp), tibia (Bd), and astragalus (GL). The bone measurement on the Brandon pigs were consistently smaller than those from West Stow. The differences between the radii and the humeri from the two sites were statistically significant at the p = .01 level. The metric data suggest that pigs, as well as sheep, decreased in size between the Early and the Middle Saxon periods.

<table>
<thead>
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<th>Measurement</th>
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<th>N</th>
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<td></td>
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<td>59</td>
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<td></td>
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</tr>
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<td>33</td>
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<tr>
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<td>33.4–41.8</td>
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<td>Tibia</td>
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<tr>
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<td>25.2–33.7</td>
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<td>120</td>
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<td>69.5–77.9</td>
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<td>8</td>
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<td>Astragalus</td>
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Note: Measurement abbreviations follow von den Driesch (1976).

Table 10.10 Measurements of pig bones (mm)

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<th>WH (cm)</th>
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</thead>
<tbody>
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</tr>
<tr>
<td>Ulna GL</td>
<td>179.0</td>
<td>71.1</td>
</tr>
</tbody>
</table>

Note: Withers heights estimated based on Teichert’s factors following the recommendations of von den Driesch and Boessneck (1974). Greatest length (GL).

Table 10.11 Withers height estimates for pigs
Mandible wear stages for the complete and nearly complete pig mandibles from Brandon and West Stow are summarised in Figure 10.9. The overall age profiles are relatively similar. At both sites there is a substantial kill-off of pigs at the MWS = 31–35 stage. This is the stage when the third molar is coming into wear, around the time that pigs reach bodily maturity. Pigs have only one major economic use, and that is for meat. Continuing to feed a pig after it reaches bodily maturity will not lead to increased meat yield, so it is reasonable to assume that a high proportion of pigs will be culled at this stage.

Both assemblages include a high proportion of neonatal and young juvenile pigs. The Brandon assemblage, however, includes a higher proportion of piglets in the MWS = 6–10 class, while the West Stow assemblage includes a higher number of neonatal pigs. In both assemblages only a small proportion of the pigs survived to advanced ages (MWS = 41+); these animals probably represent breeding sows. A Kolmogorov-Smirnov test indicates that the differences between the two age profiles are significant at the p = .05 level, but not at the p = .025 level.

Horses
Horse remains are rare at most Anglo-Saxon sites in Britain, and Brandon is no exception. Horses make up 1.5% of the large domestic mammal remains on the basis of NISP and about 1.4% on the basis of MNI. The Brandon assemblage included the remains of both juvenile and senile horses, so it is possible that horses were bred at the site.

While horse bones made up a small percentage of the Brandon faunal assemblage, horses do appear to have played a ritual role at the site. A horse skull, fragmentary mandible, and portions of the axial skeleton were found in the door pit leading to the chancel of the Phase 2.1 church. The horse was an elderly male animal with very heavily worn teeth. Two of the vertebrae showed slight lipping and fusion. The horse appears to be a foundational deposit. Horse burials are known from ritual contexts in Early and Middle Saxon East Anglia. For example, the burial of a horse head was recovered from a wealthy Early Anglo-Saxon burial at the Snape cemetery, and horse burials have also been recovered from Sutton Hoo and Lakenheath in Suffolk (Filmer-Sankey and Pestell 2001, 256). However, foundational deposits are much rarer.

A second, possibly similar, deposit was recovered from context 9151. While the horse’s skull was not present, the feature did produce the remains of a horse’s mandibles, ribs, vertebrae, and pelves. The finds come from a part of the site that produced very little rubbish, but the horse remains are located directly above a complex of entry pits and post-holes associated with the Saxon phase of the chapel enclosure. These bones may represent the redeposited remains of a second horse burial.

The measurements taken on the horse bones from Brandon are summarised in Table 10.12, and the withers height estimates for complete limb bones are included in Table 10.13. The horses from Brandon have a mean estimated withers height of 140.2 cm (s.d. = 5.7) or about 13.8 hands. These horses are significantly larger than the Early Anglo-Saxon horses from West Stow (mean withers height = 132.3, s.d. = 6.8, N = 15). A Student’s t test was used to compare the mean withers heights of the Brandon and West Stow horses; the results were significant at the p = .01 level.

Commensal species
Dog and cat bones have been recovered in small numbers from most Anglo-Saxon sites, and both species are represented in small quantities in the Brandon faunal assemblage. The measurements taken on the dog bones from Brandon have been summarised in Table 10.14, and the withers heights calculated from the complete limb bones are listed in Table 10.15. The five complete long bones yielded an average estimated withers height of 58.6cm. These are large, straight-limbed dogs, generally comparable in size to a modern Alsatian or German shepherd, and quite similar in morphology to the dog remains from the Anglo-Saxon features at West Stow (average estimated withers height of 59.5cm). These large Anglo-Saxon dogs would have been ideally suited to tasks such as hunting and guarding (Harcourt 1974, 168). Large Middle Saxon dogs have also been recovered from the estate centre at Rambury in Wiltshire (Coy 1980).

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Mean</th>
<th>Range</th>
<th>N</th>
<th>S.D.</th>
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<td>Bp</td>
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<td>43.1–49.6</td>
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Table 10.12 Measurements of horse bones (mm)

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<td>Metatarsus</td>
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</table>

Table 10.13 Withers height estimations for horses

Note: Withers heights were estimated using Kieswaller’s factors following von den Driesch and Boessenbeck (1974). Lateral length (Ll)
Red and roe deer

Pl. 10.7

As noted above, red deer and roe deer were the most numerous wild mammals recovered from Brandon. Although deer are relatively rare at Brandon, they are more common than they are at the Early Anglo-Saxon village at West Stow (Table 10.16; see also Crabtree 1994, table 5.2). Most of the deer remains from Brandon are post-cranial elements (Table 10.17). The body part distribution for roe deer, in particular, includes a high proportion of meaty upper limb elements such as scapula and humerus. This evidence suggests that although roe deer hunting never played a major role in Anglo-Saxon subsistence, roe hunting played a more important role at Brandon that it did at some other Anglo-Saxon sites in East Anglia, such as West Stow and Ipswich (Crabtree 1996, table 1). Sykes (2010) has recently argued that hunting was used primarily to supplement the diet in Early Anglo-Saxon times. By the Middle Saxon period, however, it had developed as a prestige activity. This may explain the higher numbers of deer bones at Brandon that it did at some other Anglo-Saxon sites in East Anglia, such as West Stow and Ipswich (Crabtree 1996, table 1). Sykes (2010, 180) noted that Middle Saxon religious sites tended to produce large numbers of deer forelimb elements.

At West Stow, most of the deer remains were fragments of red deer antlers which were used to produce bone combs and other artefacts. At Brandon only one fragment of red deer antler was recovered from the faunal collection. In addition, a complete skull of a male red deer whose antlers had been removed was recovered from the Staunch Meadow site (Pl. 10.7). One antler was removed

<table>
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<th>Femur</th>
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Table 10.14 Measurements of dog bones (mm)

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<th>WH (cm)</th>
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<tbody>
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<td>Tibia</td>
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<td>Humerus</td>
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<tr>
<td>Humerus</td>
<td>176.0</td>
</tr>
<tr>
<td>Radius</td>
<td>180.5</td>
</tr>
</tbody>
</table>

Note: Withers heights calculated using Koudelka factors, following von den Driesch and Boessneck (1974).

Table 10.15 Withers heights calculated for complete dog limb bones

Red and roe deer

Pl. 10.7

As noted above, red deer and roe deer were the most numerous wild mammals recovered from Brandon. Although deer are relatively rare at Brandon, they are more common than they are at the Early Anglo-Saxon village at West Stow (Table 10.16; see also Crabtree 1994, table 5.2). Most of the deer remains from Brandon are post-cranial elements (Table 10.17). The body part distribution for roe deer, in particular, includes a high proportion of meaty upper limb elements such as scapula and humerus. This evidence suggests that although roe deer hunting never played a major role in Anglo-Saxon subsistence, roe hunting played a more important role at Brandon that it did at some other Anglo-Saxon sites in East Anglia, such as West Stow and Ipswich (Crabtree 1996, table 1). Sykes (2010) has recently argued that hunting was used primarily to supplement the diet in Early Anglo-Saxon times. By the Middle Saxon period, however, it had developed as a prestige activity. This may explain the higher numbers of deer bones at Brandon that it did at some other Anglo-Saxon sites in East Anglia, such as West Stow and Ipswich (Crabtree 1996, table 1). Sykes (2010, 180) noted that Middle Saxon religious sites tended to produce large numbers of deer forelimb elements.

At West Stow, most of the deer remains were fragments of red deer antlers which were used to produce bone combs and other artefacts. At Brandon only one fragment of red deer antler was recovered from the faunal collection. In addition, a complete skull of a male red deer whose antlers had been removed was recovered from the Staunch Meadow site (Pl. 10.7). One antler was removed
using a cleaver or heavy knife, while the other had been removed with a short-bladed bone-working saw. Two additional fragments of worked red deer antler were recovered as small finds. One bore a runic inscription (Chapter 8.IV).

Red deer remains were considerably rarer than roe deer bones at Brandon. The majority (32) of red deer bones were metapodia, of which twenty-five were recovered from a single archaeological context, 4947. This context also produced metapodia of cattle and horse. It is possible that these cannon bones were collected for bone working. The worked bone small finds include several handles which appear to have been made from proximal cattle metatarsi.

Measurable red deer and roe deer remains from Anglo-Saxon contexts in East Anglia are still quite rare. A complete list of the measurements taken on the red deer (Table 10.18) and roe deer (Table 10.19) bones recovered from Brandon has been included in this report.

**Butchery**

Grant (1976, 272) described the axial splitting of long bones as ‘the most conspicuous characteristic of Saxon butchery technique’. The practice, which has been recorded at Hamwic (Bourdillon and Coy 1980, 97) and at Portchester Castle (Grant 1976, 272), is common at Brandon (Pl. 10.8). This practice, however, was not seen at West Stow, and at the Early Anglo-Saxon site of Bloodmoor Hill (Carlton Colville) in Suffolk it is limited to a small number of cattle metapodia (Higbee 2009). Table 10.20 summarises the evidence for knife cuts, chop marks, and axial splitting on the limb bones of cattle and caprines from Brandon. Split marks are particularly common on the marrow-rich lower limb bones of both cattle and sheep.

**Table 10.18 Measurements of red deer bones**

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<td>Bp</td>
<td>Dd</td>
<td>GL</td>
<td>SD</td>
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</tr>
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<td></td>
<td>53.9</td>
<td>53.8</td>
<td></td>
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</tr>
<tr>
<td>Astragalus</td>
<td>Bp</td>
<td>GL</td>
<td>GL</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>9096</td>
<td>9143</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Metatarsus</td>
<td>mean</td>
<td>min</td>
<td>max</td>
<td>N</td>
<td>s.d.</td>
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</tr>
<tr>
<td></td>
<td>Bd</td>
<td>38.30</td>
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<td></td>
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<tr>
<td></td>
<td>Bp</td>
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<td>min</td>
<td>max</td>
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<tr>
<td></td>
<td>Bd</td>
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<td>36.8</td>
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**Table 10.19 Measurements of roe deer bones**

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<th>Occipital</th>
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<th>0216</th>
<th>0328</th>
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<tr>
<td>Femur</td>
<td>Bd</td>
<td>Bp</td>
<td>DC</td>
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<tr>
<td></td>
<td>3176</td>
<td>3176</td>
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<td>36.20</td>
<td>34.80</td>
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<td>.</td>
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<tr>
<td>Tibia</td>
<td>Bd</td>
<td>Dd</td>
<td>4330</td>
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<tr>
<td></td>
<td>75.00</td>
<td>19.80</td>
<td>18.50</td>
</tr>
<tr>
<td>Scapula</td>
<td>BG</td>
<td>GLP</td>
<td>LG</td>
</tr>
<tr>
<td></td>
<td>9143</td>
<td>9143</td>
<td>9143</td>
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<td>45.2</td>
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<td>Humerus</td>
<td>BT</td>
<td>Bp</td>
<td>GL</td>
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<td></td>
<td>23.71</td>
<td>24.67</td>
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</tr>
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<td></td>
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<tr>
<td>Radius</td>
<td>Bp</td>
<td>Bp</td>
<td>GL</td>
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<td></td>
<td>23.39</td>
<td>24.96</td>
<td>158.00</td>
</tr>
<tr>
<td></td>
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<td>*****</td>
</tr>
<tr>
<td>Ulna</td>
<td>BPC</td>
<td>LO</td>
<td>SDO</td>
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<tr>
<td></td>
<td>14.30</td>
<td>35.26</td>
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</tr>
<tr>
<td></td>
<td>1.05</td>
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<td>GL</td>
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<td></td>
<td>0443</td>
<td>0430</td>
<td>0761</td>
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<td></td>
<td>18.50</td>
<td>17.20</td>
<td>18.00</td>
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<td>28.10</td>
<td>27.40</td>
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<td>Calcaneus</td>
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<td>0430</td>
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<td></td>
<td>54.70</td>
<td>49.40</td>
<td>58.70</td>
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<td>Metatarsus</td>
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<td></td>
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<tr>
<td></td>
<td>0059</td>
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</tr>
<tr>
<td></td>
<td>21.80</td>
<td>20.10</td>
<td>152.50</td>
</tr>
</tbody>
</table>

**Table 10.20 Summarises the evidence for knife cuts, chop marks, and axial splitting**

**Bird bones**

Figs 10.10–10.11; Pl. 10.9

The Brandon faunal assemblage included 4096 bird bones and fragments, of which all but 333 could be identified to species or higher order taxon (Table 10.21). The vast majority of the bird remains were those of the domestic species: domestic fowl (Gallus sp.), domestic goose (Anser sp.), and domestic duck/mallard (Anas...
The wild birds were predominantly water birds and waders such as swan (*Cygnus olor*), bittern (*Botaurus stellaris*), and the East Anglian crane (*Grus grus*). Cranes, in particular, appear to have been a luxury food item, and documentary sources suggest that falcons may have been used to hunt these birds (Loveluck 2001, 115).

The most striking feature of the bird assemblage from Brandon is the presence of a nearly complete skeleton of a peregrine falcon (*Falco peregrinus*, Pl. 10.9). The presence of this bird in the Staunch Meadow faunal assemblage is significant for several reasons. First, it represents the earliest known archaeological example of a peregrine falcon from medieval England. A single humerus fragment from a peregrine falcon was recovered from period 4b at Ramsbury (Coy 1980), but this specimen post-dates the Middle Saxon activity at the site. As Vandervell and Coles (1980, 29) note, ‘The history of hawking in England probably goes back to the seventh or eighth century, but the actual dates are not clear’. The Brandon falcon shows that falconry was established in East Anglia by the Middle Saxon period. Second, peregrines’ natural habitats are cliffs and upland areas (Lascelles 1892, 236), so the Brandon peregrine probably represents a captive bird. Peregrines, however, do occasionally occur in East Anglia as non-breeding visitors (Heinzel *et al*. 1972). Third, falconry is traditionally a sport of the upper classes. The later medieval Boke of St Albans of 1486 (Hands 1975) describes the peregrine falcon as suitable for an earl. In the Middle Saxon period (748–54), King Ethelbert of Kent wrote to St Boniface requesting two falcons that would attack cranes (Emerton 1940, 179). The larger female falcons were generally preferred for falconry, and measurements indicate that the Brandon falcon was female (Crabtree 2012). The evidence for both crane bones and a nearly complete falcon skeleton at Brandon, when combined with the rich artefactual evidence from the site, indicates that Brandon was occupied by a wealthy population in Middle Saxon times.

Table 10.20 Summary of butchery evidence

<table>
<thead>
<tr>
<th>Species</th>
<th>N</th>
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</thead>
<tbody>
<tr>
<td>Gallus sp., domestic chicken</td>
<td>1306</td>
</tr>
<tr>
<td>Anser sp., domestic goose</td>
<td>964</td>
</tr>
<tr>
<td>Anas platyrhynchos, domestic duck/mallard</td>
<td>755</td>
</tr>
<tr>
<td>Gavia stellata, diver</td>
<td>2</td>
</tr>
<tr>
<td>Botaurus stellaris, bittern</td>
<td>11</td>
</tr>
<tr>
<td>Cygnus olor, swan</td>
<td>111</td>
</tr>
<tr>
<td>Anas sp., small wild duck</td>
<td>77</td>
</tr>
<tr>
<td>Grus grus, East Anglian crane</td>
<td>19</td>
</tr>
<tr>
<td>Buteo buteo, buzzard</td>
<td>1</td>
</tr>
<tr>
<td>Falco peregrinus, peregrine falcon</td>
<td>18</td>
</tr>
<tr>
<td>Columba livia, pigeon or dove</td>
<td>3</td>
</tr>
<tr>
<td>Turdus sp., thrush</td>
<td>1</td>
</tr>
<tr>
<td>Corvus sp, rook or crow</td>
<td>10</td>
</tr>
<tr>
<td>Fowl-sized bird</td>
<td>289</td>
</tr>
<tr>
<td>Goose-sized bird</td>
<td>305</td>
</tr>
<tr>
<td>Swan-sized bird</td>
<td>1</td>
</tr>
<tr>
<td>Unidentified bird</td>
<td>333</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4096</strong></td>
</tr>
</tbody>
</table>

Table 10.21 Bird bones

Sykes has reviewed wild bird use in Britain from the Early Anglo-Saxon period to the end of the Middle Ages. She argued that both early medieval iconography and funerary deposits reveal a clear relationship between raptorial birds and the social and military elites (Sykes 2004, 86). Sykes also noted that between the 5th and 9th centuries AD bittern bones are found exclusively on elite settlements. Bittern was recovered from the Brandon faunal assemblage but was absent from the West Stow faunal collection. Dobney and Jacques (2002, 14) suggest that bitterns were primarily hunted with falcons. Sykes (2004, 99) concludes that:
1. Between the 7th and mid 9th centuries the exploitation of 'wild birds' was not, per se, an indicator of social standing, though hawking was.

2. The presence of both falcons and their quarry at Brandon supports the identification of the site as an elite settlement.

A second unusual feature of the Brandon bird assemblage is the presence of two bones of a diver (Gavia stellata). Since divers are maritime birds, the presence of this species, along with the marine mammal bones, provides additional evidence for contact with the coast.

While the rich and diverse wild bird assemblage provides important social and economic information about Middle Saxon life at Brandon, domestic birds make up the vast majority of the avian faunal assemblage, and domestic fowl were the most commonly recovered bird species. The greatest lengths (GL) of the complete fowl limb bones show a distinctly bimodal distribution (Fig. 10.10). When the proximal breadth (Bp), distal breadth (Bd) and greatest length (GL) of the fowl humeri and femora are converted to z-scores, these measurements show a distinctly bimodal distribution (Fig. 10.11). It is possible that the Anglo-Saxon farmers of Brandon kept two different breeds of chickens.

Figure 10.10 Distribution for greatest lengths (GL) for domestic fowl long bones from Brandon
Conclusions
When the Brandon faunal remains are compared to the animal bones recovered from the Early Anglo-Saxon village at West Stow, several significant differences are apparent. Although the overall composition of the faunal assemblages from the two sites is relatively similar, there are substantial differences in both the kill-patterns for the domestic species and the bone measurements that point to significant changes in animal husbandry practices. At West Stow, the faunal data suggest a pattern of self-sufficiency (Crabtree 1990a), a pattern that is also seen at the Early Saxon site of Kilham in Yorkshire (Archer 2003) and a range of other Early Anglo-Saxon sites (Crabtree 2010). In contrast, the sheep mortality profiles and sex ratios from Brandon provide strong circumstantial evidence for large-scale wool production.

Measurement data indicate that both sheep and pigs were smaller in the Middle Saxon period at Brandon than they were at the Early Anglo-Saxon site of West Stow. Cattle sizes remain unchanged, while the Brandon horses are significantly larger than their West Stow counterparts. These size changes may reflect the introduction of new breeds, changing animal husbandry practices, and/or changes in the ways that livestock was procured and traded. More large, well-analysed faunal assemblages are needed in order to document the history of livestock husbandry in Anglo-Saxon East Anglia.

The final significant feature of the Brandon faunal assemblage is the evidence for wealth and high social status that is reflected in several aspects of the animal bone collection. The peregrine falcon undoubtedly indicates some degree of affluence. When compared to West Stow, the inhabitants of Brandon hunted deer more frequently.
In addition, feasting foods such as crane and marine mammals are present in small numbers in the Brandon faunal assemblage. The relatively high status of the Brandon community might be related, at least in part, to the development of more intensified wool production. Whatever the sources of Brandon’s wealth, the faunal evidence makes it clear that Brandon was not an isolated community. The presence of seal, a dolphin or small whale, a diver, and the peregrine falcon documents at least some long-distance trade in animal products.

III. Fish bone
by Alice Humphrey and Andrew K.G. Jones

Introduction
The excavations produced a total of 382 identified fish remains from sixty-three contexts. The assemblage was recovered by bulk sieving selected soil samples.

Methodology
Bones were identified by comparison with the reference collections at the Departments of Archaeological Sciences, University of Bradford and Archaeology, University of York. The terminology for fish remains follows that given by Wheeler and Jones (1989) and names of fish taxa follow the nomenclature of Wheeler (1969). The size of fishes was estimated by reference to specimens of known length. All identifications were recorded using a format suggested by Wheeler and Jones (1989) using an Access database. Most bones were identified to at least family level. A few bones were too fragmentary to be identifiable: most were fin rays, spines, branchiostegal rays and other elements that cannot be ascribed to species on morphological features.

As there is a risk of preferential recovery of larger species and elements in the hand collection of bones (Jones 1982), the excavators implemented a sampling strategy that successfully produced samples of fish remains recovered from sieved earth samples. These are inherently more likely to reflect accurately the kinds of fishes present at the site. Some bones were recovered by columnar sampling from particular contexts, most were not stratified by layer within a single context.

Results
The results of analysis of all samples in context order are available in archive. The numbers are numbers of identified specimens (NISP).

Distribution by phase
The remains all came from Middle to Late Saxon deposits in Phases 2, 2.1, 2.2, 2.3 and 2.3.1. The majority, two-thirds, of contexts yielding fish remains are assigned to 2.3.1, although 2.2 has the greatest NISP due to three contexts (0055, 0147 and 3846) containing over sixty identified elements each.

The concentrations of fish remains across the site
The majority of remains came from the north of the site, most in or close to the waterfront area where domestic refuse has been found. There is a clear phase pattern in the distribution of bones across the site in that bones from Phases 2.3 and 2.3.1 are found exclusively on the waterfront area whereas bones from other phases are not found at all on the waterfront but are spread across the northern part of the site. This may reflect changes in the disposal of refuse as the site developed or the continuing development of the waterfront peninsula from Phase 2.2 although if the presence of fish bones results solely from the dumping of rubbish during the development of the waterfront a similar pattern might be expected from the Phase 2.2 remains. The recovery of fish bones may be the result of the sampling strategy; fewer samples were processed away from the waterfront, the sampling was a product of its time and used as a tool to characterise the site rather than to investigate the use of space or establish a tighter site chronology (A. Tester, pers. comm.).

The condition of the fish remains
Several contexts contain many fragments of bone which are too small to be identified. There is no significant differentiation by phase or by location.

Two contexts yielded large numbers of scales, particularly 3846, which contained several hundred scales and no other elements; scales were also present in low numbers in other contexts. Gnawing and other tooth marks were absent, as were cut marks. There are scattered instances of crushed vertebrae, indicating that they had passed through the digestive system (Jones 1984a and b; 1990; Wheeler and Jones 1989). Crushed eel bones are commonly found in pits containing human excrement, the bones having survived passage through the human gut, albeit in a modified condition.

A few burnt bones were present in the assemblages.
This is a common feature of many urban assemblages, probably the result of accidental or deliberate burning of fish waste.

Discussion of results
The recovery of mainly freshwater fish remains is typical of Middle to Late Saxon sites such as Flixborough in Lincolnshire where seven freshwater or migratory taxa dominated the assemblage of 13100 bones (Barrett 2002). The Brandon assemblage is similarly dominated by a few taxa — carp family (Cyprinidae), eel (Anguilla anguilla) and pike (Esox lucius).

Carp family fish and pike are freshwater and could have been caught locally to the settlement. Eels are migratory so they would have been available from similar sources to carp family and pike. Barrett (2002) suggests that a key period of exploitation of eels might have been in September and October when they migrate and large numbers could be caught when other food sources were relatively scarce. Also present in the assemblage are perch (Perca fluviatilis) in quite large numbers, herring (Clupea harengus), cod family (Gadidae), two trout (Salmo trutta) vertebrae and a single flatfish (Pleuronectidae) vertebra. Perch and trout are freshwater fish. Flatfish are migratory; the vertebra may represent a rare accidental catch. Herring and cod are both marine fish so trade may be implied considering the inland location of the site. Although there are too few remains to draw any firm conclusions the absence of head bones would not contradict this hypothesis as cod was widely traded as a dried fish by the 12th century and the head would have been removed as part of the curing process (e.g. Wilkinson 1979; Jones 1991; Jones 1995; Barrett 1997).

Large cod family vertebrae were found in Phase 2.3.1 waterfront deposits. It is rare to find remains from marine fish in Anglo-Saxon settlements so the cod vertebrae may
be intrusive and post-Saxon. If, however, the cod vertebrae are pre-10th century it is an unusually early instance of marine fishing, particularly for an inland site. The widespread introduction of marine fishing in England seems to have occurred around the turn of the 11th century with the introduction of marine fish to Norwich dating between the late 10th and late 11th centuries. Although there are a few earlier, 7th–8th-century, sites with a high presence of marine fish these have tended to be proto-urban trading settlements (Barrett et al. 2004a and b).

Herring appear to have been exploited before cod but their low presence at Brandon may be explained by a tendency towards their exploitation in urban sites where they arrived as trade goods. Rural Anglo-Saxon settlements tended to rely far more on local freshwater sources (Barrett 2002).

Vertebrae are by far the most frequent element, although a number of head bones are also present, particularly from carp family fish. It is not possible to estimate whether the ratio of head bones to vertebrae is typical of whole fish or of fish processed off site when identification cannot be made to species level. Other factors that may influence recovery of head bones are preservation and lower recognition and identification of head bones than vertebrae.

The three contexts with remarkably high numbers of elements may represent recurring disposal of rubbish in a pit and a ditch over a period in the case of contexts 0055 and 0147, but given that 3846 consisted only of a single mass of scales, deposited in ditch 3805, with no bones present it may be a product of a single processing event.

Comparison with Flixborough

Unlike Brandon, Flixborough is an estuarine site which may explain the higher numbers of migratory flatfish found there. Flixborough was a monastic site with evidence of the presence of high status fish — sturgeon. Considering the size of the assemblage from Flixborough, Brandon has a far higher representation of cod family bones, only nine cod bones were found at Flixborough from mid 8th to early 10th-century deposits compared to eight bones from the final sub-phase at Brandon. This suggests that the rarity of cod before the marine fishing horizon did not confer status on the fish. Barrett suggests that the early occurrence of large gadids at Flixborough are rare accidental catches but at Brandon the number of cod bones seem greater than could be accounted for by incidental catches particularly given that there is very little evidence from other taxa for regular estuarine or marine fishing.

Conclusions

For an Anglo-Saxon site the size of this assemblage is unusually large, less than fifty elements being more typical. Until Phase 2.3.1 the assemblage is typical of rural Anglo-Saxon sites with a range of freshwater taxa represented in low numbers across the site, probably mostly from incidental refuse disposal. The Phase 2.3.1 assemblage is concentrated exclusively on the waterfront, possibly rubbish dumping to build up the waterfront or a change in refuse disposal over a longer period. This phase maintains similar proportions of freshwater taxa to the previous phases but potentially the most striking aspect is the introduction of marine fish in a context dating around 100 years before their introduction to nearby settlements such as Norwich, which might have been expected to have greater trade links.

IV. Coprolites

by Andrew K. G. Jones and Alice Humphrey

Twenty samples were submitted for parasitological examination. The characteristics of the possible coprolites were assessed to decide which would initially be examined for parasite eggs. The initial assessment showed that a number of the samples contained large bone fragments or were of ovoid shape typical of dog coprolites. The sample chosen for further examination therefore avoided these.

Four samples selected for examination were taken from contexts 0149, 0902, 4346 and 3646. Ancient human faecal material from highly organic archaeological contexts frequently contain eggs of two common nematode parasites Trichuris and Ascaris (Reinhard and Bryant 1992; Jones 1982). Eggs of these two worms are sufficiently diagnostic to allow generic identification based on morphological features following microscopic examination (Thienpont et al. 1986).

Despite a relatively high organic content in two of the samples, 4346 and 3646, this was generally poorly preserved, most lacked any cellular structure and is best described as amorphous organic matter. As well as fungal/pollen spores, a single Trichuris egg was found in each of these samples. This does not necessarily imply infection as it could be contamination and a considerably higher number of eggs would be needed to suggest infection.

Samples 0149 and 0902 mostly consisted of crystalline particles although 0149 also contained a few pollen or fungal spores and some charcoal particles. No parasite eggs were found in these samples.

All four samples contained small mineral particles, mostly angular, transparent clasts, probably quartz grains. No phytoliths or other diagnostic microfossils were observed.

Although two of the studied samples contained an egg the levels were not high enough to suggest infection and they may have come from other animals, particularly given the number of presumed dog coprolites found. Equally, the poor condition of organic material in all four studied samples does not allow negative conclusions to be drawn from the absence of parasite eggs in the coprolites.

V. Valley sediments and plant macrofossils

by Peter Murphy and Val Fryer

Introduction

This report presents results from archaeobotanical investigations undertaken at Staunch Meadow mainly during the 1980s. One of us (VF) subsequently assessed a collection of remaining unprocessed samples in 2000, and some of them were then analysed. Some caveats on the palaeoecological and economic results are necessary at the beginning.

Methods used for sampling and most of the analysis reflect good practice as perceived in the 1980s. Had modern techniques and procedures then been available, more information could have been gained. The following points are noteworthy:

Methods
• Radiocarbon dating. By the standards of the 1980s, a reasonable number of dates was obtained from several sections through the valley peats and intercalated archaeological layers (discussed further below). Today, considerably more dates would be thought necessary, and they would be deployed sequentially through long sediment sequences, permitting mathematical modelling to enhance precision of calibration (Bayliss 1998 *inter alia*), as was later done, for example at a comparable site in the Little Ouse valley at Mill Lane, Thetford (Murphy 2004; Greig 2004). The calibrated date ranges currently available for some of the Brandon samples are unhappily wide.

• Macrofossil identification. Macrofossils of fibre and dye crops from the waterfront area establish that textile production and processing took place there. However, after sample processing and analysis of these deposits was completed, research at the Environmental Archaeology Unit, University of York defined criteria for identification of a wider range of dye plants from waterlogged macrofossils (Hall 1999). It is very likely that remains of other dye plants were present in the Brandon samples, but that they were not recognised.

• Assessment. Analysis of most Brandon samples pre-dated the publication of *The Management of Archaeological Projects* (English Heritage 1991), which defined formal iterative stages of assessment and analysis. This has led to much more extensive initial sampling, followed by sample assessment, and then selective and targeted analysis. Initial sampling of a site such as Brandon would nowadays be on a larger scale. Significant deposits were no doubt overlooked.

The results should therefore be seen as the product of their time.

**Sampling and recovery methods**

Five groups of samples were collected and analysed, each designed to examine specific aspects of the environment and economy of the site.

1. Four column samples for macrofossil analysis were taken from sections through the valley floor peats and associated archaeological deposits to investigate the stratigraphic sequence, and provide data on local habitat change. Additional samples were taken for radiocarbon dating. Parallel series of samples for palynological analysis were taken at 2cm intervals next to column 4.

2. A grid of bulk samples was collected from the area of the Middle Saxon ‘occupation layer’ (or settlement palaeosol) excavated in 1983–4. These were taken to examine the spatial distribution of plant and animal macrofossils across this area of the site, and to interpret this distribution in terms of activities.

3. Bulk samples were taken from a group of eleven Middle Saxon cut features (0045, 0055, 0062, 0074, 0110, 0147, 0201, 0215, 0298, 0539, 1035). Samples were collected primarily for retrieval of charred plant material, fishbones, and mollusc shell. 35cm² columns, sub-divided at 10cm vertical intervals, were removed from the fills of all but the last two of these features, in order to discriminate vertical variations in macrofossil deposition. Each sub-sample soil block from the columns was therefore 35 x 35 x 10cm, or 0.01225 m³.

4. Samples from the waterfront and adjacent areas. There was evidence for limited land-claim by deposition of sand and clay on the peaty marsh surface, related to industrial activity. The main reason for sampling was to characterise the types of activities represented.

5. Bulk samples from five Iron Age contexts (1080, 1354, 1362, 1372, 1373), excavated in 1981. Results are summarised in Chapter 3.IV.

In addition, samples collected from BRD018 but not analysed in the 1980s were assessed by VF in 2000.

Methods presented in Kenward *et al.* (1980) were used to extract macrofossils from peats and waterlogged archaeological deposits. Bulk samples from the dry sandy fills of Middle Saxon features excavated in 1980 were processed using a flotation/bulk sieving tank based on the model described by Williams (1973); 0.5mm meshes were used. Smaller samples from other dry archaeological deposits were processed in the laboratory by manual water flotation and wet-sieving, again with 0.5mm meshes. Further details of recovery and preparation methods are given below. Botanical nomenclature follows Stace (1991).

**Plant macrofossils from valley sediments and associated archaeological deposits**

Four column samples were collected from sections through peats, sand and intercalated archaeological layers on the floodplain. Radiocarbon dates are given in Table 2.3. The stratigraphy and chronology of these deposits are outlined here, and plant macrofossils directly relevant to their interpretation are presented and discussed (Tables 10.22–10.25).

**Column sample 1**

During the 1980 season a section showing just over 0.5m of peat was exposed in the northern part of the excavation, adjacent to the river. A column sample sub-divided at 5cm vertical intervals (within layers) was removed from the lowest 0.33m of the section. Deposits above this were humified and included live earthworms. 1kg sub-samples were disaggregated and graded in a sieve bank (2mm–0.25mm) before sorting wet under a binocular at low power. The charcoal-rich sample at 20–21cm was dried before sorting. Results are given in Table 10.22. Samples were submitted from the base of the peat at 50–53cm, and from the charcoal layer at 20–21cm for radiocarbon dating (Table 2.3).

At this point, the existing ground surface was at +3.55m OD, although the upper 10cm or so of the Ao horizon had previously been stripped off.

0–20cm Black well-humified sandy peat; some charcoal fragments; earthworms common.

20–21cm Thin layer of charred material; some fired clay fragments (elsewhere in section up to 5cm thick).

21–45cm Dark reddish-brown (SYR 2.5/2) sandy peat; more humified in top 5cm; fibrous plant remains near base; very rare small flints up to 10cm; rare earthworms in top 5cm.

45–53cm Dark reddish-brown to black very sandy peat with fibrous plant remains; discrete patches of variable grey to greyish-brown sand; slightly stony, with flints up to 25mm.

53cm+ Greyish-brown slightly humic sand with rare small flints up to 12mm.

**Column sample 2**

During the 1981 season a trial pit was dug to the south-east of the excavated area, to examine peats to the south of the sand island. The section was 25.6m from grid peg 950490,
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Notes: a. Form and size appropriate for this species, but surface detail obscure; b. Charcoal, charred leaves, capsules and seeds; c. Intermediate in size between S. galericulata and S. minor; d. Seed fragments; e. Culm nodes and fragments.

Table 10.22 Plant remains from Section 1. All samples 1kg. All taxa are represented by fruits or seeds, unless otherwise indicated.
### Table 10.23 Plant remains from Section 2. All samples 1kg. All taxa are represented by fruits or seeds, unless otherwise indicated. fr=fragment

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316
Calluna vulgaris (L) Hull d 1 3 5 3
Calluna vulgaris (L) Hull e x x x x x x

**Ferns**

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<td>Dryland herbs (weeds/grassland)</td>
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**Dryland herbs (weeds/grassland)**

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<td>Iris pseudocorus L</td>
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<td>Isolepis setacea R Br</td>
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<td>Juncus sp h</td>
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<td>Lysinus europaeus L</td>
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<td>Menyanthes trifoliata L</td>
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<td>Montia fontana subsp minor Hayw</td>
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<td>Phragmites australis (Cav) Steudel n</td>
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**Aquatics**

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**Inindeterminate/unassigned to ecological group**

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<td>Polygonoaceae indet</td>
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<tr>
<td>Charcoal (g &gt;6mm per kg of soil) q</td>
<td>0.45 0.2</td>
<td>23.9 1 1 2</td>
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<td>1 30 36 31 18 15</td>
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<tr>
<td>Sample weight (kg)</td>
<td>25 0.5 2 2 2 1 2</td>
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Notes: a. Charred pinnules and stem fragments; b. Immature silicula segment; c. Charred nutshell; d. Capsules; e. Stem fragments and leaf bases; f. Embryos; g. Inflorescences, fragments and capsules with seeds (charred). Kindly identified by Dr Mark Robinson; h. Uncharred seeds. i. Culm nodes and fragments. j. Caryopses; k. Rachis nodes; l. Top of culm with basal rachis internodes; m. Abraded cotyledon; n. Culm nodes (some with ligule hairs) and fragments; o. 5x5kg samples at 5cm vertical intervals were taken: the results are combined here; p. Based on charcoal from 1kg sub-samples; q. Charcoal was not identified, apart from pieces from samples in 25–40cm, which appeared to be of structural origin. These were Corylus roundwood, 12 - c.40mm diameter. Almost all riddled with insect borings and one piece had been cut transversely before charring. Fragments of larger wood, including Fraxinus and Quercus also present.

Table 10.24 Plant remains from Section 3. All taxa are represented by fruits or seeds, unless otherwise indicated. Macrofossils from samples above 40cm are all charred. Those from the peat and sand samples below 40cm are mostly uncharred, apart from charcoal, cereal remains, and *Phragmites* culm fragments.
<table>
<thead>
<tr>
<th>Depth (cm)</th>
<th>50–60</th>
<th>70–80</th>
<th>90–100</th>
<th>120–130</th>
<th>150–160</th>
<th>180–190</th>
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<td>x</td>
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<td>Linum usitatissimum L (seeds)</td>
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<td>Secale cereale L (rachis node) c</td>
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<tr>
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<td>Phragmites australis (Cav) Steudel (crlm)</td>
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<td>x</td>
<td>x</td>
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and 22.85m from grid peg 950480. A sample column was collected for macrofossil analysis, with additional samples for radiocarbon dating. Macrofossils identified are listed in Table 10.23. Peat samples from 25–27cm and 49–51cm were submitted for dating. The dates obtained (Table 2.3) are inverted, perhaps as a consequence of rhizome penetration.

The ground surface was at +3.83m OD.

0–27cm Dark reddish-brown to black homogeneous slightly sandy humified peat; charcoal flecks and rare small fragments of fired clay; modern roots and earthworms throughout.

27–27.5cm Thin impersistent band of bleached sand.

27.5–51cm Very dark greyish-brown sandy peat.

51–60+cm Grey slightly humic sand with rare small flints.

Column sample 3
The section sampled was exposed during the 1983–4 season. A column sample was collected from a point 2.5m west of grid peg 91/62. Unlike the first two column samples this column was taken mainly through archaeological deposits overlying very thin humified peats at the very edge of the floodplain marsh. Macrofossils identified are listed in Table 10.24. A single charcoal sample from 25–40cm was submitted for radiocarbon dating (Table 2.3). The modern topsoil had been stripped off before sampling.

0–23cm (Middle Saxon ‘occupation layer’). Grey sand with prominent reddish-brown mottles and patches of light yellowish-brown sand; rare small flints; bone fragments and charcoal flecks; some fine fibrous roots; sharp regular boundary.

23–25cm Yellowish-brown sand with rare charcoal flecks; thickness variable; sharp regular boundary.

24–40cm Layer of charcoal with some burnt bone fragments; sharp boundary, undulating over 5cm

40–50cm Dark brown very sandy humified peat; very thin layer of heat-shattered flint chips on top surface; sharp, slightly undulating boundary.

Interpretation and general discussion
In all four sections, the lowest sediment examined was grey or greyish-brown sand with a variable, but generally

<table>
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<th>Alismataceae indet</th>
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<td>Nuphar lutea (L) Sm</td>
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<tr>
<td>Lemma sp</td>
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**Indeterminate/unassigned to ecological group**

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<tr>
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<tr>
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<tr>
<td>Indeterminate seeds etc.</td>
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</table>

Notes: c = charred. The Carex spp include a diverse range of nutlet forms, matching Carex section Carex, Carex lasiocarpos-type and small trigonous forms.

Table 10.25 Plant remains from Section 4. All samples 1kg. All taxa are represented by fruits or seeds, unless otherwise indicated
low, stone content. This is thought to be a fluviatile sand, emplaced in the late Devensian/early Holocene.

A phase of low groundwater levels in the valley floor is indicated by the presence of ard or plough marks scored into the sand surface in the vicinity of column sample 3. Radiocarbon dates on the base of the overlying peat indicate that this must have pre-dated 1810±80 BP (HAR-4087, Tables 2.3 and 10.26). Given the proximity of Iron Age pits containing charred cereal macrofossils, an Iron Age date seems most likely.

Peat began to develop diachronously across this previously cultivated surface from 1950±70 BP (HAR-6475, Tables 2.3 and 10.26). Peat initiation might have been multi-causal.

Palynological results from Hockham Mere in the Breckland indicate that within the catchment of that lake there was no very substantial woodland clearance until after 2500BP, followed by a marked increase in pollen percentages of Calluna from about 2250BP (Bennett 1983). This could represent an Iron Age colonisation of high-level sand and gravel soils that were marginal for agriculture, perhaps as a consequence of population pressure (Murphy 1996). Expansion of woodland clearance would have increased run-off, and hence would have raised groundwater levels in the Breckland river valleys, resulting in peat development.

However, transgressive and regressive events in the fens would also have had hydrological effects on river valleys, resulting in peat development. The transgressive event that deposited the valleys, such as that of the Little Ouse, that drained into the fen basin. The transgressive event that deposited the valleys, such as that of the Little Ouse, would also have had hydrological effects on river valleys, resulting in peat development.

Various factors associated with this period include high-level sand and gravel soils that were marginal for agriculture, perhaps as a consequence of population pressure (Murphy 1996). Expansion of woodland clearance would have increased run-off, and hence would have raised groundwater levels in the Breckland river valleys, resulting in peat development.

In summary, no evidence for any phase of valley floor woodland or carr development was detected: to the contrary, open grassland and marsh habitats seem to have

<table>
<thead>
<tr>
<th>Events</th>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 3</th>
<th>Column 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle Saxon occupation deposits and dispersed material in peat.</td>
<td>Thin layer of Calluna charcoal. 1350±70 BP (HAR-4086)</td>
<td>Thin layer of bleached sand, probably relating to soil erosion on sand island after fire. Peat above this dated to 1390±80 BP (HAR-5072)</td>
<td>15mm thick layer of charcoal, charred cereals, reed, rushes, cereals etc. Possibly destruction deposit from building. 1350±80 BP (HAR-6605)</td>
<td>Deep peat. Macrofossil assemblages dominated by R. sceleratus and Carex spp. Phragmites commun.</td>
</tr>
<tr>
<td>Peat development under open marsh vegetation. Some soil disturbance, possibly related to local grazing or tillage</td>
<td>Base dated to 1340±60 BP (HAR-5071)</td>
<td>Plough or ard marks scored into sand.</td>
<td>Base dated to 1950±70 BP (HAR-6475)</td>
<td></td>
</tr>
<tr>
<td>Inception of peat development</td>
<td>Greyish-brown sand at base of section</td>
<td>Grey sand at base of section</td>
<td>Grey sand at base of section</td>
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</tr>
<tr>
<td>Low groundwater. Prehistoric ploughing on sand surface.</td>
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<tr>
<td>Late Pleistocene/early Holocene fluviatile sand deposition. Stabilisation and pedogenesis.</td>
<td></td>
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</table>

Table 10.26 Summary of peat stratigraphy, macrofossil data and dating
point to domestic activity. The remains could have been deposited in waterlogged and anaerobic conditions, possibly as refuse. There were local concentrations of chalk fragments and domestic refuse, but the stones were not subjected to charring, indicating that the area was not used for charcoal production.

The Middle Saxon ‘occupation layer’

This deposit, perhaps better termed an anthropogenic feature, was sampled during the 1983–4 season.

The matrix of the layer consisted of a dark greyish-brown sand of variable stone content, mixed with domestic refuse. There were local concentrations of chalk fragments and domestic refuse, but the stones were not subjected to charring, indicating that the area was not used for charcoal production.

The Middle Saxon ‘occupation layer’

This deposit, perhaps better termed an anthropogenic feature, was sampled during the 1983–4 season.

The Middle Saxon ‘occupation layer’

This deposit, perhaps better termed an anthropogenic feature, was sampled during the 1983–4 season.
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<tr>
<td>Pteridium aquilinum (L) Kuhn <strong>b</strong></td>
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<td>x</td>
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<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stellaria palustris/graminea</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
In summary, the results indicate that refuse, mainly domestic, was dumped at the edge of the marsh. The waterfront

The main features of the area of waterfront excavated in 1984 were three artificial mounds constructed by dumping sand onto the peat surface. On these mounds were several phases of clay features with charcoal layers. Underlying the mounds and in adjacent areas were patches of laid brushwood and twigs, spreads of charcoal, and discrete areas of other organic materials. Samples were taken from five contexts associated with the western mound, from thirty in and around the central mound, and from thirty-one contexts associated with the eastern mound. In addition, a concentration of clay features in grid square 8861 was sampled, and previously (in 1980) samples from the waterlogged fill of a pit had been examined. 0.5kg sub-samples were processed and initially scanned to identify samples meriting full analysis (in archive). The samples fall into four main groups.

Concentrations of charred plant remains

The thirty-four charcoal-rich samples scanned proved to be of several types.

i) Samples including very large charcoal fragments, usually of oak (*Quercus* sp.) and ash (*Fraxinus* sp.) with twigs of hazel or alder (*Corylus/Alnus* sp.) and fragments of other diffuse porous charcoals. Charred reed stem (*Phragmites*), seeds of weeds, wetland plants, and occasional cereal remains were also present. Charred macrofossils of heather (*Calluna*) occurred sporadically in small quantities. Samples from contexts 5116, 5206, 5215, 5583, 5589, 6174 and 6363 were of this general type. The samples were similar in composition to those from the charred deposits recorded in column sample 3 (see above) and they may have had a common source.

ii) Samples containing a generally lower density of charcoal, in smaller fragments. Charred *Calluna* remains were usually present, and in some samples (e.g. 6047, 6099, 6215, 6232) were the commonest charred macrofossils. Other material included *Phragmites* stem, occasional cereal remains, and seeds. Samples of this type, which comprised the majority of those examined, were probably derived from a range of sources, including charred fuel residues from domestic and industrial processes.

iii) Samples including concentrations of cereal remains (5038, 6232) or flax/linseed remains (5755, 5764). These, and 5742 (a sub-sample of which was one of the few samples producing seeds of pea, *Pisum sativum*), were fully analysed, together with a sample from 6457 which included a high proportion of silica ash (Table 10.27).

Concentrations of elder seeds (*Sambucus nigra*)

Several discrete and dense patches of *Sambucus* seeds were noted in the peat during excavation, and samples from seven of these were examined (6004, 6022, 6122, 6124, 6353, 6390, 6391). The seed density varied between samples, but in most cases there were more seeds than mineral matrix. In 6122 there were about 150 seeds per cm$^2$, and after washing the sample out over a 0.5mm mesh little was retained but *Sambucus* seeds. Other taxa represented in these samples were *Papaver* spp, *Ranunculus sceleratus*, *Chenopodium murale*, *Atriplex* spp, *Reseda luteola*, *Polygonum* spp, *Rumex* spp, *Urtica dioica*, *Juncus* spp, *Carex* spp and *Poaceae*, with *Corylus* nutshell fragments, shoots of *Calluna vulgaris* and stem fragments of *Phragmites*.
<table>
<thead>
<tr>
<th>Crop plants/probable crop plants</th>
<th>6113</th>
<th>6358</th>
<th>6385</th>
<th>6387</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Juglans regia</em> L. i</td>
<td>1</td>
<td>3</td>
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<td><em>Linum usitatissimum</em> L. c</td>
<td>x</td>
<td>x</td>
<td>x</td>
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</tr>
<tr>
<td><em>Linum usitatissimum</em> L. d</td>
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<tr>
<td><em>Malus sylvestris/domestica</em> g</td>
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<tr>
<td><em>Papaver somniferum</em> L</td>
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<td>5</td>
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<tr>
<td><em>Pisum</em>-type f</td>
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<tr>
<td><em>Rosedaluteola</em> L</td>
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<table>
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<th>Trees/shrubs</th>
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<tr>
<td><em>Corylus avellana</em> L.</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td><em>Salix</em> sp j</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Sambucus nigra</em> L</td>
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<td>12</td>
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<table>
<thead>
<tr>
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<th>6358</th>
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<th>6387</th>
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<td>xxx</td>
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<table>
<thead>
<tr>
<th>Dryland herbs (weeds/grassland)</th>
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<th>6358</th>
<th>6385</th>
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<td><em>Anthemis cotula</em> L</td>
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<td><em>Atriplex patula/hastata</em></td>
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<td><em>Fallopia convolvulus</em> (L) A Love</td>
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<td><em>Hysocyamus niger</em> L</td>
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<td><em>Linum catharticum</em> L</td>
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<td><em>Papaver argemone</em> L</td>
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<tr>
<td><em>Papaver</em> sp</td>
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<td><em>Poaceae</em> indet</td>
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<td><em>Potentilla</em> sp</td>
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<td><em>Prunella vulgaris</em> L</td>
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</tr>
<tr>
<td><em>Ranunculus acris/repens/bulbosus</em></td>
<td>4</td>
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<tr>
<td><em>Rampeetosella</em> L</td>
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<td><em>Rumex sp</em></td>
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</thead>
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<tr>
<td><em>Pteridium aquilinum</em> (L) Kuhn a</td>
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</table>

<table>
<thead>
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<th>Wetland/shallow water herbs</th>
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</thead>
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<tr>
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<tr>
<td><em>Bidens</em> sp</td>
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<td><em>Carex spp L</em></td>
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<td>123</td>
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<td><em>Eleocharis</em> sp</td>
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<tr>
<td><em>Juncus spp</em></td>
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<td>x</td>
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<td><em>Lychmis flos-cuculi</em> L</td>
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<tr>
<td><em>Lycopus europaeus</em> L</td>
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<td>3</td>
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<tr>
<td><em>Oenanthe</em> sp</td>
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<td></td>
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<tr>
<td><em>Phragmites australis</em> (Cav) Steudel m</td>
<td>xxx</td>
<td>x</td>
<td>xxx</td>
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<td><em>Phragmites australis</em> (Cav) Steudel n</td>
<td>25</td>
<td>83</td>
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<tr>
<td><em>Ranunculus acris/repens/bulbosus</em></td>
<td>17</td>
<td>1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><em>Ranunculus flammula</em> L</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Typha</em> sp</td>
<td>1</td>
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<tr>
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<td><em>Alismataceae</em> indet</td>
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<table>
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<tr>
<th>Indeterminate/unassigned to ecological group</th>
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<th>6385</th>
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<td><em>Boraginaceae</em> indet</td>
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<td><em>Brassicaceae</em> indet b</td>
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<td><em>Caryophyllaceae</em> indet</td>
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</tr>
<tr>
<td><em>Cirsium</em> sp</td>
<td>2</td>
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</table>
Flax stem waste (*Linum usitatissimum*)

Pl. 10.11

Samples were collected from two small discrete patches of reddish ‘fibrous’ material in the peat (6385, 6386). They proved to consist of degraded stem fragments with scraps of epidermis and occasional fibres. Most of the stems lacked epidermis, cortical parenchyma and fibres, and consisted only of short lengths of featureless woody tissue. However, Dr Philippa Thomlinson was able to identify this material as *Linum* from stomata on the few surviving scraps of epidermis. The samples represent ‘scutching waste’ from flax processing, after almost all the fibres had been removed, leaving only traces adhering to the xylem. Fifty per cent of the sample from 6385 was examined, to see whether any other macrofossils were present (Table 10.28).

**Other organic deposits**

The remaining samples from the waterfront consisted mainly of peat, sandy peat or organic sand, similar to those already examined in the column samples (see above). Of greater interest were deposits including brushwood, reed, and heather which appeared to have been laid to give firm footing. Samples from three contexts were analysed (6358, 6387, 6113) to detect any macrofossils trapped in the interstices of the material, which might be related to industrial activities in the area (Table 10.28).

**Middle Saxon crop plant remains: descriptions**

Charred macrofossils of crops from dry archaeological deposits are listed in Table 10.29, and uncharred material preserved by waterlogging in Table 10.30.

*Barley* (*Hordeum* spp) was represented principally by grains, although rachis nodes came from column sample 3, and contexts 0539, 1035 and 5755. In most cases deformation made it impossible to determine whether a 2-row or 6-row form was represented, but all grains appeared to be hulled. The large sample of well-preserved grains from 6232 was certainly a 6-row hulled barley (*Hordeum vulgare* L. emend Lam.). Asymetrical grains from lateral spikelets were common in this sample, and several grains retained rachillas and bevelled lemma bases.

Detached embryos from germinated cereal grains, and charred fragments of gristed barley grain came from 0539, a ditch in grid square 8853 in the south-western area of the site. These were of variable size, but generally comprised about a third of a grain. These fragments were characterised as gristed (rather than being charred grains which became fragmented after burial, or during sample processing) because their fractured surfaces were distinctively convex. This indicates that the grains were cracked before they became charred and that their convex, bulging fractured surfaces were produced by gas expansion within the endosperm during charring. Although this material cannot be generically identified, barley was the main cereal represented by whole grains in the sample.

*Short, broad grains of free-threshing hexaploid bread or club wheat* (*Triticum aestivum* s.l.) were present, with occasional more elongate forms (*e.g.* in 0110). The only rachis fragment came from column sample 3 (30–35cm). It consisted of the two lowest internodes of the ear, elongate and quadrilateral in cross-section, attached to the top of the culm.

Grains and rachis fragments of rye (*Secale cereale*) were recovered. The grains showed the variability typical of this cereal, though most were more or less elongate, pointed towards the embryo, and keeled dorsally. Rachis internodes came from 0055, 0078, 0539, 1035 and 6457, from the occupation layer and from peat samples in columns 2 and 4, but the best-preserved rachis sections, retaining marginal pubescence, were from column 3 (25–45cm).
<table>
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<td>Cereal indet (gristed caryopsis fragments)</td>
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<td>Cereal indet (detached germinated embryos)</td>
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<td>Anthemis cotula L</td>
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<td>Spergula arvensis L</td>
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<tr>
<td>Phragmites australis (Cav) Steudel (culm)</td>
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<td>Trees/Shrubs</td>
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<td>Corylus avellana L ns fr</td>
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<td>Sambucus nigra L</td>
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<tr>
<td>Dwarf shrubs</td>
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<td>Calluna vulgaris (L) Hull c</td>
<td>75</td>
<td>42</td>
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</table>
Table 10.29  Charred plant remains from some Middle Saxon cut features (summary)

<table>
<thead>
<tr>
<th>Crop plants/probable crop plants</th>
<th>Depth (cm)</th>
<th>70–80</th>
<th>37–50</th>
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<td>Prunus domestica subsp insititia</td>
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<tr>
<td>Trees/shrubs</td>
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<tr>
<td>Corylus/Alnus s</td>
<td>x</td>
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<tr>
<td>Fraxinus e</td>
<td>x</td>
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<tr>
<td>Quercus e</td>
<td>x</td>
<td></td>
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</tr>
<tr>
<td>Sambucus nigra L</td>
<td>36 94</td>
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<tr>
<td>Solanum dulcamara L</td>
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<tr>
<td>Dwarf shrub</td>
<td></td>
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<tr>
<td>Calluna vulgaris (L) Hull b</td>
<td>x x</td>
<td></td>
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<tr>
<td>Dryland herbs (weeds/grassland)</td>
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<td>Atriplex patula/hastata</td>
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<td>Capsella bursa-pastoris (L) Medic</td>
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<td>Chenopodiaceae indet</td>
<td>3 10</td>
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<td>Chenopodium album L</td>
<td>12 14</td>
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<tr>
<td>Euphrasia/Odontites sp</td>
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<td>Papaver rhoeas L</td>
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<tr>
<td>Persicaria lapathfolia/persicaria</td>
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<tr>
<td>Poaceae indet</td>
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<tr>
<td>Polygonum aviculare L</td>
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<td>Ranunculus acris/repens/bulbosus</td>
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<td>Reseda sp</td>
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<td>Rumex acetosella L</td>
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<td>Rumex sp</td>
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<tr>
<td>Silene sp</td>
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<td>Solanum nigrum L</td>
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<td>Stellaria media-type</td>
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<tr>
<td>Urtica dioica L</td>
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<td>Pteridophyte</td>
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<tr>
<td>cf Pteridium aquilinum (L) Kuhn a</td>
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<td>Wetland/shallow water herbs</td>
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<td>Eleocharis sp</td>
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<tr>
<td>Juncus spp</td>
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<tr>
<td>Ranunculus sceleratus L</td>
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<tr>
<td>Typha sp</td>
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<td>Indeterminate/unassigned to ecological group</td>
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<tr>
<td>Apiaceae indet</td>
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<tr>
<td>Stellaria graminea/palustris</td>
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<tr>
<td>Indeterminate seeds etc.</td>
<td>7 5</td>
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</table>

Notes: a Charred stem fragments; b Charcoal, charred shoots, capsules, also uncharred stems and shoot tips; c Charcoal.

Table 10.30  Plant macrofossils preserved by waterlogging in pit 0045. All taxa are represented by fruits or seeds, unless otherwise indicated
Oat grains (Avena spp.) were rarely abundant (except in 0539), and floret bases of Avena fatua-type (wild oat), came from 0539 and 6232.

Three pea (Pisum sativum) seeds, 4.7–5.1 mm in length, with some cotyledon fragments, came from 5742. One seed retained its short oval hilum, approximately 1.1 x 0.6 mm. A seed and isolated cotyledons from 0539 and 5045 might be of pea.

An intact horsebean (Vicia faba var. minor) seed from 0078 was 7.3 mm long, 6.0 mm across the cotyledons. Damaged seeds and cotyledons were recovered from 0055 and the occupation layer in column sample 3.

Three fragmentary fruits of hemp (Cannabis sativa) were recovered from column sample 4, 50–60 and 70–80 cm.

Charred seeds of flax (Linum usitatissimum) came from contexts 0045, 0047, 0055, 0062, 0147, 0539, 1519, 5038, 5755 and 5764, and were associated with whole capsules and stem fragments in 0539, 5755 and 5764 (the latter a sample containing >3000 seeds). Seeds and capsule fragments were also recovered from organic deposits: 6358, 6385, 5387 and column sample 4, 90–100 cm and 120–130 cm. Deposits of flax stem waste have been noted above.

Prunus fruitstones came from 0045 and column sample 4, 120–130 cm. Dimensions were as shown in Table 10.31.

Five seeds of apple (Malus sylvestris/domestica) came from 6358. Two were adpressed and attached to fibrous endocarp tissue (‘core’).

Context 6358 produced several small fragments of walnut (Juglans regia) endocarp, showing the characteristic irregularly branched and sinuous grooving.

Charred and uncharred hazel (Corylus avellana) nutshell fragments were widely dispersed across the site.

<table>
<thead>
<tr>
<th>Context</th>
<th>Length (mm)</th>
<th>Breadth (mm)</th>
<th>Thickness (mm)</th>
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</thead>
<tbody>
<tr>
<td>0045</td>
<td>11.2</td>
<td>9.0</td>
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<tr>
<td>Column 4</td>
<td>14.4</td>
<td>8.5</td>
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<td>10.5</td>
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Table 10.31 Dimensions of Prunus fruitstones

The plant economy: general discussion

It is instructive to compare the gross composition of the Brandon Middle Saxon samples with those from some other Middle Saxon ‘island’ sites in the East Anglian fens: three sites in the Norfolk silt fens (Crowson et al. 2000, 213–25). The sites of Ingleborough, West Walton, Rose Hall Farm, Walpole St Andrew, and Hay Green, Terrington St Clement were all located on rododons and were surrounded, when occupied, by salt marsh and mud flats. Because of the different environmental conditions, the charred plant macrofossil assemblages retrieved differed from those at Brandon both in terms of dominant crops (principally salt-tolerant 6-row barley in the silt fens) and the range of wild taxa, including weeds, represented (Murphy 2005). The assemblages also differed in gross composition. A triangular diagram was prepared, in which quantifiable components of assemblages are expressed as a percentage of the total count, in three categories: crop seeds and grains, chaff, and ‘weed seeds’. Problems of interpreting such diagrams have been reviewed by Van der Veen (1991), not the least of which are that some so-called ‘weed seeds’ were in fact not from plants growing in arable fields, but arrived at the site with other plant materials (reed, hay, etc.); and some dense components (e.g. grains, seeds, rachis nodes) were more likely to be preserved by charring than lighter and smaller components (e.g. flax capsule fragments, small weed seeds). Assemblage taphonomy is complex and often uninterpretable. However, it is plain that most assemblages from Brandon were dominated by crop seeds and grain, whereas most of those from sites in the silt fens included much higher percentages of ‘weed seeds’ and chaff. Exceptions to this were samples from 0045, and 5755, in which ‘weed seeds’ comprised >70% of the assemblage. The implication is that, in contrast to the silt fen sites, predominant food crop processing activities on the island at Staunch Meadow were domestic, and that most primary cereal processing waste from threshing and winnowing was discarded elsewhere. The arable fields and primary processing areas need not, however, have been far away, potentially on the adjacent gravel terrace. However, as discussed below, there is good evidence for primary processing of fibre crops at the site, and for secondary processing of cereals, notably malting.

A distinctive type of local agriculture is certainly indicated by the predominance of rye in the charred cereal samples. Terrace soils in the Little Ouse valley include well-drained sandy brown earths (Frenckenhain Series) and humus podzols (Redlodge Series, Corbett 1973, 35). The low annual rainfall of the Breckland (less than 550 mm at Mildenhall in the period 1938–65), combined with the free-draining characteristics of these sand soils makes available soil moisture a limiting factor for arable farming. Rye has a more extensive root system than other cereals, extending to 1.6–1.8 m, and consequently is indicated by the predominance of rye in the charred cereal samples. Terrace soils in the Little Ouse valley include well-drained sandy brown earths (Frenckenhain Series) and humus podzols (Redlodge Series, Corbett 1973, 35). The low annual rainfall of the Breckland (less than 550 mm at Mildenhall in the period 1938–65), combined with the free-draining characteristics of these sand soils makes available soil moisture a limiting factor for arable farming. Rye has a more extensive root system than other cereals, extending to 1.6–1.8 m, and consequently is indicated by the predominance of rye in the charred cereal samples.

A distinctive type of local agriculture is certainly indicated by the predominance of rye in the charred cereal samples. Terrace soils in the Little Ouse valley include well-drained sandy brown earths (Frenckenhain Series) and humus podzols (Redlodge Series, Corbett 1973, 35). The low annual rainfall of the Breckland (less than 550 mm at Mildenhall in the period 1938–65), combined with the free-draining characteristics of these sand soils makes available soil moisture a limiting factor for arable farming. Rye has a more extensive root system than other cereals, extending to 1.6–1.8 m, and consequently is indicated by the predominance of rye in the charred cereal samples.
fragments were characterised as gristed (rather than being charred grains which became fragmented after burial, or during sample processing) because their fractured surfaces were distinctively convex. This indicates that the grains were cracked before they became charred and that their convex, bulging fractured surfaces were produced by gas expansion within the endosperm during charring. Fragmentary and distorted material of this type is not identifiable, but barley was the predominant cereal represented by whole grains in the sample, followed by rye and then oats. This component of the assemblage is thought to represent malt grist.

Very similar charred malt grist has come from an early medieval cellared building at Ipswich (site IAS 3104, building 2022; Murphy in prep.), but there the main cereal used for malting was, unexpectedly, oats. The traditional malting process involved steeping, controlled germination on a malting floor, drying to kill and harden the grain and then grinding prior to mashing (production of the wort for brewing). Whole-grain malt has been reported from several Anglo-Saxon and medieval sites in East Anglia (e.g. Alms Lane, Norwich: Murphy 1985c), but the material from Brandon represents the subsequent stage in the process — the grist produced after the malt had been ground. This process is necessary in order to reduce the endosperm to smaller fragments with a larger surface area and thereby to facilitate water absorption, enzyme activity and the extraction of sugars and other compounds during mashing. The fineness of grinding depends nowadays on the type of wort-recovering method used but modern adjustable roller mills can produce coarse grits, at around 0.3–0.6mm, down to flour less than 0.15mm (Hough 1985, 54–7). Very fine flour, though providing a large surface area poses problems of wort extraction. Corran (1975, 164) quotes Ree’s Cyclopaedia (1819–20): ‘... the flour when immersed in the water and wetted, forms a sort of paste which at first absorbs a considerable portion of water but will not afterwards quit it, so that very little extract is obtained’. This can be dealt with by modern mash filters, but for traditional mash tun methods a coarse grist is used (Hough 1985, 63).

Exactly how the Brandon malt grist became charred is unclear. It would not normally have been exposed to temperatures sufficiently high to result in charring. The material from Ipswich plainly became charred when the building in which it was stored burnt down, and it is possible that the charred material from Staunton Meadow resulted from a similar catastrophe.

Remains of the fibre crops flax/linseed \((Linum usitatissimum)\) and hemp \((Cannabis sativa)\) were identified from the organic deposits of the waterfront. Charred seeds of flax came from a range of contexts, and were associated with whole capsules and stem fragments in 0539, 5755 and 5764. Cultivation of these two crops is unsuitable for both crops. No retting pits have yet been identified at Brandon, and it is possible that retting was done in the river channel, despite the problems of pollution this would have caused. During the retting process any residual capsule fragments and seeds still attached to the stems could easily have been dispersed onto the marsh surface in the vicinity of the site, and it is probable that most uncharred \(Linum\) macrofossils in peat samples came from this source.

After retting, the stem bundles would have been dried. This can be done by laying out on grass fields or alternatively the bundles can be dried artificially in a kiln or drying shed (Evans 1985, 22). It is possible some of that the hearths and kilns associated with the clay features on the waterfront mounds were used for this purpose. Following drying, the flax would have been ‘broken’, ‘scutched’, and ‘heckled’, to crush the stems and separate the fibres. According to Evans (1985, 23) the waste products were kept for use as fuel. The charred seeds, capsule fragments and stems from 5755 and 5764, associated with oven 5736, probably reflect this practice. Context 5764 produced over 3000 seeds, as against only 40 capsules and 112 capsule segments, but this is likely to reflect differential preservation during charring: the capsules would be far more likely to burn off to ash than the denser seeds, which would be more likely to survive in charred form. Small patches of stem waste, preserved by waterlogging on the peat surface (6385, 6386), were no doubt just accidental spillages.

The separated fibre would then have been spun and bleached. Traditionally, a solution of ash (lye) was used for bleaching, and at least one ashly deposit was noted in the peat during excavation (6457). This included abundant ‘silica skeletons’ of plant tissue, apparently mainly from grasses, together with charred remains of bracken, heather, reed and other grasses, cereal grains and rachis fragments, as well as wood charcoal and calcined bone fragments. After bleaching, the yarn would have been ready for dyeing and weaving.

There is no conclusive evidence for the processing of hemp at this site, though the identifications of macrofossils from peats in column sample 4 show that this crop was grown, and in all probability was processed in a similar way.

Elsewhere in the Little Ouse valley, at Mill Lane, Thetford flax seeds and capsule fragments have been reported from peats dated to just after cal AD 780–1030 (OxA-8377: Murphy 2004; Greig 2004), suggesting continued linen fibre production in the Late Saxon period. At Staunton Meadow, the dense and discrete concentrations of elder seeds \((Sambucus nigra)\) on the peat surface indicate that elderberries were being used in quantity for some purpose. Although \(Sambucus\) seeds are virtually ubiquitous, and often abundant, in archaeological deposits of all periods, the writers have never observed such dense concentrations elsewhere. There are two main possible uses. Either the juice was
being expressed for production of wine or other beverages, or it was being used as a dye. Elderberries yield a greyish-blue dyestuff, known to have been used for dyeing in medieval Germany (Brunello 1973, 154). In view of the evidence for textile production in this area of the site, interpretation of these elder seed deposits as waste residues from dyeing seems plausible. The relative abundance of seeds of Reseda luteola (dyer’s rocket) in context 6358, and their presence in other samples from the waterfront, also suggest dyeing. Reseda gives a brilliant fast yellow dye (Grigson 1958, 68).

Other crop plants identified in samples from Middle Saxon contexts at Brandon comprise pulses, fruits and nuts. Charred remains of horsebean (Vicia faba var. minor) and pea (Pisum sativum) occurred sporadically. The fruitstones of Prunus seem to represent small cultivated bullaces (P. domestica subsp. insititia). It is not possible to determine whether the Malus macrofossils represent cultivated apples or crabs. Nutshell fragments of hazelnut (Corylus avellana) occurred frequently. The small fragments of walnut endocarp (Juglans regia) from 6358 are significant, since they give the earliest known post-Roman record of this crop from the east of England. Whether imports of nuts or introduced trees are indicated is uncertain; but the Anglo-Saxon name ‘wal-nut’ (meaning foreign nut) plainly indicates the exotic origin of these fragments.

*Wood*

Preservation conditions for wood at this site were generally marginal. Recalcitrant timber (mainly oak) survived reasonably well, especially pieces emplaced as parts of the causeway and some buildings. Items potentially suitable for dendrochronology were submitted to the Sheffield Laboratory (Chapter 2.II). All oak wood (except small fragments) has been examined by Richard Darrah (Chapter 5.II). Remaining material is listed and described in archive.

*Mollusca*

Soil pH at this site was generally too low for shell preservation: pH 5.2–6.3 in the lower horizons of the modern soil profile. However, in some deposits base status had been enhanced by deposition of domestic refuse. Pit 0147 produced a few poorly-preserved valves of oyster (Ostrea edulis): two left and two right valves from 10–20 cm; one left valve from 20–30 cm, and some pitted and abraded oyster shell fragments were recovered from the occupation layer (contexts 4685, 4970). Oysters were presumably imported to the site from the Wash via the Great and Little Ouse. An east coast source seems improbable, since this would have involved a longer journey with no continuous river connection.

Locally base-rich deposits were also produced by dumping of chalk-rich material, so that shells of land molluscs survived sporadically. Some of the shells extracted from samples are plainly recent contaminants, since they retain their periostraca. Others, with badly pitted surfaces, might be ancient, but they might not. Detailed study was therefore not thought appropriate. The most abundant taxa were Pupilla muscorum and Fallonia spp, with a few shells of Helicella itala, Nesovitrea hammonis, Cochlicopa sp., Carychium spp and Lymnaea sp.

**Prospects for future work**

Deficiencies in the sampling and analytical programme, viewed with the benefit of hindsight in 2004, have been noted above. However, most of the valley sediments and some areas of waterfront layers are still extant at the site, and they could be re-interrogated using improved methods were the site ever to be excavated, or sampled in other ways, again. They are still there, and they represent an archive of potential information which requires active management.

**VI. Palynology**

by Patricia Wiltshire

**Introduction**

This account is based on palynological analysis carried out in the late 1980s and submitted in 1990 (Wiltshire 1990). The salient features of the original work are presented. Little has been updated except for palynological and plant nomenclature. The analytical work must be viewed as a product of its time. However, in view of recent archaeological and palynological work carried out at Scole (another riverine site on the Suffolk/Norfolk borders), the relative importance of the Middle Saxon settlement at Brandon has been brought into focus. Some comparison has been made with the Scole palaeochannel site excavated in the 1990s. The sequence from Scole has provided the best-dated palynological sequence for the Iron Age to Saxon periods in the region, and the full pollen diagram has been published (Wiltshire and Murphy 1999). However, to date, except for the unpublished palynological report, only the sequence relevant to the Iron Age has been discussed in detail.

The original core of peat from Staunch Meadow (Brandon 1) was collected and processed by others in 1988. The author was responsible for microscopical analysis and interpretation. This sequence was equivalent to column 4 which was analysed for macro-remains by Murphy and Fryer (above, Section V), and they provided its stratigraphic details. There were slight discrepancies in the depths of distinct stratigraphic horizons between column 4 and Brandon 1, but the broad sequence was similar: (a) basal sand, (b) well-humified peat, (c) sequence of sandy peats and peaty sands, (d) peat, (e) sequence of sands, and (f) uppermost peat disturbed by roots and faunal activity.

In an attempt to obtain more detailed information of the critical upper horizons, another peat core (Brandon 2) was taken by P. Murphy for analysis by the author. The sample was taken as close to the original column 4 as possible. It was unfortunate that, because of lateral variation, the horizons targeted for the second sequence were missed. Palynological analysis showed that Brandon 2 was equivalent to depths 50–75 cm of Brandon 1 and, although more highly resolved, the additional palynological analysis provided very similar information to that already found for the upper part of Brandon 1. The details of the analysis and pollen diagram for Brandon 2 can be found elsewhere (Wiltshire 1990) and this report will discuss the results from only Brandon 1.

**Description and background**

The solid geology of the area is Upper Chalk and this is overlain by a variety of Pleistocene deposits. Patches of
Methods

Sampling and palynological analysis
During the initial sampling, individual samples of sediment were taken at 4 cm intervals for palynological analysis. Samples were subjected to standard acetolysis and hydrofluoric acid treatments (Dumbleby 1985) with pollen preparations stained with aqueous safranine and mounted in glycerol jelly. Slides were examined under phase-contrast microscopy at x400 and x1000 magnification where appropriate. Identification was aided by standard keys and reference material. A minimum of 350 palynomorphs were counted in each sample. Results were expressed as percentages of total pollen and spores (TP).

Diagram
Fig. 10.12
Palynomorphs were expressed as a percentage of the total count with all taxa being included in the sum. This was because of the nature of the site, and probable heterogeneity in palynomorph taphonomy. It is usual to omit obligate aquatic plants from the pollen sum in order to depress very local taxa which might obscure the regional component in the pollen diagram; but in this case, except for Poaceae (grasses), Cyperaceae (sedges), and some other anemophilous taxa such as Rumex spp (docks), Plantago (plantains), Secale (riparian), and Cannabis (hemp), the spectra were dominated by herbaceous plants which are mostly insect- or self-pollinated and so, by their very nature, form the local component in the pollen diagram.

Taphonomic considerations — local vs regional
The sediments were obtained from peat that had accumulated at edge of the Little Ouse. The smooth curves for most of the pollen taxa suggest that there had been no discernible truncation of the peat sequence by fluviatile, or other, activity during the period under review. However, the question must be asked as to what the pollen and spore spectra actually represent in the context of the archaeological site.

Throughout the history of the site, the very local riparian community fringing the river was a typical Phragmites reed swamp, with Cyperaceae (sedges), Typha latifolia (greater bulrush), Sparganium-type (lesser bulrush with bur-reed), Filipendula (meadow sweet), Scrophularia-type (figwort), Apium-type (fool’s water-cress), Valeriana (valerian), and Solanum dulcamara (woody nightshade). Smaller wetland herbs and floating aquatics included Mentha-type (mint), Nuphar (yellow water-lily), Myosotis (forget-me-not), Trollius (globe flower), Nymphea (water lily), Myriophyllum spicatum (spiked water milfoil), and others. Most of the grass pollen in the pollen diagram was probably derived from the reeds and, although, the pollen curves varied through the sequence, there is little doubt that the river-edge vegetation was remarkably constant for centuries.
A3 foldout

Figure 10.12 Pollen diagram

332
Although this community is likely to have dominated the river’s edge at Brandon, at least some of the pollen and spore assemblage would have been brought in by water flow from higher in the river catchment. This means that pollen and spores from plant communities upstream would be difficult to separate from the very local vegetation. It is likely that long stretches of the Little Ouse supported communities very similar to that at Brandon. Modern pollen studies of river edge reed swamp have shown that pollen from many miles upstream can contribute to the pollen profile of any surface mud/peat sample (Wiltshire 2008). This holds true for terrestrial vegetation as well as riparian and truly aquatic plants. It follows, therefore, that pollen of any plant (terrestrial or aquatic) finding its way into river water could be transported downstream and contribute to profiles much lower in the catchment. Not only river bottom and river edge sediments would be affected but also any of those receiving water from over-bank flooding. Thus, even though the local community is likely to dominate the pollen spectra, sediments some distance from a river’s edge could reflect communities from further upstream.

Throughout the Brandon 1 peat sequence, arboreal pollen was very low, rarely exceeding 15% of total pollen. Since airborne tree pollen is likely to find its way into river water, the profile from Brandon might suggest that much of the landscape at Staunch Meadow, and upstream of the site, supported very few trees. Quercus (oak) was the most abundant taxon, with Corylus (hazel) being better represented than most others. It is remarkable that so little Alnus (alder) was found since this tree is so characteristic of river banks and wet ground alongside rivers. There is little doubt that in the environs of Staunch Meadow from the late Iron Age onwards, people were living either in a largely treeless landscape, or there was such a high level of exploitation of woodland resources that plants had little opportunity to flower.

In any sequence of riverine sediment, palynomorph assemblages may represent a larger land area than that of the immediate sample site. Furthermore, in most cases, only a single core of sediment is collected during archaeological investigation. Inevitably, that sediment will yield a record of vegetation at the site of sampling, and a catchment of unknown dimension. It is, therefore, imprudent to endow too much importance to the rise and fall of minor taxa within a pollen diagram.

The pollen assemblage zones

Zone B1/1

Peat in this basal zone represents the late Iron Age and early Roman period. The site and, indeed, the catchment was very open with Quercus and Corylus being the most abundant but with some Betula (birch), Pinus (pine), Fraxinus (ash), and Tilia (lime) in the catchment. Salix was also present but whether it was immediately local to the site, or whether it was brought downstream is difficult to ascertain. Willow tends to grow on river banks so that it could have been brought from anywhere in the upstream catchment.

The profile was dominated by reed swamp taxa, but herbs characteristic of grazed pasture and open, disturbed ground such as Plantago lanceolata (ribwort plantain), Rumex (docks), fenestrate Asteraceae (dandelion-like plants), Chenopodiaceae (goosefoot family), Urtica-type (nettles), Apiaceae (hogweed family), Rumex spp (docks), and Sinapis-type (e.g. charlock), were all found. Many of these are ruderal or ‘back yard’ weeds and are characteristic of drier soils. Heathland plants such as Calluna (heather) and Pteridium (bracken) were growing in the catchment. Cereal pollen attests to some arable agriculture and there is a considerable body of archaeological evidence for agricultural settlement of East Anglia by Iron Age Peoples (Clark 1960). The pollen diagrams from Diss Mere and Old Buckenham Mere were interpreted to indicate pastoral husbandry dominating agriculture during these times. The river edge at Scole appears to have been largely cleared of Alnus (alder) and Corylus (hazel) at about 110 cal BC to cal AD 70 and this seems to have resulted in enhancement of the local reed swamp community. Pollen of Quercus (oak), Salix (willow), and Sambucus (elder) and dry land herb communities was better represented, and this may have been a function of removing the physical barrier of the trees fringing the river edge. Cereal-type pollen was found at both Staunch Meadow and Scole for the Late Iron Age, although at a fairly low level. Scole offered a very similar landscape and economy to that at Staunch Meadow during these times although that site was more wooded with a wider range of trees and shrubs. Other sites such as Stow Bedon and Hockham Mere were relatively wooded, but this may be a function of the nature of the site more than a reflection of land-use. The palynological profiles of lake sites are likely to reflect trees growing around their margins. These could mask any extra-local or regional pollen coming into the site.

Zone B1/2

This zone covered the major part of the Roman period. As before, the reed swamp community dominated the profile and the abundance of trees and shrubs changed very little. However, there appears to have been several episodes where the reed swamp was disturbed or cleared with a decline in grasses and emergent herbs and an increase in aquatics and dry land weeds. This may have been because the removal of the taller vegetation allowed pollen of smaller plants to be better dispersed. Pteridium (bracken) also had increased representation and, again, this might be because of the opening-up of the reed swamp.

There seems to have been more intensive land use (starting at 160cm) involving cereal-growing, including Secale (rye). Cannabis-type (hemp), Reseda luteola (dyer’s rocket), and Vicia-type were also found. It is possible that dyer’s rocket was being used in textile dyeing although, of course, this is conjectural. The Vicia-type pollen could have been of Vicia faba (broad bean) but this could not be verified. Pasture weeds such as Plantago lanceolata (ribwort plantain) and Rumex spp (docks) increased and there may have been more intensive grazing by stock animals as well as arable agriculture being practised. At Scole, evidence of cereal-type pollen was enhanced but this might have been the result of tree and shrub removal from around the pollen site so that there was better dispersal.

Zone B1/3

During this zone, there appears to have been a decline in the reed swamp, particularly in grasses and sedges, and a marginal increase in woody taxa, particularly Alnus (alder) and Corylus (hazel). There was also an increase in
weeds such as *Plantago lanceolata* (ribwort plantain), fenestrate Asteraceae (dandelion-like) plants, and *Rumex* spp (docks), and a gradual increase in *Calluna* (heather). As well as disturbance of the local reed swamp, this might indicate more intense stock grazing, with taxa resistant to grazing pressure being better represented. Although cereal-type pollen was found in the same abundance as in previous zones, there was a single grain of *Cannabis*-type. There was certainly no palynological evidence of hemp retting in the peat samples although this may have been done slightly further away. Comparable levels at Scole also showed a decline in grasses and sedges with a rise in some herbaceous weeds and decline in others. Cereal-growing continued as before.

**Zone B1/4**

There appears to have been some considerable impact on the local vegetation, and this was correlated with a change in stratigraphy at the site. At about 92cm, there appears to have been some catastrophic event which resulted in large amounts of sand being incorporated into the peat. Although the chronology is not secure for Brandon 1, the sandy layer does provide a reference for comparison with macrofossil evidence. The accumulation of sediment must have been very rapid since the sample at 76cm was virtually devoid of palynomorphs. It is probable that agricultural activity was causing instability of the surface soils on the island, allowing loose sand to spread over a considerable area.

*Quercus* (oak) pollen declined to even lower levels and there was a small rise in *Corylus* (hazel). There was an overall decline in grasses, the riverside tall herb community, and all herbs. There was a very large rise in *Calluna* (heather) and increase in *Pteridium* (bracken) and these events were accompanied by a progressive increase in cereals (including rye) and hemp. As well as the increase in cereals, *Cannabis*-type (hemp) and both *Reseda luteola* (dyer’s weed) and *Sambucus* (elder) were frequent. This may strengthen the contention of Murphy and Fryer (above, Section V) that these plants were being used for dyeing of locally-produced fabrics. They found large amounts of elderberries and some remains of dyer’s weed in the same horizons of the profile.

It is likely that this zone represents Middle Saxon times and that the pollen spectra indicate intensive activity, including farming, at the site. This appears to correlate well with results from Scole at horizons just below sediment dated at cal AD 670–80.

**Zone B1/5**

The stratigraphy at the boundary between B1/4 and B1/5 shows a sharp transition between peat with sand and one with very little mineral content. The zone is characterised by a recovery of the reed swamp vegetation and an increase in crop plants. Cereal-type pollen (including rye) and *Cannabis* increased. *Limonum usitatissimum* (flax) was also found along with *Reseda luteola* (dyer’s weed) and *Sambucus* (elder). Murphy and Fryer also found macrofossils of hemp, flax, large amounts of elder, and dyer’s weed. Both lines of evidence indicate that, as well as growing cereals, there was the manufacture and processing of textiles at the site. At Scole, sediment dated at cal AD 670–80 yielded large amounts of cereal pollen and a single grain of *Vitis* (grapevine).

**Discussion**

Coupled with seven radiocarbon estimates in the 130cm sequence of sediments, palynological analysis from the Scole deposits has refuted the notion of land abandonment and neglect during the 5th and 6th centuries AD. Correlation with the sequence at Staunch Meadow suggests that intensive land management extended as far as Brandon. But, a single pollen diagram from a site makes it difficult to assess the regional extent of agriculture at any one time. Modern pollen studies have shown that, irrespective of pollination mechanisms and vectors, most pollen will fall very close to the parent plant (Wiltshire, personal observation). However, some wind-pollinated taxa can travel some distance from source; one study has shown that pollen can be transported more than 200km (Cour et al. 1999). Cereal pollen grains have been shown to travel very small distances during flowering, and not far during processing (Vuorela 1973). With regard to riverine sediments, although the pollen spectra will be dominated by local plants, river water will bring suspended pollen into a site from the catchment upstream. The areal extent of the pollen catchment is unknowable in these sediments.

The taphonomic processes associated with palynological analysis of river channels are complex, so the picture gained from a single core of sediments, such as that taken at Brandon and at Scole, may give information about (a) the catchment through which the river flows (or flowed), (b) the very local vegetation, and (c) the terrestrial vegetation further away from the immediate sampling site. Although all these factors must be kept in mind when interpreting data from such material, at Staunch Meadow, deposits obtained from the edge of the Little Ouse were highly palyniferous, and did not appear to have suffered from discontinuities in deposition. They had also accumulated very close to what was a working settlement — so much so that they may almost be considered to be ‘on-site’ sediments. Furthermore, there were correlations between the palynological results and those from the macro-remains so, in spite of the lack of dating resolution, it can be assumed with confidence that the sequence covers the period of relevance to the archaeological excavation.

This study of Staunch Meadow has shown the extent of crop husbandry in its immediate environs but, with the present state of knowledge, neither a realistic estimate of the areal extent of crop fields, nor their distance from the sampling site can be given. To gain such information, it would be necessary to have a sampling strategy involving multiple coring on and away from the site. Nevertheless, this work has shown that there was a history of continued arable husbandry from the late Iron Age to Saxon times in and around Staunch Meadow.

A mixed arable/pastoral economy appears to have been important in the late Iron Age and Roman times but there was one period when crops had greater emphasis with rye, hemp, and possibly beans, being grown close to the site. The history and uses of rye are reviewed by Green (1982) and Chambers (1989) and the evidence of rye cultivation in Roman times is reasonably well-documented. At Staunch Meadow, rye was re-introduced in Early Anglo-Saxon times and continued to be grown through the Middle Saxon period. However, the pollen frequencies for the cereal were low and did not reflect the abundance of rye grain found by Murphy and Fryer, especially considering that rye pollen is more readily

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334
dispersed than that of other cereals. However, they recorded that the rye grain was very clean with little waste material. They assumed that the grain was in its final stage of preparation and that processing had been carried out further away. They suggested that the crop was grown on the dry, acid, sandy soils of the river terraces, and their findings of weeds characteristic of these soils supported their ideas. The pollen evidence would also support Murphy and Fryer; similar assemblages of weeds were found, and the very fact that rye pollen was so low indicates that the crops were grown and processed some considerable distance from the site.

The relatively large amounts of cereal pollen (maximum value 7.5% TP) with the weeds associated with corn fields (e.g. Bupleurum, Sinapis, Spargula, Polygonum convolvulus, Papaver and Centaura cyanus) indicate that cereals other than rye were being grown and/or processed locally.

The presence of several grains of C. cyanus (cornflower) needs comment since it agrees with the review of evidence presented by Godwin (1975) that the plant was certainly infesting Anglo-Saxon corn fields; it refutes the contention of Grieg (1982) that the cornflower was introduced to Britain in the 12th century. The presence of cornflower also indicates that the cereals were mostly winter-sown since before AD 1900, the plant was almost exclusively a weed of winter-sown crops (Mikkelsen 1986).

The earliest record of Cannabis-type pollen for Britain is from the Iron Age at about 2000 years ago (Bartley et al. 1976) but the earliest pollen and macrofossil evidence is from Roman or Saxon deposits (Godwin 1967; Bradshaw et al. 1981). The cultivation and history of hemp growing in East Anglia has been reviewed by Peglar et al. (1989). An expansion of its cultivation started in Norman times and, from the 14th to 19th centuries, it was one of the most important crops in the region. Diss was the centre of most intensive hemp growing and the manufacture of hempen fabric was a major industry as late as the mid 19th century.

Although hemp was grown in one period during Roman times at Staunch Meadow, like rye it seems to have been neglected from then until Early Anglo-Saxon times; it later became more important in the Middle Saxon period. Only small amounts of hemp pollen were found (a maximum of 4.5% TP) and one reason for this might have been the distance of the crop from the site. As Murphy and Fryer have pointed out, the very local sandy and swampy soils would be unsuitable for Cannabis which favours rich loams and alluvial soils, and although wind-pollinated, the plant would be poorly represented in the pollen record if the crops were grown some distance away.

Another reason for the low pollen frequencies might be that the immediate site was not used for retting and, indeed, no retting pits were found at Staunch Meadow. But, the very fact that macro-remains were found shows that the plant was being transported to the environs of the sampling site for some reason. Of course, another possibility which has already been put forward by Murphy and Fryer is that retting might have been carried out in the river in which case pollen would have mostly been washed away. If the river had been used, then processing is likely to have been carried out some distance downstream from the settlement. Closotridium is the anaerobic bacterial genus largely responsible for separating the textile fibres from the rest of the stem tissue. Fermentation of plant material causes a foul stench due to the production of butyric acid and other organic products by bacterial decomposition. It is likely that people living and working in the settlement would have wanted their water source to be clean and palatable rather than foul and stinking. The literature related to hemp pollen frequencies in relation to retting activity has been succinctly reviewed (Whittington and Edwards 1989; Edwards and Whittington 1990 and 1992), and it would appear that hemp retting at Brandon is feasible even though the evidence is tenuous. It must be remembered that only one locality in the meadow was sampled for pollen and further work might have revealed greater quantities of hemp pollen elsewhere on the site.

The pollen diagram shows that Linum usitatissimum (flax) was also grown somewhere in the vicinity in Saxon times (although not in the immediate locality, for the same reasons as hemp). Although very low pollen frequencies were found, its presence, coupled with Murphy and Fryer’s findings of seed, seed capsules, and stem material, shows that it was brought to the site. Linum is insect-pollinated and produces very little pollen. Even immediately beneath the crop, the amount of pollen shed is only about 0.3% TP (Gennard 1985). What is interesting about the Staunch Meadow site is that, although flax pollen was found only in later Middle Saxon deposits, macrofossil material from the same location was found in deposits which covered the late Roman, Early Anglo-Saxon, and early Middle Saxon periods. This implies a very long history of flax growing, and an early record for its exploitation at Staunch Meadow, a situation, perhaps comparable to that at Diss (Peglar et al. 1989), though not as early as for some continental areas.

As previously stated, no retting pits were found on the site and much of macrofossil material was charred. This was interpreted as meaning that linseed was being produced and cooked for human consumption and that the production of fires were only as a by-product of the food crop. Whittington and Edwards (1989) also suggested that, if the early remains of linseed found on the continent and Scotland were, in fact, of Linum usitatissimum, then the crop was probably being used for cattle feed and oil production rather than for linen. It is certainly true that, if the flax plant is allowed to set seed, the fibres are usually of little use in the manufacture of fine linen and only allow the making of coarse fibre (Gill and Vear 1980). The situation for flax in British history and prehistory is unclear and it is possible that earlier growing of Linum was largely for seed while in Saxon times, when flax-growing seems to have expanded, fibre production might have been more important. It must be remembered, however, that a proportion of any crop must be allowed to set seed in order to ensure future production so it was not surprising to find some seeds and capsules wherever the plant has been grown.

Both the pollen and macro-remains of plants which might have been used in textile dyeing, such as Sambucus (elder) and Genista cf. tinctoria (dyer’s weed), were also found along with the flax remains. The fruits of the former were present in very large quantities. It must also be remembered that attractive dyes can be obtained from many plants, including Calluna, that were recorded in the pollen and macro-remains at Staunch Meadow. A variety of colours may be obtained from the same plant when different mordants are used and there are certainly records of Equisetum, Filipendula, Genista, Betula, several
members of the Asteraceae, several members of the Apiaceae, *Hypericum*, and *Galium* being used in textile processing. Evidence for all these plants was found at Staunch Meadow and this may strengthen Murphy and Fryer’s hypothesis of textile processing and dyeing being carried out at Staunch Meadow.

**Summary interpretation**

A summary interpretation of both the pollen and macrofossil results is presented in Chapter 1.I.
Chapter 11. Period IV: the End of the Settlement
by Andrew Tester

I. Introduction

Major settlement ceased at Staunch Meadow during the late 9th century. Access to the meadow was maintained, but the Late Saxon/early medieval bridge was replaced by a causeway that was a visible earthwork when excavations began. Evidence for its continuation south of the island was uncovered during excavations on the site of Brandon Leisure Centre (BRD071, Section III below) which exposed a pair of early medieval ditches towards the edge of the floodplain. The latter site is considered to be an area of settlement which grew as activity on Staunch Meadow declined, and illustrates the move away from the island towards the area which grew into the Brandon of today.

II. Post-Saxon evidence at Staunch Meadow

Introduction

Fig. 11.1–2

Activity in the medieval period is represented by a religious building and cemetery, which was confirmed by evaluation trenching in 1979, and the maintenance of the central enclosure. Outside of the medieval enclosure the ‘island’ reverted to meadow although a pit, 0458 (Fig. 11.2 s34), was excavated in the western part of the site.

Central enclosure

The central enclosure ditch (9128) was a visible monument and was maintained by re-digging during the medieval period, as evidenced by finds recovered from its fill. It was c.6m wide but individual re-cuts were smaller (Fig. 11.2 s35). The internal dimensions of the enclosure were c.40m wide by at least 60m long.

An area towards the north end of the enclosure had clearly been disturbed and a depression was recorded in the contour survey (Pl. 1.3). This is thought to be the site where skeletons were excavated during the 19th century, as described in Chapter 7.IV. A hand-dug trial trench alongside the depression in 1979 uncovered a series of burials in rows, but these were not fully excavated.

The only other excavation carried out within the enclosure was that conducted during the evaluation in 1979, which identified the foundations of a flint building. Speculation links this to the missing chapel of St Andrew recorded as being within the gift of the bishop of Ely for Brandon in 1251, but it fails to appear in the inventory of Ely episcopal properties in 1356–8 (Breen, Chapter 1.VI).

A later arm of the enclosure ditch, s150, curves to the east following the line of a slight hollow across the site. It contained post-medieval finds and had a topsoil-like fill.

Pit 0458

This feature was oval in shape, c.1.45–1.65m wide and 0.45m deep. It was filled with brown sand with a dark silt layer at the base (Fig. 11.2 s34). It contained five sherds of medieval pottery and a single sherd of Ipswich ware. A fragment of horseshoe (sf2515) and a ?quernstone were also recovered, along with fragments of brick and roof tile. This pit may have been an isolated feature or associated with a sill beam structure post-dating the main occupation of the site.

Causeway

This was a pronounced feature at the time of excavation and several sections are illustrated in Chapter 4 (Fig. 4.9) of which s17 records the profile from the surface prior to excavation. The causeway extended north for at least 30m from the site of the bridge but almost certainly continued south to the edge of the floodplain, a further 200m, appearing on site BRD071 (below). Easier to maintain than the bridge, this may have made an imposing feature across the meadow, particularly in time of flood. Few finds were recovered from the ditches alongside the causeway and the most productive sections were excavated at BRD071 (below).

Summary of the post-Saxon finds assemblage

by Sue Anderson

Finds from the 2.5m square collection included a limited collection of gunflints, and small finds commensurate with casual loss over several centuries; these are recorded in detail in the archive. The distribution pattern of the medieval and post-medieval bulk finds, particularly the CBM, provides a useful insight into activity on the site in these later phases.

Stone coffins

Thirty-one fragments of shelly oolitic limestone blocks were found scattered across 2.5m squares in grid squares 93/55 to 95/55. These appear to be fragments of a coffin or grave slab and may be further evidence for medieval burial outside the excavated area to the north-east.

Pottery

A total of 258 sherds (3862g) of post-Saxon pottery was recovered. Table 11.1 provides a summary (based on the pottery database recorded by P. Blinkhorn, in archive).

There were several EMSW rims, the majority of which were from bowls, although a few jar rims and a single skillet handle were also noted. Most of the sherds in the other fabrics were body fragments, all typical of their wares. The most notable finds were a large fragment of a highly-decorated Hedingham Ware jug and a near-complete two-handled cup in Cistercian Ware with a ?fleur-de-lys painted on each side in white slip.

With the exception of four sherds of Grimston Ware, eleven sherds of EMSW, three red earthenwares and one sherd of mass-produced ware, all of this material was recovered from squares, cleaning layers and other ‘unstratified’ contexts. The mass-produced sherd was intrusive in the top of Phase 2 pit 0147. Redwares were intrusive in the ditch and a post-hole of the causeway, and in a Phase 1.2 ditch (6849). One sherd of EMSW was found in each of three features, an undated post-hole (1348), a linear feature (9251) and an inhumation in
cemetery 1 (3136), and five sherd came from pit 0458 (described above). The remainder of the stratified medieval sherd were recovered from enclosure ditch 9128 and associated bank layers.

Ceramic building material

Post-Roman CBM could be divided into medieval to late medieval fabrics (315 fragments, 9,715g), post-medieval fabrics (460 fragments, 12,379g) and modern fabrics (4 pieces, 106g), a total of 779 fragments weighing 22,200g. A full report on this material is included in the archive.

The post-Roman assemblage was dominated by roof tile. Approximately a fifth of this group was in the estuarine yellow and purple fabrics which were common in East Anglia in the 13th to 15th centuries. The only glazed fragment of roof tile was a single piece identified as ridge tile, and this may also be of medieval date. It is possible that some of the red-firing roof tiles could belong to the same period, but most of these tiles were post-medieval. A relatively large group of pantiles was
Figure 11.2 Sections of medieval features
also present, and these would normally post-date the mid-17th century.

Most bricks in this assemblage were difficult to identify. The majority were in soft fabrics and may be of medieval date; however, organic-tempered fragments, when abraded, were difficult to distinguish from fired clay and may be earlier. Fragments in estuarine fabrics were present and, like the tile, these ‘early bricks’ were in use in the 13th to 15th centuries (Drury 1993). They appear to have been more commonly used to stabilise flint and mortar walls, rather than to construct entire buildings at this early date, although later they were often employed to line cellars and crypts. Red sandy ‘late bricks’ of 17th–19th-century date were not common in this assemblage.

Three post-medieval floor tiles were identified, including one with green glaze of probable 14th–15th-century date. Some of the white-firing bricks may have been used as paviours, a common function for white bricks during the 18th–19th centuries in particular.

A high proportion (89%) of the post-Roman CBM was recovered from 1m and 2.5m squares and cleaning layers. A plot of the distribution was made using Vertical Mapper

Figure 11.3 Distribution of post-Roman CBM by weight
(Fig. 11.3). It is likely that the hotspots of post-Roman CBM, which occurred particularly along the waterfront and in the large enclosure ditch, were deposited deliberately as hardcore to stabilise these areas during later site use. There were also concentrations to the west and south of the ditch, and this material could have been dumped following the demolition of the chapel which occupied the area of raised ground within the enclosure. However, it should be noted that the quantities were all relatively small and the ‘concentrations’ represent only a thin scatter at most.

For a site which was abandoned before the 10th century, there is a large quantity of post-Roman CBM. Whilst the post-medieval material can probably be explained away through manuring and other agricultural processes, for example casual deposition of hardcore at well-used and eroding field gates, it is possible that some of the medieval assemblage could be related to the presence of the medieval chapel. This would suggest that the building had a 13th-century element, which must have been added shortly before its abandonment. It would also explain the concentration of post-Roman material close to and within the large enclosure ditch at the foot of the shallow rise on which the chapel stood. The fact that there is also a lot of Roman tile in this area may be evidence of continued recycling of this material in the later Saxon and earlier medieval period. Whether it was brought to the site separately or re-used from Middle Saxon middens is uncertain, most typically for items which were common and remained unchanged from the Saxon to the post-medieval periods, such as copper alloy rings, lead weights, iron fittings and tools. A number of medieval horseshoes were recovered from the site, and have been described along with the potentially Middle Saxon examples (Chapter 9.IV). Some of the ferrous slag has been identified as possibly medieval or later, and it is likely that some of the lead waste is also of post-Saxon date (Chapter 9.VI).

Of those metal small finds identified as definitely or probably post-Saxon (c.90 objects), almost all were recovered as unstratified finds or from 2.5m squares. They included a fragment of Civil War armour, six belt mounts, six buckles, two strap-ends and a chape, seven buttons, four book clasps, a coin weight, eleven medieval coins, five post-medieval coins, four jettons, six tokens, a finger ring, a mirror case, fragments of vessels, various fittings and a lead window came.

III. Excavations at Brandon Leisure Centre (BRD071)

Introduction

Fig. 11.4
The construction of a new leisure centre at Brandon led to a rescue excavation of the building footprint in 1989. The site lies at the entrance to the sports field towards the edge of the floodplain c.120m south of the island and c.230m north-east of the parish church of St Peter and St Paul on what is now gently rising ground at c.5.75m OD. The work was carried out by an MSC team, led by Joanna Caruth, that largely comprised a workforce familiar with the conditions of excavation on the main site. The site encompassed an area of c.1200 square metres.

Prior to excavation the site had been landscaped as part of the playing fields development. About a third of the area to be excavated had been raised to make a level platform for tennis courts that were being resited, but this did not impinge on the buried archaeology. Following the removal of disturbed topsoil using a back-acting excavator a featureless, dark subsoil was exposed; across this a strip 5m wide was hand-excavated in 2.5m squares; this was designed to provide comparable results to those achieved on Staunch Meadow. This homogenous layer appeared to have been reworked and is interpreted as a plough soil. The layer contained finds which probably came from the occupation soil horizon. Fragments of this layer remained in places but the majority of finds came from the reworked soil; this was also true of the 2.5m square collections. Metal detecting was carried out by an experienced user throughout the excavation. Pressure on time and resources resulted in a more limited excavation of features (compared with the almost total excavation that occurred on the main site from 1984 onwards). Natural subsoil was exposed over most of the site leaving ditches, post-holes.

<table>
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<td>F360</td>
<td>11th/12th century</td>
<td>92</td>
<td>1353</td>
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<td>South-East Midlands Shelly Coarseware</td>
<td>F330</td>
<td>AD 1100–1400</td>
<td>1</td>
<td>25</td>
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<td>Hedingham Ware</td>
<td>F347</td>
<td>Late 12th–14th century</td>
<td>4</td>
<td>226</td>
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<tr>
<td>Grimston Ware</td>
<td>F328</td>
<td>13th–15th century</td>
<td>29</td>
<td>788</td>
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<td>Cistercian Ware</td>
<td>F404</td>
<td>c.AD 1470–1550</td>
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<td>269</td>
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<tr>
<td>German Stonewares</td>
<td>F405</td>
<td>15th century+</td>
<td>6</td>
<td>54</td>
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<tr>
<td>Red earthenwares</td>
<td>F425</td>
<td>16th–19th century</td>
<td>67</td>
<td>715</td>
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<td>28</td>
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<tr>
<td>Tin-glazed earthenwares</td>
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<td>17th–18th century</td>
<td>1</td>
<td>3</td>
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<tr>
<td>Staffordshire salt-glazed stoneware</td>
<td>F443</td>
<td>c.1720–1780</td>
<td>2</td>
<td>4</td>
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<td>Mass-produced wares</td>
<td>F1900</td>
<td>19th–20th century</td>
<td>50</td>
<td>397</td>
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Table 11.1 Medieval and later pottery at Staunch Meadow
Figure 11.4  Phase plans for BRD071
and pits exposed, but definable large spreads and structures such as hearths were also hand-excavated.

The excavation produced a range of evidence and it is clear that there was a significant Iron Age component with at least one and probably two buildings along with ditches and pits of this date (Fig. 11.4). This report is only concerned with the evidence relating to Middle and Late Saxon Brandon. The dating of isolated features and those with only limited dating evidence and where the finds may have been intrusive may therefore be suspect. Evidence is presented in five phases, although there are gaps in the sequence and these phases are interpretative. The time-span between some of the phases was probably quite short and there will have been significant areas of overlap.

**Phasing**

**Middle Saxon?**

This phase is based on two sides of a probable rectilinear enclosure formed of ditches 0196, 0010 and 0164 (Fig. 11.4). The northern arm was dug in two lengths with 0010 cutting 0196 although they were probably close in date. The junction of these ditches lies close to the projected line of the causeway from Staunch Meadow. The ditches vary between 1.2m and 3m in width (0164) but this was the result of multiple re-cuts. The excavated sections amounted to c.10% of the fill and produced very few finds. Two sherds of Ipswich Ware from 0196, and a lack of later pottery from this context are the basis for the phasing, along with the stratigraphic position at the base of a multiple sequence. This phasing is speculative and the ditch could be earlier or later. If it is Middle Saxon the enclosure is best interpreted as part of a field system and the finds probably as stray losses dispersed from Staunch Meadow with manure.

**Late Saxon**

Phase 1

A ditch system (Fig. 11.4) was developed with north–south ditch 0137, cutting ditch 0010 from the previous phase, and east–west ditch 0022; this ditch was curving away to the north at the east end. These ditches varied in width; where they combined they were 2.25m wide but this is likely to reflect recutting and it is suggested from this evidence that each cut may have been c.0.75m wide. At the south end of 0137 was ditch length 0159 and an assortment of post-holes which may belong with this phase. North–south ditches 0181 and 0179 were c.0.75m apart indicating a simple opening; this overlapped with the earlier ditch junction between 0010 and 0196. Pit 0011 is tentatively phased here, being later than 0010 and containing Thetford Ware.

Phase 2

This phase represents a variation on Phase 1 with ditches 0023 and 0006 replacing 0022 and 0137 respectively (Fig. 11.4); ditches 0024 and 0053 were also variations on ditch 0022 giving three re-alignments. These ditches are also thought to have been c.0.75 wide, only appearing bigger due to recutting. It is tempting to suggest that this ditch moved progressively north but we can only be certain that 0023 replaced 0022 because there is good stratigraphic evidence. North–south ditch 0006 was c.1.8m long; a combination of short curving ditch lengths, including 0129, appear to mark a limit, although the details are uncertain. These features were partially buried by a ‘spread’ 0062; although filled with grey sand this layer contained settlement debris including 1.27kg of pottery, the majority of which was Thetford-type ware, and 3.8kg of animal bone along with small quantities of shell and slag. These quantities are modest compared with Staunch Meadow but are sufficient to suggest settlement on the site.

Phase 3

This appears to mark a change in the division of land, with ditch 0021 creating two sides of an enclosure (Fig. 11.4). How far this extended to the north beyond the excavated area is unknown but the site would appear to have been expanding in that direction. North–south ditches 0213 and 0208 were separated by a 3m gap; this seems to follow an established trend of openings. Ditch 0068 is phased from its place in the archaeological sequence although its function is not apparent.

Phase 4

This phase signifies a further change in settlement structure (Fig. 11.4). Ditches 0162 and 0163 were dug presumably to create a new enclosure to the west (each ditch representing a sub-phase). From its sinewy appearance we can assume 0162 was not extensively redug and neither was a short extension 0013; it was cut by pit 0231. From the curving irregular plan of ditch 0163, including a variation in width between c.0.8m and 2.5m, it is clear that this feature included several excavations, possibly short recuts of the primary ditch. A small pit 0197 to the east is tentatively placed in this phase. From these features only five sherds of Thetford Ware pottery were recovered; there was fired clay from 0162, 0163 and 0197, 0163 also produced a 1kg of animal bone.

**Medieval**

This phase is represented by parallel ditches 0203 and 0128 (Fig. 11.4). They were c.3.5m wide and 6.5m apart. From the profiles it was clear that both had been redug many times. These ditches align with the causeway on Staunch Meadow which strongly suggests that they continued as far as the floodplain at least. Thirty-seven sherds of pottery were recovered from these two ditches of which thirty-one were of Late Saxon Thetford-type ware. The remainder were unglazed medieval fabrics with a sherd of Grimstone Ware the latest sherd.

**Unphased**

Several features could not be placed within specific phases. This includes a group of post-holes to the east of the site and a patch of clay 0234. Both the post-holes and the clay spread are indicative of settlement. Figure 11.4 also shows the location of the 2.5m square hand excavation.

**Pottery**

by Paul Blinkhorn

The post-Roman pottery assemblage comprised 1393 sherds with a total weight of 15,732g. The range of pottery types present, and the nature of their stratification, suggests that activity here started around the mid 9th century, and continued up to the early medieval period. The bulk of the assemblage is of Late Saxon date, and the
eighteen fragments were probably medieval (3278g), the little Roman tile, only seven pieces (453g), and only Staunch Meadow assemblage, this group contained very material (CBM) was collected from this site. Unlike the A total of 174 fragments (13,056g) of ceramic building material by Sue Anderson

Ceramic building material
by Sue Anderson
A total of 174 fragments (13,056g) of ceramic building material (CBM) was collected from this site. Unlike the Staunch Meadow assemblage, this group contained very little Roman tile, only seven pieces (453g), and only eighteen fragments were probably medieval (3278g), the majority being post-medieval. Reports on the later material are available in archive.

Seven fragments of Roman tile were collected from seven contexts. None was identifiable to type, but two pieces had curving fingerprints, and three pieces were measured for thickness (20–27mm). This suggested that at least four fragments were probably flanged tegulae. Two pieces showed evidence of burning and may have been used in hearths. Three fragments were recovered from Saxon features.

<table>
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<td>1338</td>
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<tr>
<td>Ipswich Ware Group 2</td>
<td>F3</td>
<td>7</td>
<td>176</td>
</tr>
<tr>
<td>Badorf Ware</td>
<td>F12</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Thetford Ware</td>
<td>F4</td>
<td>1209</td>
<td>12066</td>
</tr>
<tr>
<td>St Neots Ware</td>
<td>F100</td>
<td>34</td>
<td>822</td>
</tr>
<tr>
<td>Stamford Ware</td>
<td>F205</td>
<td>9</td>
<td>55</td>
</tr>
<tr>
<td>Early medieval sandywares</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Later medieval wheel-thrown sandy wares</td>
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<td></td>
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</tr>
<tr>
<td>Hedgingham Ware</td>
<td>F347</td>
<td>2</td>
<td>10</td>
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<td>Grimston Ware</td>
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<td>Post-medieval red earthenwares</td>
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<tr>
<td>Mass-produced wares</td>
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<td>18</td>
<td>295</td>
</tr>
</tbody>
</table>

Table 11.2 Pottery at BRD071

range of fabric types typical of the sites in the region. Table 11.2 shows the quantities of pottery by fabric (for a description of the main fabric groups see Chapter 6.II).

Just over 20% of the pottery from Late Saxon features is Ipswich Ware, but only three sherds of the latter occurred in features which did not contain later pottery. This suggests that the site started around the middle of the 9th century, when Ipswich and Thetford wares were both in use. The Stamford Ware assemblage included an unglazed rouletted sherd, which tends to be early, perhaps late 9th–early 10th century. It is of note that all the St Neots Ware jar rims are small, being 140mm or less, whereas at Staunch Meadow, they are all large, being 180mm or more. As with Thetford Ware, small St Neots jar rims tend to be early, and larger ones late. Finally, a sherd of Badorf Ware was noted here. This is very unlikely to be later in date than the mid to late 9th century. There seems little doubt therefore that activity at this site started around the mid 9th century.

The assemblage is generally typical of Late Saxon groups in the region. The Late Saxon material is dominated by Thetford ware, jars (85 rims) being the most common form, with the rest of the assemblage comprising bowls (9 rims) and pitchers (8 rims). There were no rims from storage jars with applied strip decoration, although a pitcher and a bowl with such decoration were present. Nine body sherds from large vessels with such decoration were noted.

The St Neots Ware and Stamford Ware assemblages are also typical. As noted above, sherds are very much early products of both industries were present, but, in the case of Stamford Ware, most of the material consisted of glazed bodysherds, which are likely to be late 10th-century or later, although an earlier date cannot be ruled out. No Stamford rimsherds were present.

The St Neots Ware assemblage comprised jars (6 rims) and bowls (6 rims). This even split between the two different vessel types is very typical of St Neots Ware. Unlike other Late Saxon industries, bowls are generally as common as jars.

Fired clay
by Sue Anderson
A total of 622 pieces of fired clay (21,193g) is included in this report. One fired clay object was also found, and is discussed with the ‘Small Finds’ below.

Fabrics were assigned based on main inclusions and coarseness of the clay matrix. Table 11.3 describes the main fabric groups and includes a quantification for each. The assemblage is clearly dominated by two main fabric groups, ‘fsm’ and ‘msf’.

Where more than one wattle impression was present in a single fragment, they were generally roughly parallel with no evidence of interweaving. These fragments were most likely to have formed part of oven domes (364 pieces, 13828g). Most fragments with wattle impressions had surfaces which were smoothed and either slightly convex or relatively flat. The wattles varied in diameter from 7mm to 23mm, although most were in the range 12–18mm. A few pieces had impressions of larger pieces of roundwood, perhaps stakes or poles. No ovens or hearths were identified on this site, but the presence of a large quantity of probable oven dome waste suggests that there was at least one in the near vicinity. Similar fragments were found at the Early Saxon settlement site at Bloodmoor Hill, Carlton Colville (Anderson 2009b), many of them deposited in ovens or in sunken-featured buildings with adjacent hearths.

One piece (131g), from 2.5m square 0095, had wattle impressions at right-angles and may have been a piece of daub. It had a rough surface and the wattles measured 7–12mm in diameter.

One unfired fragment (91g) from pit 0070 may have been a fragment of loom-weight. It contained coarse flint and corresponded to fired clay fabric ‘msf’.

The remainder of the assemblage (256 fragments, 7143g) could not be identified with any certainty. A high proportion of the larger pieces had smoothed surfaces and
confirmed. The stone is grey vesicular lava which is almost certainly of Rhenish origin although its exact source cannot be determined. The lava stone was quantified by count and weight by Cathy Tester.

Querns which could be Roman or Middle Saxon in date were associated with Late Saxon pottery, but the other two contexts were contemporary with the post-medieval tile which formed part of the bulk of the CBM. The majority of this material was collected from ditches. Pits and post-holes produced only a small quantity of fired clay. The second largest group was recovered from the 2.5m squares. Much of the material from the 2.5m squares, like the CBM, was deposited over ditch 0128. It is likely to have been redeposited and not contemporary with the post-medieval tile which formed the bulk of the CBM.

Other concentrations of fired clay correspond with the high densities of pottery, bone and shell at the north and south of east–west ditch 0010, possibly indicating the position of a Middle Saxon midden which may have been cut by this Late Saxon ditch.

Stone
by Sue Anderson
Four fragments of stone could have been used in structures. These consisted of a chalk lump from 2.5m square 0102, a burnt sandstone sub-square block from pit 0153, a fragment of ?septaria with a possible cut edge from ditch 0163, and a small flake of limestone from ditch fill 0127. The sandstone block and the piece of ?septaria from surface clearance, five from test holes, three from hollows, three from pit fills and one from a spread. This material was discarded after quantification so it is not possible to say whether the pieces were prehistoric ‘potboilers’, or simply fire-reddened fragments which could belong to any period.

Lava quern
by Cathy Tester
The lava stone was quantified by count and weight by context and a full list by context is in the archive. All recordable dimensions, diagnostic features, surface finishing and wear patterns were noted when possible. A total of 89 fragments of lava stone weighing 971g was recovered from seven contexts, four 2.5m squares (44 fragments), a pit (seven fragments), a hollow (three fragments) and unstratified (35 fragments). Almost all of the fragments are too small, decayed and fragmentary to have any distinguishing features which would provide data for discussion about their size, type and date but the material is presumed to come from hand-operated rotary querns which could be Roman or Middle Saxon in date. The stone is grey vesicular lava which is almost certainly of Rhenish origin although its exact source cannot be confirmed.

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<th>code</th>
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<td>msf</td>
<td>Medium sand and flint, some straw impressions, hard, buff</td>
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<td>5503</td>
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<tr>
<td>msg</td>
<td>Medium sand and grog (some very coarse, red, probably Roman tile), hard, common voids, buff</td>
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<td>3016</td>
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<tr>
<td>msg</td>
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<td>Medium sandy, as fsm</td>
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<td>mso</td>
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<tr>
<td>unf</td>
<td>Unfired clay</td>
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Table 11.3 Fabrics and quantities of fired clay

All quantities are relatively small and it is thought that the groups of lava quern in each context were originally part of single larger fragments which themselves did not represent very large proportions of the original stones. Three pieces had full measureable thicknesses of 32mm, 35mm and 45mm, the rest had no measureable dimensions. One piece (0541) had a pecked non-grinding surface and there was uniform wear on the three grinding surfaces (0116, 0258 and 0541).

Flint
by Sue Anderson
Sixteen worked flints were collected. Of these, one was a patinated flake of possible early prehistoric date (unstratified 0262), one was a slightly patinated blade core (2.5m square 0104, sf0548) and the rest were flakes and ‘blade’ pieces of post-medieval gunflint waste. This kind of flint is a common find from most Brandon sites.

Nineteen pieces of burnt flint and two pieces of burnt stone were recovered. Eight were from 2.5m squares, one from surface clearance, five from test holes, three from hollows, three from pit fills and one from a spread. This material was discarded after quantification so it is not possible to say whether the pieces were prehistoric ‘potboilers’, or simply fire-reddened fragments which could belong to any period.

Slag
Twelve fragments of slag (1815g) were recovered but were not subject to specialist analysis.

Small finds
by Ian Riddler
Fig. 11.5
The objects are described here by period and by functional category. There are no objects of Early Anglo-Saxon date but several are Middle Saxon, whilst others belong to the Late Saxon period. Dress accessories are prominent, with decorated discs, brooch fragments, pins, strap-ends, finger rings and hooked tags. One set of tweezers is probably of Merovingian origin. Household implements include a fragmentary iron key and a ferrule. Textile manufacturing implements are also present and include a loom-weight, four pin-beaters and two fibre processing spikes. A number of these items came from the same context. Objects of medieval and later date are discussed briefly, but full reports on these are available in archive.

345
Decorated discs
A fragmentary, gilded disc (sf0556) has a cruciform design at the centre and key patterning in the single quadrant that survives. The use of key patterning is a little unusual but otherwise the disc shares the characteristics of a series of decorative copper alloy discs of 8th-century date, a number of which are centred on the Thetford area. Most of these discs include animal designs within the quadrants, with the central cruciform motif left blank. They include examples from Thetford itself, as well as Ixworth (Rogerson and Dallas 1984, fig. 109.2; Dallas 1993, fig. 115.1; Andrews and Penn 1999, fig. 36.13; Wilson 1964, 137 and pl. XIX). They are closely related to silver pins with large disc heads, including those from Witham, Barham and Staunch Meadow at Brandon, which share the same basic design and interest in animal ornament (Wilson 1964, 132–4 and pl. XVIII; 1984, fig. 33; West 1998, fig. 3.9; Webster and Backhouse 1991, 83 no. 66(c)). Discs and disc-headed pins decorated in this manner occur also further to the north, as well as in East Anglia, with examples from Cottam and Pontefract (Haldenby 1992, 51–3 and fig. 1.1; Bailey 1970).

A thin disc of copper alloy (sf0579b) includes a central domed boss and two further bosses towards the outer edge. It is broadly similar to the series of scutiform pendants that occur in Anglian England from the early 6th century onwards, although it lacks any punched or incised decoration. Scutiform pendants continue into the 7th century and are found in several late cemeteries, including Burwell, Melbourn and Shudy Camps (Hines 1984, 227–30; Geake 1997, 38; Duncan et al. 2003, 111–2). Middle Saxon and later examples are rare, however. The presence of several bosses and the lack of a suspension device on the surviving remains relates this disc more closely to two embossed copper alloy discs from Thetford, one of which came from a Late Saxon context (Rogerson and Dallas 1984, 68 and fig. 109.8; Andrews 1995, 90 and fig. 66.16). The scar of an attachment on the rear of one of these discs suggests that they formed parts of composite brooches, rather than pendants. They may represent smaller and less auspicious versions of the elaborate silver embossed disc brooches of the Late Saxon period (Bruce-Mitford 1956; Backhouse et al. 1984, 35–6; Wilson 1984, fig. 120).

Illustrations
sf0556 Gilded copper alloy disc with incised cruciform pattern, broad circle at the centre with blank arms. Most of one arm survives, as well as small portions of two others. Two surviving interstices have key patterning of trapezoidal shape. Unstratified 0001.
sf0579b Fragment of a copper alloy disc, possibly from a composite brooch, undecorated but with three bosses, one at the centre and two others close to the edge. Unstratified 0001.

Mount or die
A fragmentary mount (sf0500) of thin, foil-like copper alloy has an impressed design on its upper surface and a lead alloy backing. The plate has rounded corners and lightly concave sides, with a design of sinuous open interlace, beaded along the centre. The design is reminiscent of a simplified version of the beasts visible on the great gold buckle at Sutton Hoo (Bruce-Mitford 1978, figs 396, 405 and 409) and recalls also the pattern of snakes on a rectangular copper alloy die from Suffolk, possibly from Icklingham (Webster and Backhouse 1991, 56 no. 40(a)). A simple beaded pattern can be seen also on a mount buried in a Norwegian grave at Melfiis, Ranem, Overhalla (Wamers 1985, 91 and taf 6.7). The purpose of the mount is unclear, although it may well have served as a die, mounted on a lead alloy backing and used to produce repoussé foils. Stylistically, it appears to be of 7th-century date.

Illustration
sf0500 Thin copper alloy sheet of rectangular shape, impressed with a simple, beaded broad band interlace pattern, with two oval curves. Beaded throughout the centre with oval loops at the corners, joined together with two strands extending to the fractured edge, possibly to repeat the pattern across the missing section. Just 0.2mm in thickness, set on top of lead alloy base. Unstratified 0001.

Pins
A fragmentary copper alloy pin (sf0536) has an undecorated, elongated polyhedral head and an indented collar above a swelling shaft. It corresponds with Hinton’s type Ba2ii (Hinton 1996, 21). There are a number of pins of this type from Staunch Meadow. Although none are from securely stratified deposits, all are likely to be of Middle Saxon date (Chapter 8.II). A second pin (sf0537) is represented merely by the shaft, which widens over the lower part before tapering to a point. It is neatly finished at the apex and may therefore belong to the group of ‘headless’ pins or, more properly, pins with heads made separately from their shafts. These have been encountered in Middle Saxon contexts at Staunch Meadow, Flixborough, Hamwic and York (Rogers 1993, 1364–6; Hinton 1996, 22–3; Rogers et al. 2009, 35).

Strap-ends
A copper alloy strap-end (sf0574) has beaded convex sides and an animal head terminal, with ears set in rectangular frames. The central panel consists of chevron patterning. The large, rounded ears are characteristic of strap-ends from southern England and the presence of linear decoration instead of animal ornament in the central panel can be seen also on strap-ends from Chelmendonston and Ipswich (Plunkett 2005, 183; Webster and Backhouse 1991, 233; West 1998, fig. 96.16). The animal head terminal and double riveted form indicate a 9th-century date although examples of this type may go back to the latter part of the 8th century (Graham-Campbell 1982, 149; Evison 1980, 34).

A more unusual strap-end (sf0506) has been cast in the form of a buckle and plate, with a square frame and a false pin at the centre (Fig. 11.5). The plate has lightly concave sides with two rivets attaching the strap. It imitates a rectangular form of buckle frame, a type that occurs from the 11th to 12th century onwards, and includes examples from Castle Acre and Norwich (Riddler 2006c, 261; Coad and Streeten 1982, fig. 44.24; Margeson 1993, fig. 13.129). The strap-end may also be imitating a buckle with an integral plate. Buckles with an integral frame and plate are generally later in date and belong to the 13th–14th centuries (Ottaway and Rogers 2002, 2889); although there are examples of rectangular and trapezoidal form from 11th–12th-century contexts at both Dover and Lund (Riddler 2006c, fig. 175.241; Stenholm 1976, fig. 272).

Illustrations
sf0574 Strap-end with double riveted split end and convex sides with animal head terminal seen from above. Blunt snout with large oval eyes, ears set in rectangular frames. Serrated edges to sides,
rectangular central panel with linear chevron pattern and chevrons in front of the two rivets. Unstratified 0001.
sf0506 Cast copper alloy strap-end with split end fastened by two rivets. Lightly concave sides, main rectangular field undecorated, merely with framing lines on sides. Raised transverse moulding leads to terminal in form of square buckle with straight sides and slightly widened outer edge, central band resembling a buckle pin. MD find.

Buckles
The only buckle of Anglo-Saxon date (sf0527) comes from a Late Saxon context and consists merely of the remains of an undecorated sheet metal plate, originally fastened by five copper alloy rivets.
Finger rings

Two distinct forms of copper alloy finger ring are present, both of which are broadly contemporary. Both types have been reviewed by Hinton and Margeson (Hinton 1978; Margeson 1995, 56). The first type consists of decorated rings, often of sheet metal, with tapering terminals entwined together. A sheet metal ring (sf0505) has entwined ends and a central area embellished with circular rows of dots reminiscent of an interlace pattern. Similar sheet metal rings are known from Staunton Meadow, Middle Harling, North Elmham and Thetford (Wade-Martins 1980, fig. 264.54; Margeson 1995, 56 and fig. 38.23–4; Rogerson and Dallas 1984, fig. 110.12–3). The stamped decoration on a gold example from Thetford is indicative of a 9th or 10th-century date and this dating could conceivably be applied to the series as a whole (Rogerson and Dallas 1984, 68 and fig. 110.12). However, a similar entwined silver finger ring from Ship Street Great in Dublin came from a burial radiocarbon-dated to the late 8th century (Simpson 2005, 34 and fig. 11) and it suggests that the series begins in the second half of that century.

The second form utilises a penannular ring of oval or diamond-shaped section that tapers to pointed terminals. The terminals overlap but are not entwined and the rings are usually undecorated. It is unclear whether these are finger rings or earrings, as suggested for Winchester (Cool 2011, fig. 7.22.31). Two examples (0001 and sf0511) are plain whilst a third ring (sf0509) includes worn linear decoration and the fourth example (sf0560) is incised in emulation of cable patterning. A more elaboration version of this cable pattern is seen on a ring from Coddenham, whilst a simpler version came from Winchester, in a late 10th to early 11th-century context (West 1998, fig. 22.22; Biddle 1990, fig. 175.2064). This ring type is common in East Anglia, particularly for the undecorated examples of oval or trapezoidal section, and they are known from Barham, Middle Harling, Norwich and Thetford (West 1998, fig. 4.30; Margeson 1995, 56 and fig. 38.26–32; Ayers 1985, 27 and fig. 23.1; Rogerson and Dallas 1984, fig. 110.17, 20 and 21; Dallas 1993, 95 and fig. 115.3; Andrews 1995, 90 and fig. 67.18). Whilst most examples have come from Late Saxon contexts it is worth noting that several copper alloy rings of this type from Winchester were recovered from contexts possibly of 10th-century date (Biddle 1990, 464–52 and fig. 175.2051–2, 2072 and 2083). The series as a whole may span the period from the 9th to the 11th century.

Illustrations

sf0505 Copper alloy sheet metal finger ring with tapered ends entwined together, widening gradually and then more abruptly to the central area, which is decorated with punched dots in an indistinct pattern, formed mainly of curved lines of dots. Almost a dotted interface pattern. Bezel is crudely cut and ring is now flattened. MD find.

sf0511 Copper alloy finger ring of penannular form with tapered terminals set beside each other. Trapezoidal section throughout, widening in width and thickness towards centre. Polished but unadorned. MD find.

sf0509 Copper alloy finger ring of penannular form with tapered terminals set beside each other, widening from terminals to centre, middle segment of diamond shaped section. Decorated by worn diagonal incised lines on one part of obverse, but seemingly not on other part. MD find.

sf0560 Copper alloy finger ring of rectangular section, tapering to pointed terminal. Diagonal line decoration throughout in imitation of twisted cable, blank on inside. Approximately half of the ring survives. Unstratified MD find. Not illustrated.

Hooked tags

The four hooked tags (sf0503, sf0504, sf0526 and sf0564) are all of circular or sub-circular form. One is made of lead alloy, whilst three are copper alloy. One tag (sf0504) has a circular main field with perforations set in circular lobes and a triangular extension between them. The main field includes an incised design of an animal head with a large, round eye. Part of the importance of this example lies in the orientation of the design, which is meant to be viewed with the hook at the base and the lugs uppermost. This contrasts with the assertion of Graham-Campbell that hooked tags were meant to be viewed with the hook at the top (Graham-Campbell and Okasha 1991, 222).

Graham-Campbell has noted that lobed extensions occur on the majority of earlier examples and are seldom present on later tags (Graham-Campbell and Okasha 1991, 223). Within the sample of hooked tags from Staunton Meadow the circular form is less common than the triangular and elliptical. The circular examples are more properly described as oval, and two of them are cast. Five of the six examples have lugs on them, whilst one has a circular main field and is more redolent of Late Saxon hooked tags (Chapter 8.II). Webster has noted that the circular or sub-circular form becomes dominant in the tenth century (Webster and Backhouse 1991, 235 no. 195). The triangular form may have been more popular in the 7th and 8th centuries and the evidence from Winchester, at least, suggests that it remained popular in the earlier part of the late Saxon period (Biddle 1990, fig. 148; Rees et al. 2008, 216). The two circular tags with lugged extensions (sf0504 and sf0526) are broadly similar to several of the Staunton Meadow examples, whilst those with two or three perforations cut through the central area (sf0503 and sf0564) are of a later date. The latest examples tend also to be undecorated, or to have very simple decorative schemes, as is the case here (Chapter 8.II). The simple form of the undecorated tag (sf0503) is echoed by two examples from late 11th to 12th-century contexts at Winchester and a tag from a medieval context at Norwich (Hinton 1990, 552 and figs 149.1426–7; Margeson 1993, 16 and fig. 8.70; Rees et al. 2008, fig. 114.1340). The concentric circle decoration of the other circular tag (sf0564) is seen also on a silver example from Thetford (Andrews 1995, fig. 67.22).

The use of lead alloy for a hooked tag (sf0526) is extremely unusual. The tag has a sunken main area, separated into three fields with an outlined central circle. The central fields would originally have been inlaid, possibly with niello. Cast and inlaid copper alloy hooked tags are comparatively rare but occur at Staunton Meadow, as well as several other sites in East Anglia, and at South Newbald (Thomas 1996, fig. 4d; Leahy 2000, 61 and figs 4.4.14 and 6.5.5). Lead examples are even more unusual. The tag may be residual in its Late Saxon context, given its lugged design, but a comparable example from Winchester came from a mid to late 11th-century context; stylistically, however, it is a product of the late 10th or early 11th century (Biddle 1990, 548–9, 552 and fig. 149.1425).

Illustrations

sf0506 Sheet metal small elliptical copper alloy tag with curved edges throughout leading to slightly tapering stem with hook bent over and facing back. Two rivet holes. Undecorated. Unstratified 0001.

sf0504 Silver hooked tag with flat, circular main field which has two circular, lugged extensions and a triangular extension between
them. Main field has single incised framing lines with crude incised depiction of a snub-nosed beast head with a round eye. A thin mouth line is also visible. Snout rises to rounded, slightly pointed apex. Pair of short curved lines extend towards border above, below and to left of snout. Square lug above long narrow hook, which is bent backwards. MD find.

s0526 Lead hooked tag with oval main field and lugged extensions, both perforated. Oval setting at centre with three pairs of raised parallel lines radiating from it, creating three separate fields. Each field has ‘rusticated’ decoration throughout. Cast. Fractured at junction of hook and main field. Context 0076, Phase 2.

s0564 Elliptical sheet metal copper alloy tag with five concentric circles and customary two holes, but with third hole also at centre, close to one of the others. Transverse undecorated lug above the tapering hook, bent back on itself. Unstratified 0001.

**Personal equipment**

**Tweezers**

A small fragment of copper alloy (s0512) has been folded over and may have been used as a penannular ring, in the manner of an example from Middle Harling (Margeson 1995, 56 and fig. 38.25). Originally, however, it formed part of one arm of a set of tweezers, the fragment widening evenly towards one end with subtle decoration in the form of single framing lines. The sides of the arm are straight, as with several of the sets of Middle Saxon date from Stauch Meadow (Chapter 8.III). The second set (s0535), although contemporaneous, is quite different in form. The arms are rods of D-shaped section and they widen abruptly to flat terminals with semi-circular indentations on both sides. This form is much more common on the Continent than in England, occurring largely in male graves from the mid 5th century onwards and continuing throughout the Merovingian period (Joffroy 1974, 34; Reiß 1994, 147; Kazanski 2003, 47). Several of those from Lavoye include semi-circular indentations on the blades, as here (Joffroy 1974, fig. 15.191, 241 and 298). Later examples of this type, with curved, expanded sides to the blades, are known from Dorestad (Roes 1965, pl. IX.77). This type is rarely seen in England, comparable examples coming from Stauch Meadow (sf2327) and from Hamwic (Hinton 1996, fig. 18.4/5), and this set may be of Merovingian origin.

**Illustration**

s0512 One arm of a set of copper alloy tweezers, relatively narrow, widening with straight sides, single framing lines, tapering in profile at terminal, not folded over. Bent in three places, quite possibly to form a penannular ring, but internal space is square rather than circular. MD find.

s0535 Incomplete set of tweezers with rod-like oval bow and upper arms of flattened trapezoidal section, widening slightly from loop to lower part. Decorated by two pairs of transverse lines with three transverse lines on lower part of bow. Lower part of arms flattened and widened out abruptly to spade-like form with semi-circular indentations on both sides, widening slightly as they descend. Part of wire suspension loop survives. MD find.

**Household objects**

**Key**

Only the oval loop survives from an iron key (s0518). The shape is a pre-Conquest one, which may go back well into the Middle Saxon period and certainly occurs from the 9th century onwards, both in England and on the Continent (Riddler 2001a, 234; Ward Perkins 1940, 134; Holwerda 1930, afbn 61.75–9 and 63.20–1). Late Saxon examples are known from Canterbury and Winchester (Blockley et al. 1995, 1080 and fig. 468.757; Biddle 1990, 1007, 1024–5 and fig. 325; Cool 2011, fig. 7.30.310).

**Ferrule**

A complete iron ferrule (s0549) came from a stratified context. Ferrules of Early Anglo-Saxon date occur with spearheads, whilst those of Middle Saxon and later date may have fulfilled a related function in being fastened as reinforcements to the lower ends of wooden poles (Riddler 2004, 25; Boulter and Walton Rogers 2012). Two forms of ferrule can be identified, depending on whether the terminal is solid, as here, or consists of rolled sheet metal, with a seam on one side. It has been suggested that Late Saxon ferrules were set on the ends of wooden poles and used with bone skates in travelling across ice and snow (Gardiner 1993, 45–7 and fig. 16.14; Ottaway 1992, 655–6). However, ferrules occur on sites like Brandon, Dublin and Lundenwic, where bone skates are either scarce or not present at all. Thus they may have been used with wooden staffs, but not in association with bone skates. As an alternative, Wallace (1995, 207) has suggested that they were used as agricultural dibbers and they may indeed have fulfilled a number of functions at this time.

**Textile manufacturing implements**

**Loom-weight**

An unstratified fragment of a loom-weight (s0544) is of bun-shaped form, allowing it to be assigned to the Middle or Late Saxon period. The majority of loom-weights of this form have come from Late Saxon contexts, but they have also been recovered from Middle Saxon contexts at Lundenwic and Sandtun (Riddler 2001a, 241–4; 2004, 19–22 and 56). Those from Elisenhof span a similar period, and may have been concentrated in the 9th to 10th centuries (Westphalen 1999, 28–59 and tafn 8–11). Bun-shaped loom-weights first occur in the late 8th or early 9th century and continue in use until the 10th to 11th century, by which time the vertical two-beamed loom had supplanted the warp-weighted loom, and loom-weights were no longer required (Walton Rogers 1997, 1753; 2001). The fragment is too small, unfortunately, for its original weight when complete to be estimated.

**Pin-beaters**

The four pin-beaters include both double and single-pointed forms. A double-pointed pin-beater of bone or antler (s0515) is lightly curved in profile and slightly asymmetric, with one end longer and narrower than the other. Two antler single pointed pin-beaters (s0062.1 and unnumbered) are rectangular in section towards the broad, rounded end and taper to cylindrical points at the other end. In addition, a bone or antler object (s0521) came from a medieval context and could, therefore, be of medieval date. It is D-shaped in section at the apex, which distinguishes it from bone tuning pegs like those from Battle Abbey, for example (Hare 1985, fig. 47). Equally, it is unlike the forms of peg seen either in the Early Anglo-Saxon period, or in Middle and Late Saxon deposits (Riddler et al. forthcoming) and its rounded terminal is similar to the complete single pointed pin-beater, suggesting that it is a fragment of a third implement of this type.
Double pointed pin-beaters occur throughout most of the Anglo-Saxon period, although they decline in numbers during the 10th to 11th centuries, at which point they were going out of use, as were loom-weights (Walton Rogers 1997, 1755). Early Anglo-Saxon examples occur in two sizes, the shorter examples extending to 110mm in length and the longer ranging from 130mm to around 200mm (Riddler 1993, 119). This distinction is not apparent with the Middle Saxon sample, however, although a small group of pin-beaters of 160mm or more in length can be distinguished from the main assemblage. The pin-beater from BRD071 lies towards the upper limit of the main Middle Saxon group. Single pointed pin-beaters occur from the 8th century onwards and continue into the earlier part of the medieval period. Amongst the latest examples are those from 12th- to 13th-century contexts at Dover; several of those from Ipswich also came from early medieval deposits (Walton Rogers 1997, 1755–6; Riddler 2006c, 282; Riddler et al. forthcoming). They have plausibly been associated with the vertical two-beam loom (Walton Rogers 1997, 1756).

Fibre processing spikes

Two iron fibre processing spikes (sf0516 and sf0551) are square in section with rounded tips and they extend to 90mm and 109mm in length, which suggests that they are teeth from a wool comb rather than a flax heckle (Walton Rogers 1997, 1727). Individual spikes similar to these have been recovered from numerous Middle and Late Saxon sites, as have larger fragments of wool combs, which have been found at Cattom, Lundenwic, Sanditun, Wicken Bonhunt and York, amongst other sites (Richards 1999, 74–5 and fig. 49.10; Cowie et al. 1988, 128 and fig. 36.4; Riddler 2001a, 240; Ottaway 1992, 538–40; Walton Rogers 1997, 1720–1).

Miscellaneous implements

Antler tine implement

One of the tines and most of the butt have been removed from a roe deer antler (sf0129). The remaining tine is curved and has been lightly faceted by knife to a rounded point. Roe deer implements from Anglo-Saxon contexts have been reviewed recently (Riddler 2003). They can be separated into two types. Two tines remain on a number of implements, whilst the second type consists of those retaining the beam and the principal tine alone, as with this example. A Late Saxon implement from the Buttermarket at Ipswich also belongs to this type (Riddler 2003, 44 and fig. 2a), alongside several objects from Berlin Spandau described by Becker as awls (Becker 1989, 138–9 and taf 42). This group consists generally of long implements, each of which tapers to a point with a straight or lightly curved shaft. Becker felt that they were not suitable for making holes in leather and it is likely that they were used with softer materials, or possibly in rope making, as a form of cordage implement (Becker 1989, 139).

Perforated goose bone

A fragment of the midshaft of a goose radius (sf0542) from context 0077 has been crudely perforated with the aid of a knife at its centre. There is no other modification to the bone and the purpose of the perforation is unclear.

Post-Saxon small finds

The medieval objects consist largely of dress accessories. Most items are common types that are well-represented elsewhere in East Anglia at this time. They were largely recovered from metal-detecting and include a late medieval annular brooch, buckles/buckle plates, strap-ends, belt mounts, a purse frame, keys and knives. In addition there were six medieval and two late medieval coins and two Nuremberg jettons. Fragments of copper alloy and glass vessels and bottles, various nails, fittings, musket balls, cloth seals and weights of post-medieval date were also recovered. Similar groups of finds were collected from the Stauch Meadow site. These assemblages are catalogued in archive.

Animal bone

by Pam Crabtree

Introduction

The animal bone remains from BRD071 were identified and analysed as part of the larger Stauch Meadow project, and methods used were the same (see Chapter 10.II). They were identified in 1991, at the very end of the Stauch Meadow project. The analysis and interpretation of the assemblage did not take place until early 2008 when the final report on the Brandon excavations was prepared for publication.

The faunal assemblage

The faunal collection comprised 1704 bird and mammal bones and fragments. The species identified are summarised in Table 11.4. Most of the identifiable elements belonged to domestic mammals and commensals, including cattle (Bos taurus), horses (Equus caballus), sheep (Ovis aries), pigs (Sus scrofa), dogs (Canis familiaris), and a single cat (Felis catus) bone. Bird bones are few in number, but both domestic fowl (Gallus gallus) and domestic goose (Anser anser) were identified.

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</tr>
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</table>

Table 11.4 Animal bones identified at BRD071

Illustration

sf0129 Complete antler implement, cut from a roe deer antler, with butt and one tine removed by knife. V-shaped notch cut into beam just above butt. Remaining tine curves from beam, its tip faceted to point of circular section. Slight polish. Context 0129, Phase 2.

Table 11.4 Animal bones identified at BRD071
Clear evidence for hunting is limited to a single bone of red deer (Cervus elaphus); the rabbit (Oryctolagus cuniculus) bones are likely to be intrusive.

The striking feature of the assemblage is the high proportion of horse remains. Horse bones make up 14.7% of the large domestic mammals based on fragment counts or NISP (Table 11.5). In contrast, horse bones make up between 1.1 and 2.6% of the large mammal remains from the Anglo-Saxon village of West Stow based on NISP (Crabtree 1990a, 10) and 1.5% of the large domestic mammals from the Staunch Meadow site. The proportion of horses at BRD071 is also larger than the proportions seen at the Iron Age farmstead at West Stow (Crabtree 1990a, 11) and at the Romano-British site of Icklingham (Crabtree 1991). These horse bones are drawn from at least nine individuals, and horses make up 18% of the faunal assemblage based on minimum numbers of individuals (MNI).

Compared to the faunal assemblage from Staunch Meadow, the BRD071 collection includes a smaller proportion of sheep. Sheep make up about 29.5% of the identifiable large domestic mammal fragments and 32% of the individuals from the site. In comparison, sheep make up just over half of the large domestic mammal remains from Staunch Meadow and nearly half the remains from the Early Anglo-Saxon site of West Stow. While the inhabitants of West Stow used their sheep for a variety of purposes, including meat, milk, and wool, more specialised wool production appears to have taken place at the Staunch Meadow site (Crabtree 1991). The small BRD071 assemblage provides no clear evidence for specialised sheep production.

Body part distributions for the main domestic mammal species show that all parts of the skeletons were represented in the faunal assemblage (Table 11.6). The low numbers of sheep and pig phalanges, carpals and tarsals probably reflects the absence of systematic fine screening.

Otherwise, no obvious anomalies are apparent. However, a closer look at the measurement and ageing data for the main domestic species may indicate how these animals were used in Late Saxon East Anglia.

**Horses**

The assemblage included a large number of complete and near complete long bones. Following Johnstone (2004, chapter 3) withers heights were calculated using both greatest lengths (GL) and lateral lengths (Ll) of the complete horse long bones (Table 11.7). The withers heights range from about 132 to 146 cm or between about 12 and just under 14½ hands. The BRD071 animals were actually large ponies, comparable in size to a New Forest pony. They are comparable in size to the horses that were recovered from Early Anglo-Saxon West Stow, although the largest of the BRD071 horses are larger than any of those at West Stow. A complete list of the measurements taken on horse, cattle, sheep and pig bones is included in the archive.

Since no complete horse mandibles were recovered, analyses of ages at death must be based on epiphyseal fusion of the long bones. While the vast majority of the horse bones come from mature individuals, two of the horse distal tibias were immature. Since the distal tibia fused between 20 and 24 months in horses (Silver 1969, 286), two of the horses appear to be sub-adult animals.

<table>
<thead>
<tr>
<th>Species</th>
<th>NISP</th>
<th>% NISP</th>
<th>MNI</th>
<th>%MNI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td>311</td>
<td>43.4</td>
<td>15</td>
<td>30.0</td>
</tr>
<tr>
<td>Sheep/goat</td>
<td>211</td>
<td>29.5</td>
<td>16</td>
<td>32.0</td>
</tr>
<tr>
<td>Pig</td>
<td>89</td>
<td>12.4</td>
<td>10</td>
<td>20.0</td>
</tr>
<tr>
<td>Horse</td>
<td>105</td>
<td>14.7</td>
<td>9</td>
<td>18.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>716</strong></td>
<td><strong>50</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 11.5 Species ratios for the large domestic mammals based on fragments counts (NISP) and minimum numbers of individuals (MNI)

<table>
<thead>
<tr>
<th>Species</th>
<th>Cattle</th>
<th>Sheep/goat</th>
<th>Pig</th>
<th>Horse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skull frags.</td>
<td>13</td>
<td>18</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Horn core</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Maxilla</td>
<td>4</td>
<td>1</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Mandible</td>
<td>24</td>
<td>24</td>
<td>19</td>
<td>3</td>
</tr>
<tr>
<td>Atlas</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Axis</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Cervical vert.</td>
<td>7</td>
<td>4</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Thoracic vert.</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Lumbar vert.</td>
<td>6</td>
<td>4</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Sacrum</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Ribs</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Innominate</td>
<td>19</td>
<td>6</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Femur</td>
<td>15</td>
<td>6</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Patella</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Tibia</td>
<td>16</td>
<td>23</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Fibula</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Scapula</td>
<td>9</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Humerus</td>
<td>23</td>
<td>8</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Radius</td>
<td>24</td>
<td>24</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Ulna</td>
<td>8</td>
<td>0</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Astragalus</td>
<td>11</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Calcaneus</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Tarsals</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Carpals</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Metatarsus</td>
<td>21</td>
<td>24</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Metacarpus</td>
<td>16</td>
<td>22</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Metapodia</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Lateral metapodia</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>1sr phalanx</td>
<td>11</td>
<td>6</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>2nd phalanx</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3rd phalanx</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Tooth frags.</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Loose teeth</td>
<td>34</td>
<td>32</td>
<td>10</td>
<td>25</td>
</tr>
</tbody>
</table>

Table 11.6 Body part distribution for the main domestic mammals

<table>
<thead>
<tr>
<th>Species</th>
<th>Meas. (mm)</th>
<th>WH (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tibia GL</td>
<td>359.0</td>
<td>141.7</td>
</tr>
<tr>
<td>Tibia Ll</td>
<td>317.5</td>
<td>138.5</td>
</tr>
<tr>
<td>Tibia GL</td>
<td>361.5</td>
<td>142.3</td>
</tr>
<tr>
<td>Metatarsus GL</td>
<td>260.0</td>
<td>136.2</td>
</tr>
<tr>
<td>Metatarsus GL</td>
<td>278.5</td>
<td>145.9</td>
</tr>
<tr>
<td>Metacarpus Ll</td>
<td>206.0</td>
<td>131.9</td>
</tr>
<tr>
<td>Metacarpus Ll</td>
<td>212.5</td>
<td>136.1</td>
</tr>
</tbody>
</table>

Table 11.7 Withers height estimates (in cm) based on complete horse long bones
The presence of juvenile animals could indicate that horses were being raised at the BRD071 site. The high proportion of horses at the site might also point to horse rearing.

**Cattle**

Five complete cattle long bones yielded withers heights ranging from 110–125cm, with a mean of 115.7cm (Table 11.8). These animals are generally similar in size to cattle from Staunch Meadow; which had a mean withers height of 113.9cm.

The BRD071 assemblage produced five ageable mandibles, representing one very young animal and four adults. The young individuals’ first molars were not fully erupted (MWS = 4); this individual was less than 6 months of age when he died. The other four individuals (MWS = 34, 40, 44, and 46) were probably over four years of age when they were killed.

**Sheep**

Fig. 11.6

Seven complete sheep long bones yielded withers height estimates ranging from 51 to 66cm (Table 11.9), with a mean of 58cm. While the sample of complete sheep bones is small, these sheep are slightly larger than the sheep from Staunch Meadow. The Staunch Meadow sheep had an average withers height of 56.6cm. The sheep from Ipswich also show an increase in size from the Middle to the early Late Saxon period (Crabtree in prep).

The distribution of mandible wear stages for the sheep from BRD071 is shown in Figure 11.6. No sheep were killed during the first six months of life, but three were killed shortly thereafter (just after the first lower molar came into wear). Three more sheep were killed just after the second molar came into wear (MWS 20–25). These sheep would have been between one and two years old when they were slaughtered. There are not enough ageable mandibles to determine whether or not this represents seasonal slaughter of excess young sheep. The rest of the animals appear to have been killed by about 4 years of age. There were no complete mandibles from elderly individuals, but one partial mandible must have come from an older sheep, probably between the ages of six and ten years. Unlike the age profiles for sheep from Staunch Meadow, these sheep do not appear to be drawn from a specialised wool-producing population.

**Pigs**

Pigs make up a relatively small portion of the BRD071 faunal assemblage, and only a small number of measurable pig bones were recovered from the excavations. Nine ageable pig mandibles were recovered from BRD071. Two were associated with very young pigs whose first molars had not yet erupted (MWS = 2). These pigs were less than six months of age when they were slaughtered. Three come from pigs whose second lower molars were coming into wear (MWS = 15, 15, 19). Since the second molar erupts between 7 and 13 months (Silver 1969, 299), these pigs were probably about a year old when they were killed. The rest of the pigs were killed just as the third molar was coming into wear (MWS = 30, 34, 34, 35). These animals were killed around the time they reached bodily maturity. No elderly pigs were recovered from the BRD071 assemblage.
Other species

The evidence for hunting at BRD071 is limited to a single bone of red deer. Since the twenty-one rabbit bones are largely complete, they probably represent intrusive animals. The other animals represented in the assemblage are either domestic birds, including fowl and goose, or commensal species, dog and cat. The BRD071 assemblage is lacking roe deer (Capreolus capreolus) and water birds and waders that are common at other East Anglian sites, including West Stow and Staunch Meadow Brandon. The absence of these species, which generally make up a small proportion of the overall faunal assemblage, may be a reflection of the small size of the BRD071 sample.

Plant macrofossils

by Val Fryer

The plant macrofossils were assessed as part of the Staunch Meadow assessment (Fryer 2001), and brief results extracted from that assessment are included here. Only one sample (0239) was taken to full analysis. Sixteen samples were assessed from nine pit fills (two from one pit), four 2.5m squares, and three ditches.

Plant macrofossils

Charred crop remains, including cereal chaff, grains and seeds/capsules of other crop plants, were noted at varying densities in fourteen (87.5%) samples. Preservation of the macrofossils was variable, some grains and seeds having become severely puffed during charring.

Avena sp. (oat), Hordeum sp. (barley), Secale cereale (rye) and Triticum sp. (wheat) grains were recorded with Hordeum sp. and Secale cereale being predominant. Hordeum/Secale cereale (barley/rye) rachis nodes were noted at a low to moderate density throughout, but other chaff elements were generally rare.

The highest densities of cereal remains were recorded from the pit and ditch fills. Five pits in this site appeared to contain cereal processing debris including T. spelta (spelt) chaff and common segetal weed seeds. It is tentatively suggested that this may represent a focus of Iron Age activity as spelt production had ceased by the Middle Saxon period.

Linum usitatissimum (flax) seeds were noted in sample 0047. Assemblages of ‘scutching’ waste were noted in the waterlogged waterfront deposits at Staunch Meadow.

Seeds/fruits of common weed taxa were present at a generally low density in fourteen (87.5%) samples. Segetal species were predominant and included Agrostemma githago (corn cockle), Bromus sp. (brome), Chenopodium album (fat hen), Fallopia convolvulus (black bindweed), indeterminate grasses, Polygonum aviculare (knotgrass), Raphanus raphanistrum (wild radish) and Rumex sp. (dock). It is possibly of note that most of these seeds are of a similar size to cereal grains. Although smaller seeds etc. would be removed by winnowing at an early stage of processing, larger seeds would remain to be removed by hand. It is possible therefore that the seeds noted here are derived from batches of semi-cleaned prime grain which were imported onto the site. This is consistent with data from the previously studied material.

Heather stem and floret fragments were noted throughout and are probably indicative of the use of local materials for bedding, fodder or fuel.

Analysis of sample 0239

The overall composition of the sample was extremely similar to Iron Age samples at both BRD018 and 071 containing spelt wheat. It could not be dated on artefactual grounds but it was at the base of the stratigraphy and similar to Iron Age pits elsewhere on the island and is therefore suggested to be of that date. The dating of this sample could only be resolved by AMS dating, which is not possible at this late stage in the project.

Shell

Shell was discarded shortly after the excavation. Analysis was based on notes collected during quantification. Distribution of the species by phase suggests that mussels were more common during the Saxon phases of site use, with oysters and snails occurring more often in post-medieval contexts. Other types (cockle, whelk) were too few to show any patterning. Within the 2.5m squares, a concentration of shells was seen towards the northern edge of the site, and this area also produced a cluster of animal bone and pottery, which may be medieval.

Discussion

The sequence from BRD071 is less closely datable than that from the main site, which is probably due to the reworking of the occupation level and the tops of the features by ploughing in the medieval period. The Middle Saxon evidence is sparse, with just fifty-eight sherds of Ipswich Ware, of which only three may be from their primary context. The associated features are indicative of fields rather than settlement. This changed in the Late Saxon period and despite the jumbled appearance of the occupation layer, which suggests there was some post-medieval ploughing, the animal bone, small finds, pottery and surviving features such as fragmentary hearths and spreads are convincing evidence that people were living on the site from the 9th century.

During Phases 1 and 3, there appears to have been a simple entrance marked by interrupted lengths of ditch on the eastern side of the excavation; these were later overlain by the Late Saxon/medieval causeway. The entrances may provide a link with Staunch Meadow as this would have been a pathway from the Middle Saxon period. While there are small finds from the medieval period and beyond, many of these are attributable to the intense metal detecting of the site from the upper levels. While the causeway ditches contained early medieval pottery, settlement evidence seems to dwindle by the 11th century and we can suggest habitation moved away.

IV. The Middle and Late Saxon sequence

by Ian Riddler

Occupation nearby at Staunch Meadow may have ceased c.850, whilst it continued into the Late Saxon period on this site. With this in mind, it is clearly worth comparing the Leisure Centre objects with those from Staunch Meadow. Are there object types at BRD071 (where occupation is seemingly unbroken) that do not occur at Staunch Meadow? Equally, are there Late Saxon object types at Staunch Meadow that are not seen at BRD071?
It should be noted at the outset that in considering English metalwork of the 10th century, Wilson has previously noted that ‘the number of surviving objects is small and the general standard of the material makes mockery of the fact that since the Middle Ages Dunstan has been the patron saint of the jeweller and silversmith’ (Wilson 1975, 200). The quantity and range of humbler Anglo-Saxon objects of copper alloy and other materials has increased considerably over the last thirty years, however, and that increase is reflected in 9th to 10th-century material. The dating of that material remains problematic but is no worse than that which the ceramicists have to work with. Secure dating evidence is a particular problem at both of the Brandon sites, however, where much of the material was recovered from metal-detecting, rather than from excavated contexts. This affects the copper alloy assemblage much more than the objects of other materials. In a number of cases the ceramics provide the dating evidence for objects, leading to the possibility of circular arguments. However, an attempt can still be made to examine the chronology of both sites from the viewpoint of their small finds, remaining as independent as possible from the ceramic evidence.

The earliest object from BRD071 appears to be the copper alloy die (sf0500) which, on stylistic grounds, can be placed in the 7th century. There is little evidence for activity on either of the sites before the middle of that century and it probably belongs to that period. A number of Middle Saxon objects can be identified within the assemblage, including the disc (sf0556) of 8th-century date, the tweezers (sf0535) and the stratified ferrule (sf0549). The pins (sf0536 and sf0537) belong to the 8th–9th century whilst the strap-end (sf0574) is a little later and of late 8th–9th-century date. The Dublin evidence noted above suggests that rings with entwined terminals (sf0505) are a little earlier than previously thought, extending back to the second half of the 8th century and continuing into the 9th century, with some occurring in contexts of 10th-century date. Accordingly, the ring with entwined terminals from Staunch Meadow (sf2110) can be placed tentatively in the Middle Saxon period.

The dress accessories inevitably provide the best dating evidence for the Late Saxon period. The embossed brooch fragment (sf0579b) can be placed in the 9th to 10th century. There are no examples of this brooch type from Staunch Meadow but brooches are not common finds of the Late Saxon period. In contrast, penannular rings with tapering terminals are relatively common, and they belong to the 9th to the 11th century. There are four examples from BRD071 but none at all from Staunch Meadow. The four hooked tags from BRD071 include two with external lugs that are typologically early and two simple circular forms that represent the latest form. These have been dated largely to the 11th century (Griffiths 1988, 45; Hinton 1990, 549) but they may in fact extend into the 12th century. Stratified examples of 12th-century date have come from Colchester, London and Monkton, and several of those from Winchester are from late 11th to 12th-century contexts (Crummy 1988, 12; Pritchard 1991, 149; Riddler 2008b, 331; Hinton 1990, 551 nos 1416–8; Rees et al. 2008, 216). The eighteen hooked tags from Staunch Meadow include nine of triangular form. Some of these are certainly Middle Saxon whilst others may extend into the Late Saxon period. In particular, two hooked tags from Staunch Meadow (sf9743 and sf9945) have scalloped broad ends and plain or decorated triangular fields, forming precise parallels for the series of 10th-century date from Winchester (Hinton 1990, nos 1408–11). A hooked tag from Chester also belongs to this 10th-century group (Ward 1994, 67–8 and fig. 8.7.4). A further hooked tag from Staunch Meadow (sf2118) with a circular field can be added to the late group, of 11th to 12th-century date. There are no 10th-century Anglo-Saxon strap-ends from either of the Brandon excavations, although examples are known from sites nearby, including both Thetford and Ely (Rogerson and Dallas 1984, fig. 111.28; Mortimer et al. 2005, fig. 4.1.23).

In terms of the textile manufacturing implements and their dating, the significant factor is the presence of single-pointed pin-beaters at BRD071 which outnumber the double pointed implement by a ratio of 3:1. At Staunch Meadow, as expected, the double pointed form is present in larger numbers than the single pointed type, with at least twenty examples of the former and just three of the latter. The single pointed pin-beater is present at Staunch Meadow, however, with one example coming from a Phase 1.2 context, which is relatively early for the type, but not implausible (Chapter 9.IX). Moreover, both forms of pin-beater occurred within Middle Saxon contexts at Ely and Wharram Percy (Riddler 2005, 79 and fig. 4.12.174–8; MacGregor 2000, 152 and fig. 71.104) and both types are known also from Thetford, if from different areas of the settlement.

In comparing the two assemblages, therefore, it seems that continuity of occupation can be suggested for BRD071, but not necessarily for Staunch Meadow. There are, however, several items from Staunch Meadow that appear to extend activity there beyond c.AD 850. The silver-inlaid strap-end (sf3638) comes from one of the latest features (Phase 2.4) and is of mid 9th to 10th-century date (Webster and Backhouse 1991, 85 no. 66(m); Thomas 1996, 85–6). It is the only non-ferrous object to come from that late phase. The same dating can be applied to a handled comb (sf4434/4442) from a Phase 2 context and a further example (sf4194), unfortunately unstratified. A rim fragment (sf7368) from a polychrome glass globular beaker is comparable with early 10th-century glass from Scandinavia (Evison, Chapter 6.VI). Three type 1 iron horseshoes come from Saxen deposits and two others are unstratified. The type was formerly thought to begin in the late 9th century, but may go back to the earlier part of the century. An iron soldering lamp (sf2428) has been compared with examples from York and London (of 9th to 10th-century date (Chapter 9.VI). There are also small quantities of both Norwegian ragstone and purple phyllite hones of 9th-century or later date (Chapter 8.VII).

This provides a small corpus of material that extends activity at Staunch Meadow into the late 9th century and possibly the early 10th century. The quantity of closely datable material is very small, in comparison with the large Middle Saxon assemblage, and activity may only have continued in reduced circumstances at this time. Thereafter, occupation appears to cease for a time and there are few objects of 10th-century date. As noted above, diagnostic 10th-century material is absent at Staunch Meadow but present at BRD071.
In broader terms the pattern of settlement, abandonment and re-use at Brandon may reflect that seen elsewhere in eastern England, where two different scenarios have been noted. At Flixborough and Wharram Percy the Late Saxon settlement continues from the Middle Saxon at the same location, but in much reduced circumstances; and there may have been a period of abandonment at both sites (Loveluck 2007; Evans and Loveluck 2009; Riddler 2012). The duration of that abandonment is very difficult to determine because the quantity of datable material is severely reduced in both cases. With a number of other settlements, including Cottam and Thetford, the area of Middle Saxon settlement is entirely abandoned and Late Saxon occupation begins at a new location (Richards 1999; Wallis 2004, 1–2).

V. Medieval Brandon

From the historical summary an association between Late Saxon Brandon and Ely Abbey is established, as is the rise in population from the Domesday Book to the custumal records in 1222 and 1251 (Chapter 1.VI). It also provides some measure of the economy with land given over to pasture and meadow and sheep the pre-eminent livestock but with rabbit warrens increasingly important during this time. Fish weirs were maintained along the river (Chapter 1.VI).

The changing shape of the settlement of Brandon has been something of a mystery with the church of St Peter and St Paul (BRD 049; Fig. 1.3) seemingly isolated from the present town, which has its focus along the road leading to the modern bridge. The evidence of recent excavations, chance finds made in back gardens and metal-detected finds, however, reveals a spread of medieval material along the edge of the floodplain to the south of the town. This may be explained by the evidence that there was a second bridge at Brandon. When writing ‘Ely Diocesan Remembrancer’, Rev J.L. Wyatt, the rector of Brandon noted ‘Besides the church dedicated to St Peter, or rather St Peter and St Paul there existed a chapel dedicated to St Mary and St Etheldreda. This was situated ‘on the bridge’ and was in charge of a hermit, appointed by the bishop of Ely. It is not known now where this bridge was situated; it was a mile distant from Brandon ferry, but there are no remains of it or of the chapel at the present time’ (Wyatt 1917). There then follows a list of hermits who occupied the bridge. Brandon was known as Brandon Ferry at this time and what is now Brandon High Street was called Ferry Lane (this appears on the 1809 Enclosure map) until recent times, and may have been the less important crossing as it was further up the river. A possible location for the first bridge is suggested by drawing a straight line through Fengate Road in Norfolk and Small Fen Lane in Suffolk. This point also marks a dogleg in the county boundary between Norfolk and Suffolk. There was a separate focus of settlement at Brandon to the west of the church accessed from what is now the Lakenheath road (formerly London turnpike road) called Town Street. We do not know whether this former crossing was extant during the Middle Saxon times but it would make the timber bridge and causeway access to Staunch Meadow a more direct route to the site if it were approached from the west.

The bridge was extensively repaired in 1331–2 and the detailed accounts are recorded in the National Archives, which show that they cost £210 3s 4½d. The Ely registers of John Alcock bishop of Ely 1486–1500 refer to the repair of the bridge and to the roads and causeway leading to the bridge. This reference to the roads and causeway would have been appropriate to the suggested site of the ‘west’ bridge because the approach was over low-lying fields, particularly on the Norfolk side of the river. There appear to be no records of the bridge following the Dissolution and it is assumed that it fell into disrepair and all traffic and the centre of settlement in Brandon moved towards the modern bridge.
Chapter 12. Discussion

I. Early activity

Pre-Saxon land use
Significant prehistoric remains recovered during the excavations await analysis, although a summary is included within Chapter 3. The earliest evidence was for flint knapping in the matrix of sands that comprised Staunch Meadow. A total of 124kg of struck flint was recovered and the assemblage includes a proportion of very large blades that may be of late Pleistocene/Early Holocene date (Chapter 3.II).

Evidence for sustained settlement was more visible in later prehistory. Pottery from a buried grey soil included both Neolithic and Bronze Age types but by far the most prevalent dates from the Iron Age, approximately 3rd to 1st centuries BC (Chapter 3.IV). No buildings could be identified, although these are rare in East Anglia in any case, but there were sufficient pits and post-holes to be certain of settlement. Other features included the dramatic pit alignment and accompanying ditch, and further ditches close to the waterfront. Where stratigraphy survived these features were cut by plough or ard marks that were found in the buried grey soil below the Anglo-Saxon occupation surface. The ard marks were later buried by the rising level of peat as water levels rose (Chapter 10.V). It would appear that the valley floor provided light soils for agriculture with access to both the relatively open Breckland and the rich wetland resources of the fens. Recent excavations exposed Iron Age features beyond the confines of the ‘island’ on Staunch Meadow but within the floodplain (Tester 2008b).

The peat columns produced no evidence for any phase of valley floor woodland or carr development but open grassland and marsh habitats seem to have persisted locally from the Roman to Middle Saxon periods. The inferences are that there was continued management of the valley floor for use as pasture (or perhaps meadow), and that the Middle Saxon settlement was established in an area with a long and continuous history of agricultural land use.

Roman Brandon
There is a gap in the settlement evidence from the Roman period which may have been due to the gradually rising water table. This must have been a fine point; extensive Roman remains have been identified at Hockwold-cum-Wilton existing below the 5m OD contour and above the peat (Gurney 1995). The topography of Staunch Meadow was particular, however, and although the ‘island’ remained dry the marshy approach would have discouraged settlement. While not visible in the immediate locale, the Roman heritage was still influential even after c.250 years and robbed tiles were still brought to the Middle Saxon site for re-use in ovens or as hard-standing (Chapter 5.IV).

II. Site formation

Before reflecting on the evidence presented in the previous chapters, it is worthwhile considering what this
represents and, in particular, its limitations. There are at least four factors to consider in judging how representative the evidence is of activities at Brandon: the proportion of the whole site that was excavated; the potential for a controlled layout inherent on a major estate centre, with different activities in different areas; any changes to this layout that quite clearly occurred over c. 200 years; and the pattern of rubbish disposal.

It is argued (Section IX below) that Brandon was a monastic estate centre where many of the activities of a small town would have occurred, with disparate elements of society providing a range of services to support an aristocratic elite in residence. Such estates are likely to have been highly organised and involved complex zoning (Blair 2005, 251–71). Zones delineating different activities are clearly evident at Brandon from Phase 2.1 onwards.

We do not know the extent of the settlement to the east of the excavated area but if it extended as least as far as the edge of the natural sand dune that defines the island shape in the floodplain, then about a third of the settlement has been excavated, with the site of a possible Late Saxon church, the rest of cemetery 2 and the medieval enclosure and chapel within the remaining area. It can even be suggested that the focus of the site from as early as Phase 2.1 may have lain outside the excavated area, at the centre of the island. There is very little evidence of Middle Saxon settlement beyond the island, although this may reflect the lack of fieldwork in built up areas, as well as extensive ploughing. Excavations at BRD156 (Fig. 1.3) recovered residual Ipswich Ware pottery, but this could represent a manuring scatter as it could not be related to any features. Middle Saxon Brandon is likely to have incorporated fields beyond the island used for the growing of crops, and possibly as pasture, as suggested by the environmental remains (Chapter 10.V). An early medieval settlement at Balriggan, Co. Louth, can be compared with Staunch Meadow for its layout on an oval island surrounded by wetlands (Delaney 2010, fig. 8.2). A causeway led to the island, which was separated into two enclosures and included a graveyard, a mill and an industrial area within the central, oval section. Beyond the island lay an iron smelting area, a cereal drying kiln and charcoal production kilns, as well as field boundary ditches. The site is a salutary reminder of what may yet await discovery at Brandon.

At Brandon, the survival of finds is, by the standards of ‘normal’ excavation, exceptional. The finds from the Anglo-Saxon high status complex at Cowdery’s Down (Millet 1983) would probably have fitted into a couple of boxes because the occupation layer had been lost, and comparatively little came from either Foxley or Yeavering (Hinchcliffe 1986, 247–9; Hope-Taylor 1977, 170–203). In contrast, there are thousands of bone and pottery fragments and hundreds of small objects from Brandon. This still represents a fraction of the material that must have passed through the site, without including the biodegradable finds, such as clothing, blankets and tapestries or wooden objects such as the tableware and furniture and those items made of iron that, although once plentiful, survived poorly in the acid soil.

The rubbish comprised deliberately discarded waste — the most visible archaeologically being animal bone and pottery — and lost objects, those disposed of by accident or design. The analysis of the finds distributions (Chapter 4.VII) has shown that where the surface rubbish heaps could be phased, either by their stratigraphic location or by spatial patterning, they occurred late in the archaeological sequence, and the pottery and animal bones that were collected from the 2.5m squares were therefore weighted to the 9th century. It may even be that the heaped material that was found between and in front of the Phase 2.3 buildings, before the major abandonment of the site, accumulated over weeks and not years; this material was being managed. The general finds groups recovered from the tops of ditches were also open to ‘contamination’ from late intrusive material but to a lesser degree than the surface material, particularly if rubbish was not being collected simply for manuring, but also to keep the site tidy.

It has been argued in Chapter 4 that many small finds were lost with the general rubbish, and therefore inadvertently moved around the site, but that other finds were simply lost and soon invisible to the naked eye. This is illustrated by the small finds concordance chart (Chapter 2, Table 2.4) where datable objects span the mid 7th to late 9th centuries, indicating a steady accumulation of finds from all periods. This is less likely to be the case with the bulkier finds, that were taken beyond the settlement and scattered as compost. This explains why there was probably a higher incidence of residual small objects on the surface of the site at the time of abandonment than bulk finds. It is difficult to reconstruct the rubbish disposal regime from earlier phases but it is suggested that surface heaps were probably common throughout the life of the settlement. There is evidence for a cluster of shallow pits in the area of heap 8130 (Fig. 4.50); it is argued that these pits were created when composted material was dug out to be carted from the site. Generally, pits were not dug across the site for the disposal of rubbish, and middens were used instead.

Thus the incomplete excavation of a complex site of this nature can only reveal a part of the story, and a fraction of the site is not necessarily representative of the whole. Significant activities associated with a wealthy community could have taken place beyond the excavation and would not appear in the site archive. We cannot state with any confidence what was not happening at Brandon, only what we have evidence for. As with space, so it would be with time and we can show that the later occupation is better represented in the finds than the earlier periods, with rubbish removed from the site or simply scattered over time in the natural way of things. The general conclusion here is that the excavated evidence, either structural or material, while giving invaluable information, may not be representative of the site as a whole; either at the time of abandonment or at any time during approximately two centuries of settlement.

III. The buildings and structures

Figs 12.1–12.2

By the time the excavations at Brandon came to a halt, c.35 buildings had been excavated. The quality of the evidence was exceptional, with timber often preserved below ground and surface features surviving including hearths, ovens, and floors. The finds have provided further evidence from which to identify building function. With the abandonment of much of the site in the later 9th century, the greatest erosion of evidence occurred while
the site was still occupied, due to building replacement. The site reveals a varied and complex social order that is reflected in the range and the division of buildings across the site. The following discussion draws on the evidence that has been presented more fully in Chapters 4 and 5.

The buildings below are grouped by function, and by phase, and details that characterise each construction are summarised in Table 12.1.

### Table 12.1 Buildings: summary of features and interpretations

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**Houses**

Many of these buildings are not dissimilar in size to the halls, which are discussed later in this section, the most important difference is suggested to be in function, with the houses associated with families whilst the halls were more communal.

The earliest buildings (Phases 1.1–1.2) were 8125, 8127, 8137 and possibly 2902 with 2901 (Fig. 12.1). These buildings were less precisely laid out than others on
the site and the evidence from the post-holes suggests that the timber used was of variable quality. Uniquely on the site, building 8137 had circular post-holes, suggesting either round or square posts. Entrance details were incomplete but there was at least one inset entrance in the walls of buildings 8125, 8137 and 2902 (the south entrance of 2902 blocked by a single large post). Both 8137 and 2902 had two-post partitions at one end. Hearths were only detected in 8125 and 8127. Annex 2901 had two evenly spaced central supports resulting in a ground plan similar to the agricultural buildings discussed below.

Buildings 2926 and 1096 (Phase 2.1; Fig. 12.1) were precisely laid out and the surviving wood stain evidence, that came only from building 1096, was of regular timbering. No partitions were identified but both buildings had inset entranceways, this being a particular feature of 2926 where there were inset pits which mirrored those in church 7098.

Buildings 1095 and 2923 (Phase 2.2; Fig. 12.1) are harder to characterise due to uncertainty over whether 1095 represents a long building or two separate but connected structures, and the poor dating and ground plan survival for 2923. The former structure was precisely laid out at the eastern end and built of regular timbers, but due to the similarity in ground plan between two buildings butt ending and an inset entrance we cannot be sure what is represented. The balance of probability is surely that this was a single building and that it was divided by function, possibly people in the eastern portion, with the opposing inset entrances in the eastern half, with animals or agricultural produce to the west. This building is reminiscent of the elongated structure found at Chalton (Champion 1977, 368). No partitions were evident in either structure although central supports within 1095 were probably primary. What survived of 2923 suggests wide spaced pairing wall posts with multiple post settings in the end walls which are a characteristic of barn 1094 discussed below. No hearths survived.

The plan of building 2924 (Phase 2.3; Fig. 12.1) was incomplete but seems to have been well laid out with regular posts, inset entranceways and a two-post partition. Building 2921, in contrast, seems to have had a less traditional appointment of post-holes with opposing pairs; the entrances are thought to be opposing but they were not inset. A distinctive repair to this building was a prop inserted from below into the west wall and wedged upwards with a Roman tile presumably into a tie beam or, given that it was alongside an earlier post, a wall plate. Evidence for a hearth was lacking from 2924 but there was a small hearth against the north wall of 2921, which was the last in a sequence of buildings. A small extension was attached to 2921.

Agricultural buildings

Two buildings in Phase 2.1, 1094 and 2925 (Fig. 12.1), revealed distinctive plans that can be interpreted as agricultural buildings. Each is phased alongside a house, 1094 with 1096 and 2926 with 2925. Both lay in the western part of the excavated area (Fig. 4.13). They contained areas of 72m² and a massive 115m² respectively (giving 1094 the largest central space on the site). Both were precisely laid out, although the posts were widely spaced compared with the houses.

From the preserved wood within 1094 we know that a variety of timbers were used in the end wall, including complete tree profiles, half trees, and variously shaped timbers including branches. 1094 also occupied a marginal location, being the lowest building recovered on the excavation, straddling the 4.25m OD contour prior to excavation. It did share characteristics with other buildings such as weak corners and an odd number of end wall posts that ridge built buildings require. The infrequency and poor quality of the wall timbers set against the massive roof span of 7.5m leads to the suggestion that the walls may not have reached head height, allowing the roof to hang off a ridge piece and making it less likely to force the walls apart. These characteristics also occur in building 2925. From all the factors including the internal features, these buildings are interpreted as agricultural in nature, possibly barns or byres for storage, animals or both.

A distinguishing feature of these buildings was the even distribution of four ridge supports (including one in each gable). These are considered to have been primary and important structural indicators for the use of ridge pieces. Continental parallels for these buildings are illustrated by Hamerow (2002, fig. 2.15, after Waterbolk 1991).

This interpretation views the buildings in the light of earlier Anglo-Saxon buildings, principally sunken featured buildings or Grubenhauser, which in their simplest form had two ridge supports in a pit with little or no evidence for side walls. In the discussion below it is argued that interpreting Middle Saxon buildings with hindsight based on the medieval tradition is unwise, but these buildings with central posts are similar in ground plan to a tradition of medieval barns and Mark Gardiner has suggested that the central posts may have held raised floors, that they were not integral to the roof and that ridge purlins were not employed (M. Gardiner pers. comm.; Gardiner 2012).

Entranceways were difficult to detect but a central entrance on the north side of 1094 (not inset) seems to have been opposed by a single post on the south side. Neither building had evidence of a hearth. A much longer building of similar plan with central posts has been excavated by Gabor Thomas at Lyninge; this structure was associated with a hard surface interpreted as a threshing floor (G. Thomas pers. comm.). He has speculated that the building may have had an upper floor. Two regular posts in the south-east corner of 1094 indicate a small structure, perhaps a ladder, and it is possible that a row of shallow scoops or wear marks inside the north wall of 2925 could have been made by livestock.

Stable

Building 1391 (Phase 2.2; Fig. 12.1) enclosed 80m² and was precisely laid out with close-set post-holes with stains indicative of regular timbers. Opposing entranceways were clear but there were no inset doorposts. An unusual characteristic was the slope on which this building was constructed. The ground dropped 0.5m along the east wall (recorded from the base of the post-holes), which makes it highly unlikely that the building was for human occupation. Internal features included five posts in two rows that were staggered, so as to leave the entrances clear, but falling short of the end walls. From these last characteristics it is suggested that the internal uprights were not structural but for stalls, and provided space for at least eight animals. Soil marks at the west end indicate a
Figure 12.1 Building plans
structure, perhaps a manger. Shallow scoops with dark fill between several of the stalls are possibly the marks left by animals. It is not known whether cattle were kept in stalls in England during the 8th and 9th centuries. Certainly this was not practiced in post-medieval times, although cows could be milked in stalls (L. Alston pers. comm.). There is evidence for cattle stalls on continental sites from post-Roman times (Hamerow 2002; Siegmüller 2010, 27–70). Although cattle were highly valued, however, the quality of this structure, comparable to that of the halls, would seem to be more appropriate for the stabling of horses to be ridden by an elite for hunting or leisure.

**Workshops**

**Bakeries**

Buildings 8138 and 8139 (Fig. 12.1) were probably built specifically to house ovens 0003 and 0006 respectively. This may account for the type of structure used and help explain some anomalies, as exemplified by 8138. The length was more than twice the width (11.5m x 5.5m), which was slightly different to the standard building type, particularly those with clear opposing entranceways. There was a very strong central support, possibly making use of the partition posts at the east end. The end walls did not match. Although they both had weak corners and central supports, the west wall probably had more posts than the east, or was open north of the central support. Shallow posts may have left no discernible archaeological mark, but equally there may have been intentional gaps in the uprights and wall cladding in the design. This notion is supported by the presence of a trench inside the building and possibly the spread of stones around one post-hole, implying a gap in the wall. Large gaps in the side walls may have provided easy access to the work area and must have helped ventilation. This may also have been true of the post-hole arrangement at the west end although the evidence is incomplete. The covering of the building would supply dry storage space for both fuel and a preparation area for whatever was to be baked. It may be worthy of note that paired internal posts occur here, which might suggest they were fundamental to the structure, possibly supporting a ridge piece, but also creating a secure area within what was a very open building.

Buildings 8139 (Phase 2.1) and 8138 (Phase 2.2) were very similar and it is speculated that one may have been a direct replacement for the other, which was probably destroyed by fire. They enclosed 78m² and 63m² respectively. Precise details of the post-hole arrangements were confused by the overbuilding on this part of the site but the post-holes were less precisely laid out and possibly filled with indifferent timber compared with the better buildings on the site. There may have been a partition within 8139, but 8138 certainly had a two-post partition. Opposing gaps in the side walls indicate openings but there seem to have been no doorways. The ovens were the distinctive feature dominating half of each building. These ovens would have retained heat through thick clay and flint walls and probably a substantial superstructure; they could well have been multi-purpose and used for both baking and perhaps firing loom-weights, for example, when required. They could also have been used for the various brewing processes identified from environmental remains (Chapter 10.V).

**Smithy 4491**

This Phase 2.2 building (Fig. 12.1) was identified from the analysis of slag and of the ‘dark earth’ deposits in association (Keys, Chapter 9.VI). The structure is little understood, lacking a regular building form. It appears to have been open on the north side with the post-holes on the remaining three sides suggestive of a shelter rather than a conventional structure. A comparable structure was found at Middle Saxon Thetford (Atkins and Connor 2010, 114–5).

**Craft workshops**

Several buildings in Phase 2.2 have some evidence from the phasing or from finds that they were associated in some way with craft, or were modest houses (Fig. 12.1). Structure 4886 is the clearest, situated on the island edge overlooking the bleaching and dyeing complex in association with post lines including an adjoining shed(?) 8148. Building 4886 enclosed only 20m², but was precisely laid out with regular timbers and included inset entranceways. It also had a clay floor. The quality of this building seems to contradict a craft working purpose and it seems likely that it was commissioned from a specialist carpenter who worked on the finest buildings on the site. This is more than one would expect of a shed or the modest dwelling of a craft worker and surely reflects a high status occupier — perhaps it was from here that the waterfront activities were overseen. Two other buildings included here are 8131 (17.5m²), which adjoined an oven building 8138, and 2920 (29m²), which was next to the smithy. They were similar in size to 4886, although neither was as well built. Both probably had inset entranceways and 8131 had a two-post partition. There was no direct evidence from which to establish their function but from their size and general location we can suggest perhaps that they were workmen’s houses.

**The churches**

Churches 7098 (Phase 2.1) and 8851 (Phase 2.2) enclosed c.87m² and c.84m² respectively (Fig. 12.1). Although no wood survived, we can surmise from the ghosts that substantial, regular timbers were used. Both buildings were constructed using post-in-trench setting out. Neither building was partitioned in the manner of the ‘two-post’ divisions. Marks to the east of the doorways in 7098 could be structural but may be better interpreted as evidence for a partition as they lack depth. There was a single axial post in building 8851, which is interpreted as a ridge support. Neither building had a hearth. Both buildings had inset entranceways of slightly differing ground plan, but essentially the same. There is evidence that the south door of church 8851 may have been blocked by a single post-hole at some stage. A possible shared characteristic of the walls was a pairing of posts in the centre of the length of wall to the east of the entrance, which may identify the position of windows and it is possible that 8851 was rebuilt using many of the timbers, or even sections of wall, from the earlier church. They were almost identical in size and shared a particular pattern of posts at the eastern end. The post-holes for building 8851 were also shallower than those for the earlier church, which would be expected if rotted wood from below ground had been cut off from the earlier church.

Extra features set church 7098 apart from 8851:
• a third entrance in the east wall leading into an annex which was part of the original construction (the only primary annex on the site);
• the addition of two more entrances at the west end, the buttresses and the evidence for a possible porch on the north side;
• the presence of horse remains recovered from the post-pit at the eastern doorway.

Consideration needs to be given to the interpretation of buildings 7098 and 8851 as churches, when their general building characteristics place them within the normal range of secular Anglo-Saxon structures. Building 7098 exhibits some of the characteristics of a high status building. Firstly, it was built to a high standard with large timbers, post-in-trench construction and ‘buttress’ posts symmetrically arranged against the walls. They were shallow set and not very large but may indicate the position of tie beams. A similar interpretation is presented by Richard Darrah for Building 1b at Flixborough (Darrah 2007), although at Brandon there were post-holes at the ends of the building. These presumably would have supported the wall plates and we should consider whether they were an unnecessary feature, borrowed from larger or grander buildings and applied here symbolically. However, 7098 seems to have had an open nave and this is the preferred explanation for the extra supports.

Secondly, the building had an eastern annex that was a primary feature with access from the main building and on the south side, with subsequent extensions at the west end. Large but shallow post-settings to the east of the main door in Structure C12 at Cowdery’s Down were interpreted as a form of early cruck support for a ridge piece (James et al. 1984, 190–4) but this is speculative. The inset post-pit entrances were paralleled in building 2926 and the end wall entrance is seen with building 7500, but this did not have an extension, although it is also interpreted as having a high status. An angled slot by the east annex door frame is intriguing but unfortunately the later ditch removed the location of a potential matching pair.

Thirdly, beneath the ‘chancel’ door the partial remains of a horse burial were uncovered. Other local examples appear to support a simple ritual ceremony of dedication, possibly as a foundation deposit. A horse carcass was found buried beneath the threshold of tie beams. A similar interpretation is presented by Richard Darrah for Building 1b at Flixborough (Darrah 2007), although at Brandon there were post-holes at the ends of the building. These presumably would have supported the wall plates and we should consider whether they were an unnecessary feature, borrowed from larger or grander buildings and applied here symbolically. However, 7098 seems to have had an open nave and this is the preferred explanation for the extra supports.

The primary argument for identifying building 7098 and its successor 8851 as churches is centred on the proximity of cemetery 1. Middle Saxon burial practice is not yet fully understood; there has been a perceived gap in the archaeological record with too few burials identified. This is due in part to their invisibility to metal detecting, which has yielded so much information in Norfolk and Suffolk about the earlier period from grave goods (Geake 2002). It has been assumed that with the advent of minster churches from the later 7th century, burial gravitated towards churchyards but this view is now seen as overly simplistic. With the move towards large open area excavations and particularly the use of radiocarbon dating for isolated burials, a range of acceptable burial types has been identified with social and political factors acting as significant determinants, alongside religion, in establishing form and location (Buckberry 2010). Burial groups have been identified at ‘Final Phase’ cemeteries outside of settlements, as well as burials within settlements but with no discernible association with buildings. In East Anglia the latter include Whitehouse Road, Ipswich (J. Caruth pers. comm.) and Whissonsett and Sedgford in Norfolk (Hoggett 2010, 121–38). While the move towards churchyard burial appears increasingly complicated (Buckberry 2005; Buckberry and Cherryson 2010) the picture from Brandon seems much clearer. While odd burials may have occurred in buildings that were not immediately funerary, or perhaps changed function, as with Flixborough building 1a (Loveland 2007, 72–4), the cemetery at Brandon was not selective or confined in this way, that is representing a specialised group in anything but the broadest sense. From the analysis of the burials it is suggested that cemetery 1 probably functioned as the main cemetery for the settlement over many years. Church 7098 was not a funerary building; there are better candidates for this elsewhere on the site associated with cemetery 2, but it does demonstrate the ongoing...
association between the living and the dead so fundamental to the Christian belief system and manifested in the medieval churches and cemeteries that continue to dominate our landscape.

There is of course a major change between Phases 2.1 and 2.2, which is shown in the new enclosure and buildings. We cannot know the political changes that may have taken place but a visible, powerful elite have left traces in the buildings and in the material wealth strewn across the site. The churches and the cemetery were superseded, and the later burials were closer to the putative new church on the mound and associated with new funerary structures. A change at the top of a social order may have brought about a break with the past, particularly if the original family at the top of the social hierarchy were displaced by another, possibly imposed from outside, and this might be as true for a proprietary monastery as for a secular estate.

A second argument is the spatial positioning of 7098 outside of the enclosure formed by ditch 8143 to the west. This ditch had a gap with a formal three-post entrance. The posts were situated to the west of the ditch that probably had a small bank and a stake fence sufficient to stop animals from wandering, which was aligned with the gateway; this indicates that 7098 lay outside of the ditch. If 7098 was a seat of secular authority we would surely expect it to be at the centre of any enclosure, rather than outside. This arrangement is more appropriate for a church where the nature of status is more complex. It stood out at the centre of the wider settlement but was still open.

Thirdly, there was a striking lack of dark earth and associated rubbish deposits, either in heaps or generally spread about as background deposits, anywhere around the site of the churches. There are three possible explanations: firstly, the area was kept particularly clean and the waste was carted away; secondly, all traces of consumption were lost through time while the site was still occupied after the church went out of use; or thirdly, food was not consumed and disposed of in this part of the site. The last explanation is preferred because of the clear evidence for casual waste disposal in and around the halls immediately to the north, where rubbish was strewn liberally around with heaps alongside the probable feasting halls such as buildings 0734 and 7500 (Phase 2.2) and 8927 and 8893 (Phase 2.3), which are described below. Although rubbish was moved around the site it seems to have been more for the sake of general tidiness, to increase the height of low-lying working areas and for accessibility, rather than any particular regard for appearance, or to remove the smell. Church activities would not generate waste of this kind, which is consistent with the evidence.

The evidence that the window glass provides for a church at Brandon is undeniable (Chapter 5.III). Although the exclusivity of window glass to church buildings is questioned by Loveluck (2007, 43), the concentration of the plotted fragments on the waterfront at Brandon requires some explanation. The unusual arrangement of posts towards the east end of the long walls in both buildings 7098 and 8851, with two opposing pairs set very close together, might be understood if they were settings for windows. Window glass was valuable and therefore would have been reused. Both church 7098 and its replacement 8851 were long gone when the site fell into disuse and the pattern of window glass may reflect its use in the later history of the site, notably the putative church immediately to the north of these buildings. It is clear, however, that there is no good evidence for the direct association of window glass with these early churches.

Attached to the west end of church 7098 were ‘cells’ 8180 and 8181. In ground plan 8180 is very similar to the main building, suggesting that perhaps they were very close in date. It does not appear to have opened directly into the church, having a single door on the south side. Details of 8181 are less certain as it seems likely shorter timbers were-used in the walls, but both occupied c.25m².

It is possible that these buildings offered accommodation for servants of the church and presumably when 8851 was built this function was taken over by buildings elsewhere on the site.

The halls and associated structures

Halls

Three buildings stand out within this group. This has much to do with their location within the settlement, for although they were relatively large they were not exceptionally so. Buildings 7500, 0734 and 8927 (Fig. 12.2) occupied c.86m², 63m² and probably c.70m² respectively (the width of 8927 is only an estimate). The use of the term ‘hall’ is applied generally here for buildings where communal social activities are likely to have taken place.

Building 7500 (Phase 2.2) was unusual for Brandon, in that the walls were significantly bowed. This is usually taken to reflect the shape of the wall plates, although an alternative explanation may be that the walls were angled deliberately either side of the doorway rather than bowed, and that this may have been to create an impression of space (M. Gardiner pers. comm.). All three structures were well laid out using post-in-trench settings and retained the impressions of posts, including significant wood remains from 0734 (Phase 2.2) that suggest large amounts of good timber (definitely oak in the case of 0734, see Chapter 5.II). Building 7500 was not partitioned, creating a large open space (a central prop was later inserted below the ridge line); building 0734 was partitioned and with massive timbers. Both 7500 and 0734 had hearths at one end. The evidence from 8927 (Phase 2.3) was incomplete but a large spread of burnt clay daub over the floor is probably evidence that a hearth had existed. This is an important factor in identifying how the structures were used. All three buildings had inset entrances and 7500 included a third in the north end wall. This building also had timber impressions either side of the eastern entrance; these were not earthfast and are likely to have been superficial rather than structural features. There were no primary buttresses but odd posts adjoining both 7500 and 0734 were added supports to the side walls. A rough spread of chalk and sand marked the floor space of 7500. A very solid clay floor was a feature of building 8927. These buildings were all associated with large quantities of food debris, suggesting that they were domestic structures and the locations of eating and communal activity.
Associated structures
Several buildings need to be considered alongside the churches and the halls because of their close associations (Fig. 12.2). Buildings 8832 and 9289 (Phase 2.1) are the most problematic. These are phased with church 7098 but it is possible that they were separated from that structure by a ditch. If there was some continuity of use, these buildings might be the precursor of the larger halls that overlay them. Building 8832 contained 28m² and 9289 was probably similar, based on the complete south wall. The posts were quite widely spaced but regular, as were the timbers. Building 9289 had a clear two-post partition and an extra ridge support at the opposite end. Both buildings had opposing inset entrances. These buildings seem to have been a pair, and designed for human occupancy given the entranceways, but they were no bigger than workmen’s houses. If they were replaced by 7500 and 8892, it suggests they may have changed use and perhaps reflect wider changes in the settlement.

Buildings 8892 (Phase 2.2) and 8893 (Phase 2.3) were respectively linked to 7500 and 8892; the former connected by a worn path, the latter built alongside and on the same alignment. Buildings 8892 and 8893 occupied 39m² and 50m² respectively. Building 8892 was precisely laid out and the evidence from the timber marks suggests regular post forms were used. A two-post partition was located off-centre so that one of the posts was directly beneath the axis where it may have supported the ridge. It included a hearth at the opposite end and a small annex built onto the south end. Building 8893 was less complete in plan, the post-holes were shallower and the few post forms showed more variation. There was no clear partition although a scoop, or worn area, in the north-west corner would suggest that there was at least one area with a separate function. There was an inset entrance on the south side but evidence for the north wall was lacking. There was no evidence for a hearth. Both of these buildings were associated with the conspicuous food waste characterising the ‘high status’ area but there is a notable lack of pottery from the distribution plots for this area, which might suggest they were not as utilitarian as the areas to the north and west and were not simply for food preparation, for example. This building was securely phased towards the end of the occupation and it is speculated that it may have been built of reused timbers, which are likely to have been broken or cut close to ground level to remove the rotten stump in their original post-holes; this would explain the shallow settings and possibly the gaps where posts only rested on the surface.

The northern enclosure: monastic buildings?
These buildings (Fig. 12.2) were contained within a fenced enclosure that was kept free of rubbish to the end of the occupation, and much of which was incorporated into cemetery 2. It is suggested that they were part of a core monastic area. This does not preclude other buildings or areas of site from this interpretation; it is simply that we lack the indicators from the built environment to distinguish them.

Building 4670 (Phase 2.2) enclosed 33m². It was precisely laid out with substantial regular timbers and included a two-post partition aligned off-centre so that one of the uprights could support a ridge piece. A possible further subdivision of this end of the building is suggested. There were inset opposing entranceways. No hearth was found but this would have been removed, along with most of the substantial floor of chalk and flint, that was lost when the building was replaced. The straight edge against which the surviving floor abutted in the north-west corner fell inside the line of the posts and could indicate a wall line on the inside of the uprights. A scatter of pebbles linked this building with ‘cell’ building 4531.

Only 14m² in extent, structure 4531 (Phase 2.2) was largely built into a continuous trench but with regular timbers placed in deeper settings. There was no partition, but there was a single post beneath the axis at one end and a doorway on the north side. This building is interpreted as a monastic cell and is discussed in relation to both the cemetery and a particular burial that was found within the building space (Chapter 7, and Section VI below). In summary this building 4531 and its neighbour 4670 lay within an enclosure that was separated by fencing from areas of manufacturing activity. The closest parallels for these buildings and the intricate fencing occur within the monastic enclosure at Hartlepool (Daniels 2007, 53–61). Furthermore, this distinctive area was maintained, albeit with the encroachment of cemetery 2, building(s) 6864 and probable mortuary structure 4669, during Phase 2.3. Seen alongside the material evidence for monasticism at Brandon, much of it found in this area of the site, it seems reasonable to suggest that this was the western limit of a special focus, and separate from those areas engaged in supplying the needs of the community.

Building(s) 6864 (Phase 2.3) is poorly understood; like others on the site it was unclear whether it comprised one or two structures. The total area was 42m² with 23m² at the eastern end and 19m² at the west. The eastern end was precisely laid out and may have had inset opposing entranceways. The western end was less clear with a suggestion of an inset doorway on the south-west side. Two central posts may have separated the two halves. The length to width ratio of 1:2.8 (10.85 x 3.85m) is also unusual. The ratio of length to width is less than 2:1 for most of the buildings of the settlement. Furthermore, there was thin spread of chalk in the eastern half and clay in the western half of the structure (the former may have been the residue from the previous building, however). If these were two structures built separately but providing mutual support, the western half, if not both, were only a little larger than ‘cell’ building 4531.

?Funerary structures
This group comprises structures 4669 (Phase 2.3) and 9012 (Phase 2.2) (Fig. 12.2). The remains of 4669 comprised a rectangle of clay, measuring 3.5 x 2m with no below ground evidence of structure. Stratigraphically it is related to cemetery 2 and it is suggested that it may have had a funerary function, possibly explaining the concentration of children in this area of cemetery (Chapter 7, and Section VI below).

Building 9012 is discussed here because of its proximity to cemetery 1, which it faced. It enclosed 0.20m² and was built with continuous trenching for the side walls with post-holes at the end. There was no partition or hearth and no clear entranceways in the long walls. It is possible that the west end, aside from the crucial central support, was deliberately open in the direction of the cemetery and had a funerary function. We are reminded of the death of Furseby recorded by Bede (HE
Figure 12.2 Building plans
III.19: Colgrave and Mynors 1969, 276–7), where the body was held in the church ‘porch’ for 21 days prior to burial. Although Fursey merited special treatment, a building next to the cemetery to receive the dead prior to burial is possible at Brandon. To qualify this suggestion we should bear in mind the unexcavated area immediately to the east and the partially excavated, but clearly significant, structures to the north to which it may have been related.

Miscellaneous structures
Phase 2.2 buildings 8122 and 9031 (Fig. 12.2) occur on the edge of the site. Building 8122 was located within the stable enclosure that can be traced in relation to building 1391, but from what is visible, although small, it was well laid out and possible a dwelling. Building 9031 was entirely trench-built but large post-holes on the edge of the site may indicate that it was an extension to a larger building similar to church 7098, but on a different alignment.

Discussion of the buildings
The survival of surface deposits and waterlogged material at Brandon has offered a rare chance to identify the functions of what were, in size, quite ordinary buildings; this was not possible at Catholme for example (Hamerow in Losco Bradley and Kinsley 2002, 127). While the functions have been discussed above, an attempt is made here to draw out the distinguishing features of these buildings and to define their significance. This will necessarily involve some discussion of the traditions on which it was drawn.

Building characteristics
All of the buildings were constructed using posts in post-holes either in individual settings or in trenches (the significance of the post-in-trench is further discussed below with particular reference to building 0743). The surviving timbers suggest that the majority were of oak, with the notable exception of barn 1094 where ash was also used in an assortment of poorly finished timbers (Chapter 5.II).

Where the evidence is clear, most of the buildings at Brandon had ‘weak corners’, that is to say they either comprised abutting timbers or, more usually, there was a gap between the last posts in the end and side walls, with no single corner posts (this expression should not be taken literally, it does not imply that the buildings were weak at the corner but simply describes their appearance, clearly substantial corner posts were not a feature of the Anglo-Saxon building tradition. Gardiner prefers the expression ‘chamfered corner’ as it is less pejorative (M. Gardiner pers. comm.). This tradition was widespread and distinguishes Anglo-Saxon timber buildings from Romano-British structures.

Opposing entranceways in the long walls were the norm and all of the buildings thought to house people had inset doorways. This applies to the churches, halls, farmhouses and minor dwellings. It is noteworthy that stable building 1391, which was so well constructed and clearly built to a high standard, lacked the inset entrance, as did the less prestigious agricultural buildings.

Most of the buildings had central supports in the end walls, which comprised an odd number of posts (exceptions were hall 7500 and church 7098 because they had additional entrances at one end). Most of them also had other supports along the central axis. This was a particular feature of the barns with an even spread of posts. There were also primary ridge supports within buildings 2920, 9289 and 4531, and a number of buildings had secondary ridge supports added, thereby identifying a weakness in the buildings: notably 7500, 0734 and possibly 8851. The secondary, internal, ridge supports were harder to identify as they were not earthfast, which is a characteristic of the inserted prop. Planned buttressing seems only to have been a feature of church 7098. Other external supports were added to prop particular buildings. Several were added to 7500 and 4886 and at least one to 0734; each of these included a central side wall support. This was the best location to support a wall plate that was beginning to lean outward. An inserted post into the side wall of building 2921 that was then wedged into place from below by a Roman tile must have responded to a separate weakness, probably that of the upright against which it was built.

There was some variation in the partitions but the ‘two-post’ partition, with the central gap presumably for an entrance into the secluded area, was common. If this area were for sleeping, or a private retreat, it would be consistent with the types of building displaying this feature: houses such as 8137, 2902, and 2924 and workman’s dwellings such as 8131 and probably 2920. Bakeries 8139 and 8138 were similar, however, and these are unlikely to have been lived in. Other buildings displaying this feature were higher status such as 0734, 8892 and the more enigmatic 9289 and building 4670. Many buildings lacked the appropriate evidence but this characteristic was absent from the barns, the stable or the churches and hall 7500 (which had an entrance in the end wall). Several of the partitions were built of substantial timbers, such as those in 0734, 8892 and 4670. A further feature of the partitions within 8892 and 4670 was that they were positioned so that one of the uprights was directly beneath the ridge, thereby nullifying the need for a post above the lintel to support a ridge piece.

At Brandon the best evidence for the position of the walls is provided by the formal floors in buildings 4670, 8927 and 4886. The former was founded on large flints that survived in the north-west corner of the building where a sharp edge was defined, set inside the line of post-holes. This would also seem to be the case with structure 8927, where a more widespread clay floor was found, and in 4886 along the waterfront (chalk outside the north wall of this building, and shown on plan, infills part of an earlier ditch and is not considered part of the actual floor). There was no other direct evidence for the make-up of the walls such as concentrations of clay (that cannot be ascribed to a hearth) or uprights for wattles. There were however, the remains of peg-holes found in boards at the waterfront in structures 6339 and 5686, and Darrah has concluded that two distinct methods of joining timber with pegs were used: pairs of peg-holes near the ends of boards, and edge-pegged joints (Chapter 5.II). This evidence is consistent with that recorded in London by Goodburn (1994) where clap-boarding was a recognised walling option. A useful review of the evidence for walls nationally is discussed by Darrah (2007, 57–62).

It has previously been noted that there appears to be no evidence for continuity in the detail of building techniques between the Romano-British and the Anglo-Saxons
clear that the medieval building tradition can make no significant contribution to understanding Early Anglo-Saxon building construction. There is a clear difference between post-hole structures that were built from the ground on site, and prefabricated buildings. That said, the seeds of the tradition of prefabrication are detectable in the Middle Saxon period in part by the precision of the laying out of wall trenches, and the advent of post-in-trench construction.

An important example of this spreading tradition, which has provided evidence for how this may have worked, can be seen in building 0734 (Phase 2.2; Fig. 4.28, Pl. 4.9–4.10), which displays key features that show that prefabricated panels were inserted into pre-dug trenches. In the southern half of the building the eastern wall post positions were set fairly central to the trench but are on a slightly differing alignment. This slight misalignment is continued in the northern half of the building where the posts were pressed tight against the inner face of the trench. The opposing north side of the west wall reveals similar phenomena with the post positions even inset slightly from the post-trench, having required an extra spadeful or two of sand to be extracted. From this it is clear that the trenches had been dug first to accommodate uprights that had been prefabricated into a wall plate on the surface, and that the trenches needed further adjustment when it came to inserting the timbering. In the case of the northern half of the building the adjustment of both wall trenches may also be taken as evidence that tie beams had also been cut to size, fixing the width of the building on the surface, although this is less certain. It was also noteworthy that the side trenches varied by only a few centimetres in depth, which is also commensurate with pre-cut uprights as suggested to be a requirement by Darrah (2007).

Interestingly, measurements taken across the building between the uprights indicate that the width of the building varied between the north and south ends, confirming that the wall plates were independent either side of the central, opposing, doorways. Given the prefabrication of the wall panels that we can confidently suggest for the long walls, it is also interesting to observe that the south wall held individual post settings. This surely indicates that the short walls were not as fundamental to the integrity of the building as the long walls and that posts were inserted one at a time rather than as a unit, otherwise it would surely have been simpler to place them within a single trench. This building was also characterised by the extravagant use of wood. The prefabrication of structures can be seen also at Yeaverling, with buildings A2 and A4, and forms one of the characteristics of high-status construction in Anglo-Saxon England (Smith 1982, 14–15; Gautier 2006, 142).

If the sophisticated carpentry of the Roman period could have been lost so completely during the 5th–6th centuries, how much easier must it have been to replace these less sophisticated buildings with long-lasting structures requiring less wood in the medieval tradition. Goodburn has noted that managed oak was being used by the Romans in the 4th century, identified because of the small diameter quick grown trees that were being used, but that by AD 890 the evidence is for ‘wildwood’ trees that were larger and slow grown (Goodburn 1999). This evidence is supported by the analysis of the timbers from Brandon where Darrah has concluded that the slow growth rate of the majority of the timber suggests that it
came from a dense woodland resource (Chapter 5.II). Wood probably became a more valuable resource by the Late Saxon period and woodland management was well established in the medieval period (Rackham 2001). Medieval buildings share more features with the Roman building tradition, than with the Early Anglo-Saxon structures. The evidence from Brandon and other sites with post-in-trench construction suggest that a measure of prefabrication was developing during the Middle Saxon period, which provided the springboard for the adoption of more sophisticated carpentry during the medieval period. However, details from the surviving medieval tradition cannot readily be traced back into the post-in-trench period, an obvious difference being the distribution of solid timber along the length of the side walls rather than a concentration on key posts, for example. Beyond this of course there is a gap in the archaeological record with the disappearance of below-ground archaeology.

Having distanced Brandon from the medieval tradition, it is proposed that most of the buildings had a ridge piece that ran the length of the building and that earthfast posts supported four separate wall plates running either side of the opposing entranceways in the long walls. While the use of tie beams in 'reverse assemblage' (wall plates sitting above tie beams) has been reasonably demonstrated for sites where the side walls were not straight and where they would be required to support wall plates (Dixon 2002; Lucy et al. 2009a). It is suggested that with the possible exception of early buildings 8125 and 8127 (Phase 1.1) the alignment of post-holes at Brandon was very good and therefore reverse assemblage had probably been replaced by normal assemblage.

It is argued that earthfast posts were only of use to aid construction (Dixon 2002), but there is no doubt that in most cases the depth at which the post-holes were set at Brandon would have given considerable support to a building before they rotted, and tie beams without angled braces would have been susceptible to lateral pressure without adequate bracing. The post-holes for hall building 8893 were set very shallow, however, and could not have been earthfast, which would suggest that tie beams and other unidentified timbers provided the principal support. Darrah has observed in Chapter 5 that there were no wedges beneath the upright wall posts at Brandon (with the single exception of building 2921, Phase 2.3); this might be expected if the walls were complete panels because it would be difficult to dig all the holes and trenches and align all the uprights to precisely the same depth otherwise. The conclusion would seem to be that the trenches were an aid to construction, holding the building while the timbers were finished. Perhaps the walls from hall 8893 (Phase 2.3) were re-used as semi-complete units from other buildings, which has also been tentatively suggested for church 8851 when replacing church 7098. This would seem possible given the evidence from building 0734 above.

Whether tie beams provided all of the strength to the walls once they were up, or the earthfast uprights continued to give additional strength without angled braces and good joints, the buildings would still have been vulnerable to the effects of torsion over time and there is evidence for this at Brandon. The limitations of Anglo-Saxon joints are discussed by Darrah (2007).

The existence of gable-end wall plates is less certain because they were not required to support principal rafters unless the building had a hipped roof. They are, however, proposed for the church discussed below and may have been a common feature of the better buildings. Overlapping wall plates at the corners of buildings might offer an explanation for the absence of corner posts, because of the problems that this would pose in jointing the two wall plates and the upright. Similarly, ground beams into which upright wall posts were pegged, or ground beams with slots, would have made it easier to create corners without single corner posts (Darrah 2007; Goodburn 1994) or there may have been a more widespread use of clapboarding in the better buildings (planks lying horizontally), set inside the line of the post-holes.

In the case of clapboarding where the boards from the end and side walls were joined this could have been achieved by simple lap joints (as illustrated by Goodburn 1994) or they could have been pegged, perhaps end on, for which there is evidence from the Brandon waterfront, although not specifically linked to a structure. Clapboarding would be easier to joint if there were no corner posts. A number of the better buildings were constructed with abutting staves at the corner. This may indicate an alternative housing for the clapboarding from the end and side walls and carpentry may have been made easier as these corner timbers were earthfast. It is interesting that the abutting corner staves in church 7098 were set in four post-holes that were separate to the wall trenches. This can be explained by these post-holes being added after the structural timbers that held the wall plates had been set out and the roof built — they were perhaps part of an inner wall construction and not related to the roof. With the wall line running inside the outer posts it may have run against, or been jointed into, the inset doorframes which are a feature of the houses and better buildings. The extra strength provided by clapboarding might also make wall plates redundant? Dixon has argued that clapboarding was probably not used at Catholme because of the uneven distribution of the outside posts. There is no doubt that vertical planking with wattle-and-daub was a familiar wall building technique and there are several European parallels for this type of walling (Hamorow 2002). There was clear evidence for its use at Cowdery's Down (James et al. 1984) and in London (Malcolm and Bowsher 2003) where collapsed deposits of daub were found with impressions and stakeholes. A possible partition of wattle-and-daub was identified within building 8927 (Phase 2.3) at Brandon and wattle with clay were used on the waterfront. Perhaps clapboarding was the technique of choice among certain groups, used where woodland resources allowed.

The general evidence for additional buttressing across the site implies that the buildings may have begun to fail in a number of ways. Simply, no matter how much wood was used, without proper bracing, when the joints began to fail and the earth-supported posts had rotted, the buildings would need replacing.

A building of particular interest, which should be highlighted, is barn 1094, which had the largest single space on the site. Its width was particularly impressive at 7.5m; despite this it was built of relatively inferior timber. The wall posts were also more widely spaced than was normal. Given the generally poor timber used in this building it seems unlikely that tie beams of 7.5m were used, particularly as they would have stood on walls that
Speculation on the construction of church 7098
The proposed reconstruction of the nave of church 7098 includes the use of a ridge piece running the length of the building. This is specifically supported by the buttress visible at the west end shown in Figure 4.14. Wall plates were directly supported from the uprights set in trenches and the building was joined by an unknown number of tie beams. The apparent corner posts were, in fact, two abutting timbers that were identified with the infill walls of the building, rather than the main wall posts that supported the roof, which was demonstrated on the ground by the separation of the post-holes for the four corners from the wall trenches, and it is suggested that they were added after the wall plates for the main walls had been shaped, but before the roof had been added. The earthfast corner posts could then have been positioned below the level of the wall plate, which was then secured in place.

The buttresses are interpreted as supports for the wall plates with each plate, including those along the gable ends, supported by two posts connected by pegs. This would leave a single, central, buttress post at the west end of the nave. The buttresses seem quite insubstantial and far less useful than angled raking timbers for helping to stop walls from spreading or folding at a weak joint. They are similar, however, to clasped buttresses built in stone that are a feature of Norman churches. The intention for both features appears to have been to transmit pressure to the ground rather than resist it. The outer buttresses are incidentally discussed by Bede in describing the death of bishop Aidan, ‘when he fell ill a tent was erected for him against the west wall of the church...as he drew his last breath he was leaning against a post that strengthened the outer wall’. Following the destruction of the church by fire on two occasions this timber survived and it was noticed that ‘although the flames licked through the very holes of the pms that secure it to the building in a most extraordinary way, they could not destroy the beam’ (HE III.17; Colgrave and Mynors 1969). This is consistent with the evidence for the use of pegs at Brandon (Chapter 5.11) and on other Anglo-Saxon sites such as in the mill at Tamworth (Rahtz and Meeson 1992).

Conclusion
The Brandon buildings follow a tradition that originated on the continent and was different to that which preceded it or that of the medieval period. The use of earthfast posts in construction, the limitations of the jointing and probably the limited amount of bracing available meant that despite the lavish use of wood the buildings were not built to last for much more than a generation. The importance of these buildings was clearly not as a lasting monument to the builder but as an expression of the cultural affiliations and status of the owner while he was alive. While the building techniques were different to what came afterwards in the British Isles, and archaeologists fail to agree on the details, the appearance of the high status Anglo-Saxon hall (and the churches at Brandon) with opposing entranceways was retained in stone in medieval parish churches across the country.

The bridge
There are two basic methods of constructing a wooden bridge. Either piles can be set in bays across its width and then joined by planks, or piles could be linked along the length of the bridge with planking boards laid across. The former method was employed on a large scale on Danish works such as Rovning Engis, Jelling, Jutland (Roesdahl 1982), where a one kilometre bridge over the Vejle and surrounding marsh was built using 5–6m-wide bays spaced at 8ft intervals. At Risby, Denmark, a much smaller bridge, 70m long, was built using bays 2.5m wide with 3.4m between sections. Both these structures date to the 10th century.

The bridge at Brandon was only 9.5m long and between 3m (in the middle) and 3.4m wide, and the woodworking required would certainly have been less than that used on larger structures. It was not built in bays; this is indicated in the way the middle run of piles straddles the two outer rows. Planks laid across the bridge were probably supported on three rows of longitudinal timbers. The various layers from the watercourse, that were contemporary with the bridge, can be seen in section (Fig. 4.78) sealed beneath the medieval causeway, and cutting the peat on the south side.

The Brandon structure was not built to withstand excessive lateral pressure (a strong feature of section-built bridges) and apart from a single post there was no sign of any raking timbers. This reflects the seasonal nature of the flooding and probably the lack of water pressure in what was essentially a backwater. There may have been a gate at the north end of the bridge formed by post-holes 1145, 1151 and the three posts in post-hole 1221. These posts would align with the bank behind the ditches and seem to have no purpose in strengthening the actual structure but may have indicated a formal entrance.

The second causeway that eventually replaced the bridge would have been easier to build and maintain. While activity continued on the site it is reasonable to assume that the main access over the floodplain continued. The piles supporting the bridge were preserved but no trace of the upper timbers was found during excavation. The bridge would appear to have been a prestige feature, replaced by an earthen causeway that was adequate to provide access. The evidence from BRD071 (Chapter 11) confirms that a causeway was extant during the early medieval period and of course the causeway on Staunch Meadow remained as an earthwork until excavated in 1982.

IV. The people and daily life
Excavations at Brandon uncovered not only the detritus of the inhabitant’s daily lives, and the footprints of the buildings they lived and worked in, but also their physical
remains. Whilst much of the rubbish left on the site is probably related to the final phases of occupation, still we have a broad spread of objects dating from the first years of settlement through to its end, and this allows interpretations to be made regarding the clothing people wore and the objects they used on a daily basis. This section provides a summary of the findings based on the human bone analyses (Chapter 7), as well as some discussion of the artefact evidence which is directly related to people’s lives.

Cemetery 1: the population
The Middle Saxon population of Brandon appears to have been fairly unexceptional in comparison with other contemporary groups, at least in terms of demography and physical morphology. The male:female ratio of almost 60:40 is comparable with other contemporary secular and monastic burial groups, although the rather small proportion of juveniles requires some comment. Of the articulated skeletons, twenty-eight were juveniles under the age of 18 years and 116 were adults, only 14.7%. This low proportion can be compared with other Saxon burial groups, for example Ipswich School Street (Mays 1989) where only 16.8% of the inhumations were children and Burgh Castle (Anderson and Birkett 1993) where 17.6% were juvenile.

Stature and cranial morphology was very similar to other contemporary sites in the region, although the Burgh Castle people were markedly taller than the Brandon group, and indeed many other contemporary populations. Percentages of non-metric traits were quite high, perhaps suggesting a relatively small gene pool, although for some traits only very few skulls could be scored thus artificially inflating the figures. Some genetic relationships are tentatively suggested from the presence of the metopic suture when plotted on the plan. This trait has been found to cluster in other burial groups and it seems fairly safe to assume that it is a reasonable indicator of family groupings. Clustering could occur if short-term environmental factors were the cause, but this seems a less plausible explanation, particularly as metopism occurred in all phases of the cemetery.

The dental analysis yielded some ambivalent results. Despite the low frequencies of ante-mortem tooth loss, caries and abscesses, oral hygiene does not appear to have been of a high standard, since the majority of individuals had medium to heavy deposits of calculus on their teeth. This could be explained if it is assumed that caries was the major cause of abscesses and ante-mortem tooth loss, and the low frequency of carious lesions was attributable to a diet low in carbohydrates.

Fairly low frequencies of degenerative disease were seen in this population, perhaps due to better preservation of younger, more robust individuals and loss of diseased joints post-mortem. As with other contemporary populations, however, it was the most common form of pathology to affect the group. Evidence of arthritis, Schmorl’s nodes and osteochondritis dissecans suggests that for at least some of the Brandon population physical stress was a fact of life.

The presence of cribra orbitalia in conjunction with porotic hyperostosis suggests that nutrition was not always at its best in this group, and enamel hypoplasia of the teeth might also be evidence of malnourishment. However, extreme lesions of all these conditions were rare and it seems unlikely that people were badly affected by deficiency diseases in this population.

The types of bone infection noted in this population are commonly seen in other groups. Tibial periostitis may be caused by a number of different factors, including trauma and disease of the soft tissue, so its significance in so many archaeological populations is uncertain. Although there was a possibility of two skeletons having been infected with leprosy, and two with tuberculosis, the evidence for either of these diseases at Brandon was very slim, and other causes for the lesions appear more likely in the cases of Sk. 1917 and Sk. 3095.

A fairly high proportion of traumatic lesions was observed in this group. Although many are attributable to accidental injury, particularly the exostoses and some of the fractures, a few are not. At least one (Sk. 4038) of the three skeletons with unhealed cuts seems to have sustained these lesions before death, and it may be that one of them actually caused his death either directly or indirectly. Violence may also have been the cause of the lesions seen on the skulls of Sk. 4019 and No. 3079, and the left forearms of a number of individuals. One can only guess at the causes of the lesions observed in Sk. 3095. Whether they were inflicted intentionally or accidentally will never be known, but her deformities must have made life even harder than normal in a time when living was far from easy.

As well as evidence of violent behaviour in this group, there is some indication of caring. The possible victim of poliomyelitis (Sk. 1882) must have required a fair amount of nursing during the course of the disease, and some help in adult life also. Sk. 3095 would also have found it difficult to fend for herself.

In general, then, the people from cemetery 1 were normal when compared with other groups in the region. Daily life would not have been easy for them, and illness must have been a common occurrence, particularly when it is remembered that the majority of diseases do not affect the skeleton. That they were well adapted to their environment is evident from the fact that most of them lived into middle- or even old age.

Cemetery 2: the population
This is a small part of a clearly very much larger cemetery which seems to have extended over the raised ground to the east of the excavated area. That 64.5% of articulated individuals were children (20 out of 31), and of these 50% were infants, clearly indicates some bias in interments in this area. The cemetery here seems to have a focus in the form of a structure with a clay surface, and it may be that this could be interpreted as a shrine, similar to those proposed at Hartlepool (Daniels 2007) and Whithorn (Hill 1997), where there were also high proportions of young children. The limited evidence of skeletal remains collected in the 19th century from the area to the east suggests a fairly normal population, including roughly equal proportions of men and women. Only a few children were collected, but this is more likely to be due to a bias in 19th-century excavation and bone collection techniques than to any real lack of juveniles in the area.

The group is too small to make any meaningful comparisons with other contemporary groups, although in terms of metrical and morphological characteristics it is within the normal range. In terms of pathology, there is a relatively high proportion of deficiency disease which
Clothing the body

No textiles or mineralised textile remains were recovered from the settlement and any appraisal of clothing is therefore based on the artefacts used to fasten or adorn it. Unlike the Early Anglo-Saxon period, the dress accessories are almost entirely separate from the human remains, making it more difficult to understand precisely how they were worn. Dress accessories form one of the largest categories of material culture to be recovered from the settlement. Excluding the ceramics, a simple count of the quantity of artefacts (using minimum numbers for some fragmentary objects like vessels and excluding structural material and items not identifiable to function or category) provides an overall total of 880 objects. Within that total, dress accessories extend to 328 items, or 37.3% of the total. Copper alloy pins dominate the assemblage, but the category also includes most of the silver objects (excluding the coinage), as well as items of iron, glass, antler and bone.

It is not easy to determine who was wearing these accessories, but there are hints, at least, from the earlier burial record. The coiled one-piece brooches can be viewed as a continuation of forms present in the later part of the Early Anglo-Saxon period and they are restricted there to the graves of adult women. It is hard to understand, at present, exactly how they may have been worn (Walton Rogers 2007, 122). The majority of the types of cast copper alloy and silver pins that dominate the assemblage of dress accessories are not found in burial contexts and most only come into fashion in any numbers around c.AD 720, forming ‘the basic dress-fastener of the mid-Saxon period’ (Hinton 1996, 35). Accordingly, it is difficult to assign them unequivocally to a specific gender, although most copper alloy pins found in Early Anglo-Saxon graves are associated with women’s burials (Walton Rogers 2007, 126; Stoodley 1999, 34). Hinton has suggested that spiral-headed pins may have been worn by women (Hinton 1996, 30) and grave finds indicate that this was the case also for hooked tags (Geake 1997, 66). Equally, it should not be assumed that copper alloy and silver pins were worn exclusively by women (Rogers et al. 2009, 41). Buckles were worn by both males and females, although some forms are particular to a specific sex, and they include type II.22a buckles, one example of which (s9745) came from Brandon (Marzinik 2003, 69–70); this type is largely associated with males.

There are few glass beads from Brandon and at least one of them appears to be of Iron Age date. Evison has stressed that some of the remainder belong to the Early Anglo-Saxon period, although there are also a small number of beads of a specific Middle Saxon cylindrical form that utilises unmarrved yellow trails. There are almost equal numbers of polychrome and monochrome glass beads and that tends to endorse their Early Anglo-Saxon origins; monochrome beads are more common than polychrome beads on Middle Saxon settlements like Hamwic and Wharram Percy (Riddler 2012). Nonetheless, some bead forms may have continued in use into the Middle Saxon period. The segmented cylindrical bead, for example (s5253), belongs to a type that occurs during the Roman period and is also found in Early Anglo-Saxon graves. The type is defined as constricted segmented by Brugmann (2004, 75), who notes that they mainly occur in her phase A2 (late 5th to late 6th century), although they are known in both earlier and later contexts. They do continue, however, into the Middle Saxon period, with examples from Brandon, Jarrow, Wharram Percy and Ribe (Riddler 2012; Cramp 2006, 259; Sode 2004, 97 and fig. 13). The quantity of glass beads in graves was already declining across the 7th century and it is not surprising, therefore, that there are few from Middle Saxon settlements. They are firmly associated with women in burial contexts (Stoodley 1999, 35). At Jarrow, single glass beads were found in some of the graves (Cramp 2006, 259–60) but there are no examples of this practice from burial contexts at Brandon.

Walton Rogers’ analysis of the objects associated with textile working (Chapter 9.IX) has provided an insight into the types of cloth being produced at the site, which included both linen and wool, possibly with a bias toward the former. A small weaving tablet indicates that fine girdles were being woven, presumably for use with some of the strap ends mentioned above; tablet weaves also formed the borders of garments (Walton Rogers 2007, 89–98). Palaeobotanical evidence shows the presence of several dye plants which would have produced a basic range of blue, brown, yellow and orange clothing, as well as some red, although the latter may only have been used for trimmings.

Without the detailed evidence available for the Early Anglo-Saxon period from the distribution of grave goods and mineral preservation of textiles, the reconstruction of dress in the Middle Saxon period is necessarily more limited in scope. However, the Brandon artefacts contribute to the picture of the range of items available to the people of Middle Saxon East Anglia, and provide a picture, albeit somewhat blurred, of the kinds of clothes and textiles they might have chosen to wear, and the types of ornamentation they preferred.

Everyday objects

The people of Brandon lived and worked in timber-built halls and workshops, and worshipped in a timber church. Whilst study of the building footprints has suggested that some of the structures may have been quite simple, there is other evidence which suggests that living conditions were far from basic. The structurally unnecessary buttressing of the first church, together with the presence of coloured window glass, may indicate a level of ornamentation which could rival the Norwegian stave kirks, and the evidence from textile manufacturing objects suggests that wall hangings and tapestries may have been made on the looms utilised in the settlement. The dull browns, greys and greens so much in evidence at the Early Anglo-Saxon settlement reconstruction of West Stow, for example, may provide a slightly misleading picture — colour was probably a much greater part of Saxon life than we might imagine, certainly amongst the higher status buildings.

Many of the objects found broken and discarded on the middens of the final phase were in general use across the settlement. The Ipswich Ware pottery, which formed such a huge part of the finds assemblage, represents only some of the vessels which would have been used by the inhabitants through the life of the settlement. Based on total weight of the Ipswich Ware sherd recovered, and assuming an average weight for a medium-sized jar of around 800g, this suggests a minimum of c.800 vessels.
were present in the collected material — of course many of the vessels were largely incomplete, their sherds likely dispersed across open fields, and the true total number used by the settlement would therefore have been well in excess of this figure. However, based on the number of households apparently inhabiting the settlement at any one time (perhaps a maximum of eight in any one phase?), this does suggest that the consumption of pottery vessels per household was relatively high. Add to this the wide range of wooden vessels which must also have been in use — plus the range of glass cups and occasional leather vessel and metal cauldron, bowl or cup — and it can be suggested that these households were far from poorly provisioned. This suggests that, at the very minimum, there must have been shelves and chests, or possibly cupboards, for storing these vessels and their contents, in most of the buildings. Potentially the areas partitioned within some of the buildings could have been used as walk-in cupboards or larders.

The range of pottery vessels was relatively limited. However, simple ‘jars’ can be multi-functional, being employed in cookery, food and liquid storage, and food consumption. Within households, some smaller jars could have been used for lighting (very few actual lamps were identified), and larger ones might have held charcoal for use as braziers, and almost certainly some jars would have been used as urinals or chamber pots. Other uses were probably related to the dyeing industry at the waterfront, several pots having been found to contain the residues of dyes, and there were probably other industrial uses which are not visible to us.

Household implements represent 18.8% of the finds assemblage. As well as vessels, Brandon yielded some evidence of household utensils including spoons, spatulae and knives, and the unusual combined spoon/fork. Whilst most of these probably served domestic purposes, clearly the knives are multi-functional and could equally have been used in the industrial areas, whilst the spoon/fork has been suggested to have ecclesiastical links (Chapter 6.VIII).

The presence of keys, locks and padlocks on the site indicates that there was some concern for security amongst the occupants of the settlement. Some of the fixed locks are likely to have been used to fasten doors, and presumably the padlocks (which are much more common) were most useful for securing chests. Smaller casket keys were also identified. Fittings from chests were recovered from several parts of the site, as well as from graves where they had apparently been employed (or re-employed) as coffins.

Objects related to personal hygiene include tweezers, an ear-scoop and combs, although the ear-scoop may pre-date the Middle Saxon settlement. Approximately twenty combs were present in the assemblage, most with some form of decoration, an important consideration when the most common form of double-sided composite comb in East Anglia in the preceding period was entirely undecorated (Duncan and Ridler 2011, 98). Evidence from graves suggests that tweezers were largely used by men, but they are likely to have had similar functions to today. That this site produced so many, compared with other contemporary sites, may say something about the status (and conceit) of the male population.

Although apparently discarded amongst the scrap metal, the presence of three sword hilts in the assemblage is testament to the status of men at this site, and the presence of individuals of high status (Chapter 8.VI). Swords are relatively uncommon finds in the Early Anglo-Saxon graves of the region, only four being found amongst the 426 graves at Eriswell, for example (Caruth and Anderson 2005). Swords, seaxes and axes indicate particularly high status individuals in the Early Anglo-Saxon burial record (Härke 1992, 156–9). Spearheads, on the other hand, occur in the majority of male graves at Eriswell and must have been widely available, but few definite examples were found at Brandon. A possible seax may have been used in hunting. Seaxes are comparatively rare finds within Early Anglo-Saxon burials and are almost unknown from Middle Saxon settlement sites (Chapter 8.VI).

V. Economy, tribute, manufacture and trade

The waterfront manufacturing complex

The characteristics shared by the fenced enclosures that were built onto the peat suggested that a single craft was represented amongst the features excavated on the waterfront, and the recovery of organic waste has confirmed that this was the manufacture and preparation of cloth. Samples from several discrete patches of red fibrous material spread over the peat have been identified as ‘scutching’ waste or flax stems from which the fibre for making cloth has been extracted (Chapter 10.V). Supporting evidence includes flax and hemp seeds and both plants are also represented in the pollen record, as are a range of dye plants (Chapter 10.VI). Direct evidence of dyeing is provided by a number of Ipswich Ware pots stained purple with ‘madder’ dye found close to the island edge (Chapter 9.IX). A tooth from a probable heckle comb was found. Wooden artefacts have less specific uses, such as the bucket staves, but their location within the stratigraphy of these features strongly suggests that they represent a part of the same picture. A range of implements associated with spinning and weaving (Chapter 9.IX) were also found, although these are ubiquitous on Anglo-Saxon sites. On this basis it may be possible to look at the features which fronted onto this industrial area and consider their likely association.

Flax and hemp

The process involved in the preparation of flax (Linum usitatissimum) and hemp (Cannabis sativa) for the production of fibre to make anything from fine linen to coarse rope was virtually the same. Seeds were sown in April and took about 13–14 weeks to mature. The plants were pulled whole and the seeds were removed. These were historically used for animal fodder, human consumption or crushed for the oil (their particular use in the Anglo-Saxon economy is unknown). The plants were then ‘retted’ to separate the fibre from the coarse stem, either by laying on wet grass for 4–6 weeks or soaking in pits which took 4–6 days (pit 0045 may have been one of a number dug for this purpose but the evidence is uncertain, others may have existed beyond the excavation). The retted plants were then dried either in kilns or hung in drying sheds. The stems were then broken, which was demanding work probably done with mallets or pounders (Chapter 9.IX) against a block or hard surface. The fibres were partly cleaned and separated by ‘scutching’ whereby they were beaten using a swingle tree or scutcher
causeway was built over the peat towards the river; this structure was cut-off by discharge material and a charcoal, ashy deposits, sand and fragmentary clay waste products in and around the structures that included evidence of erosion and deposition and the accumulated could be directed into the run-off channels. There was also process. This was made clear by the positioning of the had evidence for an outlet channel. Liquid was part of thesimply fine layers of charcoal. Structures 8136, 6162 andrested. The blocks within the enclosures had all beenblock these structures may have sufficed, although theycould equally well be the bases on which raised blockspositioned at the head of a gully, which points towards good drainage as a key feature.

The draining seems particularly pertinent with structures 5776 and 8136 where the evidence for controlled discharge into a gully is compelling. Bleaching leaves little trace, apart from the charcoal and ash deposited in suspension. Possible evidence for dyeing included dense concentrations of elder seeds (Sambucus nigra) on the peat surface. There are two main possible uses of elderberries. Either the juice was being expressed for production of wine or other beverages, or it was being used as a dye. Murphy and Fryer suggest that ‘in view of the evidence for textile production in this area of the site, interpretation of these elder seed deposits as waste residues from dyeing seems plausible’ (Chapter 10.V) but Walton Rogers writes ‘elderberries make an unreliable dye and, although there are second-hand sources which claim their use in antiquity as a dyestuff, there is as yet no scientific evidence to support this (Chapter 9.IX). Elderberry colorant is easily detected analytically, but it has never been encountered in some 450 analyses carried out on early medieval textiles, of which 111 come from Early and 92 from Late Anglo-Saxon England (Walton Rogers 2007). Dyeing was almost certainly carried out in this area and analysis of purple staining on the inner face of potsherds which has been identified as madder Rubia tinctorum. No elderberry colorant was detected. There is, however, also macrofossil evidence for Reseda luteola (dyer’s rocket that gives a brilliant fast yellow dye; Grigson 1958, 68) which occurred in several contexts (Chapter 10.V). There is a contrast between the nature of the evidence for linen and wool production from Flixborough (Evans and Loveluck 2007) and Brandon, the evidence from the former being particularly prolific in objects including wool comb teeth while the latter includes waterfront evidence for processing, but taken as a whole the evidence from both sites suggests these activities were significant on both settlements.

External features
Moving back from the island edge, it seems reasonable to assume that many of the features were related in some way. The juxtaposition of fence line 8149, shed 8148, and well built structure 4886 and numerous ungrouped post-holes should be considered in this light. Apart from the heating of liquid, retted flax could be dried in kilns and there were two, successive, domed ovens within buildings 8139 (Phase 2.2) and 8138 (Phase 2.3). These have been interpreted as bakeries but the ovens may have been multi-functional. They were larger than 5249 and 5443, which were sited at either end of the waterfront. It should be remembered that there is good evidence for smithing

(typically a flat narrow piece of wood). The final part of these operations was ‘heckling’ in which the fibre was pulled through a ‘heckling comb’ of vertical nails set in wood. This process was also more easily carried out on a raised surface. Historically heckling combs could also be used for separating wool although traditionally those used for the latter were hand-held, and whether there was any crossover in Anglo-Saxon times is unknown. The fibre was then ready for spinning and weaving (Evans, N. 1985; Walton Rogers 2007). There is a third stage in the process before dyeing — bleaching, which by its nature leaves little archaeological evidence. This process could start before weaving (Markham 1683) and involved the repeated washing of yarn. The yarn could be bleached using bran but the best results required fine ash in warm water. Layers of yarn and ash were built up in a tub; the solution was repeatedly drained, re-heated and applied to the yarn. After a final rinse the yarn was hung on poles to stretch and dry. After weaving this process was repeated although the stretching occurred on open ground where the cloth was staked out. This process described here in a post-medieval, but pre-industrial, context could take six weeks or longer. The application of dyes involved a similar process: Reseda luteola, one of several dyeplants identified on the waterfront (Chapter 10.V), was mixed with a mordant to fix the dye before it was boiled in solution and applied to wool (Walton Rogers 2007) and perhaps linen. The spinning, weaving and further preparation were almost certainly carried out within buildings (Chapter 9.IX) and so it is the primary processes to which we turn to explain the physical remains from the waterfront.

The development of the main waterfront structures began with three fenced enclosures 8115, 4114 (6162) and 8136; the later structures revealed similar characteristics to varying degrees. Evidence for wailing was mostly confined to the remains of wattles although in the second phase of 8115 the wall was supported by clay; this was the only evidence that an enclosure might have been watertight, however. It seems more likely that they represented a storage and working area separated from the peat. The inner blocks were all very solid with clay reinforced with flint and, in several cases, Roman tile. That these structures were probably used as hard surfaces for the latter were hand-held, and whether there was any these operations was ‘heckling’ in which the fibre was pulled through a ‘heckling comb’ of vertical nails set in wood. This process was also more easily carried out on a raised surface. Historically heckling combs could also be used for separating wool although traditionally those used for the latter were hand-held, and whether there was any crossover in Anglo-Saxon times is unknown. The fibre was then ready for spinning and weaving (Evans, N. 1985; Walton Rogers 2007). There is a third stage in the process before dyeing — bleaching, which by its nature leaves little archaeological evidence. This process could start before weaving (Markham 1683) and involved the repeated washing of yarn. The yarn could be bleached using bran but the best results required fine ash in warm water. Layers of yarn and ash were built up in a tub; the solution was repeatedly drained, re-heated and applied to the yarn. After a final rinse the yarn was hung on poles to stretch and dry. After weaving this process was repeated although the stretching occurred on open ground where the cloth was staked out. This process described here in a post-medieval, but pre-industrial, context could take six weeks or longer. The application of dyes involved a similar process: Reseda luteola, one of several dyeplants identified on the waterfront (Chapter 10.V), was mixed with a mordant to fix the dye before it was boiled in solution and applied to wool (Walton Rogers 2007) and perhaps linen. The spinning, weaving and further preparation were almost certainly carried out within buildings (Chapter 9.IX) and so it is the primary processes to which we turn to explain the physical remains from the waterfront.

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The draining seems particularly pertinent with structures 5776 and 8136 where the evidence for controlled discharge into a gully is compelling. Bleaching leaves little trace, apart from the charcoal and ash deposited in suspension. Possible evidence for dyeing included dense concentrations of elder seeds (Sambucus nigra) on the peat surface. There are two main possible uses of elderberries. Either the juice was being expressed for production of wine or other beverages, or it was being used as a dye. Murphy and Fryer suggest that ‘in view of the evidence for textile production in this area of the site, interpretation of these elder seed deposits as waste residues from dyeing seems plausible’ (Chapter 10.V) but Walton Rogers writes ‘elderberries make an unreliable dye and, although there are second-hand sources which claim their use in antiquity as a dyestuff, there is as yet no scientific evidence to support this (Chapter 9.IX). Elderberry colorant is easily detected analytically, but it has never been encountered in some 450 analyses carried out on early medieval textiles, of which 111 come from Early and 92 from Late Anglo-Saxon England (Walton Rogers 2007). Dyeing was almost certainly carried out in this area and analysis of purple staining on the inner face of potsherds which has been identified as madder Rubia tinctorum. No elderberry colorant was detected. There is, however, also macrofossil evidence for Reseda luteola (dyer’s rocket that gives a brilliant fast yellow dye; Grigson 1958, 68) which occurred in several contexts (Chapter 10.V). There is a contrast between the nature of the evidence for linen and wool production from Flixborough (Evans and Loveluck 2007) and Brandon, the evidence from the former being particularly prolific in objects including wool comb teeth while the latter includes waterfront evidence for processing, but taken as a whole the evidence from both sites suggests these activities were significant on both settlements.

External features
Moving back from the island edge, it seems reasonable to assume that many of the features were related in some way. The juxtaposition of fence line 8149, shed 8148, and well built structure 4886 and numerous ungrouped post-holes should be considered in this light. Apart from the heating of liquid, retted flax could be dried in kilns and there were two, successive, domed ovens within buildings 8139 (Phase 2.2) and 8138 (Phase 2.3). These have been interpreted as bakeries but the ovens may have been multi-functional. They were larger than 5249 and 5443, which were sited at either end of the waterfront. It should be remembered that there is good evidence for smithing
and bone working towards the waterfront and it may have accommodated other craft activities suitable to a craft-working area of the site. Antler/bone working and iron smithing are closely inter-related crafts and they are commonly found in close proximity.

Flax retting was smelly and polluting; medieval laws tried to restrict this activity so as not to foul drinking water (Evans 1985) and primary processing was normally carried out away from habitation. The same can be said for bone and horn working. Evidence for the formation of ‘dark earth’ at Brandon shows that rubbish accumulated in many parts of the site and we may assume a level of indifference to smell. It may not be coincidental, however, that the site is downstream of the settlement. It is also noticeable that this area was separated off from the enclosures to the south in various ways: building 8139 was partly enclosed on the east by fence 8160 and later by 8154 and fences and ditches enclosed buildings 4670 (Phase 2.2) and 6864 (Phase 2.3).

Although this area appears solely industrial, the quality of building 4886 stands out (see building discussion above). This seems unlikely to have been a simple craftsmen’s hut, but may indicate higher status involvement in the waterfront activity. Could this be where an industry traditionally associated with women was run by aristocratic women independently or as part of a double house monastic community?

Chronology
Flax/hemp processing and cloth making were subsistence activities on most Anglo-Saxon sites (Walton Rogers 2007) and this is supported by the finds evidence from Brandon. The waterfront structures make a very sudden appearance, however. Two sceattas, sf5103 and sf5104, from destruction layer 8155, which appeared directly before all three of the primary structures, provide a *terminus post quem* for the start of this change. Allowing for a gap between minting and loss the layer in which the coins were found is dated somewhere in the 720s or later (Chapter 9.II). The longevity of the features is harder to gauge. They seem to have developed in parallel and it is suggested that more than one functioned at a time. The peninsulas were raised up with dumped sand as well as discharge material and through time they seem to have developed in parallel and it is possible for some animals to be grazed on the island itself, immediately to the south of the settlements of Phases 1.1–1.2. The analysis of the surface rubbish heaps has shown that the bulk of these are likely to belong to the later phases of occupation and, by this time, the highly developed site had become a focus for produce from a wide area. This is likely to have included goods brought to the site as rents or tribute and possibly traded. The bulk of the animal bone assemblage was probably sourced locally although as a possible estate centre, whether monastic or secular, landholdings may have extended a considerable distance from the site (Cramp 2006). A small quantity of marine fish and mammals were recovered, indicating wider contacts.

Crabtree has noted in her analysis of the faunal remains (Chapter 10.II) that the largest quantity of bones were those of mature male sheep, which is interpreted as evidence that they were being reared primarily for wool rather than meat, although the pattern of waste shows that mutton was consumed and discarded alongside the main halls (Phase 2.3). There were other more general heaps containing sheep bones and a very strong background spread, which probably shows their long term importance for the economy of the site with bones from earlier phases being widely scattered.

The second most common remains were of cattle (this is the reverse of the results from Flixborough; Dobney et al. 2007). The distribution pattern reveals a marked focus towards the later buildings in the halls area with less of a background spread than with the sheep bones (the narrower distribution of cattle bones may be evidence that they became more prominent later in the life of the settlements and so had not spread so far). Given the recovery of glass inkswells from the site (Chapter 8.IV) we must assume that vellum, made of calf skin, was used as a writing medium, and large quantities would have been required (Cramp 2006, 341) although whether this was prepared at Brandon or imported as a finished product is unknown. Crabtree also notes that, relative to the number of bones collected, cattle bones represent more meat than those of sheep, which are much smaller animals, and the ratio may have been as much as 10:1. The difference between Brandon and Flixborough in the ratio of sheep to
cattle bones is almost certainly a reflection of animal husbandry in the hinterland of these two sites from where the bulk of their resources were probably drawn, the dry sandy Breckland providing more suitable pasture for sheep than for cattle.

Pig formed a much smaller proportion of the bones recovered than either cattle or sheep and it is suggested that the collection may have included a high proportion of piglets selected for eating. This is in contrast to the huge collection of pig bones recovered from the Middle Saxon complex at Wicken Bonhunt in Essex, although the large animal bone collection was retrieved from the very limited excavation of major boundary ditches around the settlement.

Horses provided a relatively small component of the bone collection and these are represented by both immature and old animals. Of particular significance was a probable foundation deposit discovered in the door pit leading to the chancel of church 7098 (Chapter 4.IV; Chapter 10.II). The distribution pattern of horse bone (Fig. 4.59) shows a concentration close to the high status buildings and, although not as marked as for the cattle, there is a suggestion that they may have been eaten. The consumption of horse meat was against the teachings of the church and so we are left to consider whether this was perhaps a grey area where principle and practice may have diverged. The evidence recovered does not suggest that horse meat contributed significantly to diet. Possibly it was seen as a ritual activity. As Fern (2010, 150) notes ‘finds of special deposits [of horses], both inside and outside settlements, offer a strong case for a ritual dimension and suggest that horse eating was rare precisely because, rather than being mundane, it could be a sacred activity’. At least two of the horseshoes recovered from the site are likely to be of late Middle Saxon date (Chapter 9.IV) and rare structural evidence is provided by building 1391 (Phase 2.2), which is interpreted as a stable with its use by the elite of the community.

It is uncertain to what extent wild animals played a part in the economy of Brandon but deer bones were more common here than at West Stow and Ipswich, and are likely to have been hunted by the elite. A large deposit of metapodia, most of which were of red deer, represent a collection destined for comb manufacture. The rarity of this raw material is indicated by a comparison with Hamwic, where worked deer bones represent just 0.1% of the overall waste assemblage. Other wild animals included badger, hare and otter; presumably all three would have provided skins but there is no evidence to suggest that this was a commercial activity. Similarly the remains of wild birds such as swan, East Anglian crane and bittern are unlikely to have contributed seriously to the economy of the site. Bittern and crane were favourite prey birds for falconry and the discovery of an almost complete skeleton of a peregrine falcon in the middle of a settlement is strong evidence for this activity and adds to the evidence for a wealthy, aristocratic elite. Such birds were highly prized (Chapter 10.II), but were not exclusive to the secular elite. King Aethelberht of Kent wrote to Boniface in Germany to ask him if he could procure a pair of falcons, and on a previous occasion Boniface had sent a hawk and two falcons to King Aethelbald of Mercia (Foot 2006, 243).

The majority of fish bones were of freshwater fish including pike, carp and eels (eels were recovered in quantity during dredging operations of the river in the 1980s), but also perch and trout. Humphrey and Jones have noted that ‘the size of assemblage is unusually large…and until Phase 2.3.1 the assemblage is typical of rural Anglo-Saxon sites’; i.e. with a background level of locally sourced fish (Chapter 10.III). The surprise lies with the presence of cod in the fish assemblage, given that it was not caught or eaten across the majority of the Anglo-Saxon period, and only on rare occasions before the early 11th century (Barrett et al 2004b). There is, however, increasing evidence that cod was consumed at high-status sites, including the monasteries of Brandon, Flixborough and Lyminge, in the Middle Saxon period.

Analysis of the plant macrofossils (Chapter 10.V) has revealed a number of crop plants from both charred remains and wet deposits. Rye was probably the most common cereal because it was the most suitable for cultivation on light, dry, sandy Breckland soils. Other cereals included wheat, oats and hulled barley. Murphy has concluded that from the lack of weed seeds and chaff with the grain, when compared with other regional sites, predominant food crop processing activities on the island were domestic; and that most primary cereal processing waste from threshing and winnowing was discarded elsewhere. An unusual charred sample included malt grist, which is the ground malt used in brewing. This sample also included identifiable grains of barley and smaller quantities of rye and oats. A range of other crop plants included horse bean and pea and fruit stones of plum and apple. Nuts were represented by hazel and a fragment of walnut endocarp, the latter an exotic at the time, and the earliest known post-Roman example from East Anglia (Chapter 10.V).

The presence of lava quern and a few other stone quern fragments on the site can be related to the grinding of grain at this period. Given the small quantities found and the difficulty in dating the highly degraded examples, it is possible that this material was brought to site along with Roman tiles as use for hardcore in structural features (Chapter 9.V). Nonetheless, lava querns are a prominent feature of Middle Saxon sites, with the majority of settlements utilising domestic grinding stones, but with an increasing presence of larger millstones to go alongside the emergence of Middle Saxon mills, as at Northfleet, for example (Hardy et al. 2011).

Manufacturing
A range of products were manufactured at Brandon for domestic use and possibly for trade and these would have grown as the complex nucleated site developed. Many, because of their nature, leave little evidence. Wooden objects only survive under special environments and, although there were waterlogged deposits, only a small amount of the rubbish disposed of at the waterfront was thrown into a wet environment. A probable wooden pot lid is a rare survival, equally part of a spindle-turned cup made on either a pole, or bow powered, lathe. The surviving wooden objects are reasonably judged ‘the tip of the iceberg’ by Morris (Chapter 6.V) and wooden bowls and cups and all kinds of household furniture, including the chests in which some people were buried, would have mostly been manufactured on site.
Copper alloy is far better represented in the record with an abundance of lost or, on occasion, discarded items. Direct evidence of manufacture included two half-finished coiled one piece brooches, and there were several pins without heads which would have been added later, and a number of shafts had file marks, which were presumably evidence of finishing. Thus, although there was little waste material from non-ferrous metalworking, there is some evidence to suggest that at least some of the objects were made on site. In this respect, it is notable that the distribution of the copper alloy pins is centred on the manufacturing area in the north-western part of the site.

There was little direct evidence for antler object manufacture at Brandon, with a single sawn antler tine and a skull with its antlers removed forming the waste material. The absence of antler, however, is the general rule for rural sites of Middle Saxon date (Chapter 8.III, Comb making). It is suggested that what appears to have been an iron knife with a saw blade may have been for inscribing decoration on combs (Chapter 9.X). There is also a substantial collection of metapodia, the majority being red deer but including cattle and horse, in a single context that represents the raw material for bone working, and for the manufacture of bone handled combs in particular. An antler tine was fashioned into an inkwell and adorned with a runic inscription. The grammar of this inscription and the evidence for literacy suggest that this was probably made on the site (Chapter 8.IV). Riddler (Chapter 8.II) suggests that the majority of the bone pins were probably made on site.

There was a small collection of carpentry tools which included a chisel, a wedge and two spoon bits used for making holes in timber. An axe and a hammer cannot be securely dated, although there is no doubt that both tools would have been used on the site.

Analysis of the slag has identified the site of a smithy (building 4491, Phase 2.2) working in the northern part of the site and many of the iron objects were probably being recycled. It is worthy of note here that a sword hilt was identified amongst the slag from this area (Chapter 9.VI; Chapter 8.VI).

Leatherworking must have taken place at some level, although the only evidence is in the form of a handful of awls and the impression of a stamp indented onto lead (sf9799).

There was extensive evidence for textiles with flax preparation, bleaching, dyeing and Rogers has noted that ‘dyes were rarely applied to linen textiles’, suggesting that it may have been woollen cloth that was being coloured. The artefactual remains of both flax and wool combing were limited: only a single possible flax comb tooth and a fragment of wool comb casing and one wool comb tooth with two fragments were identified and it has been concluded that there is ‘no evidence in the Brandon artefacts to indicate large-scale production of wool textiles’ and comparisons are drawn with Flixborough, where large deposits of wool comb teeth were recovered from specific contexts, and York (Chapter 9.IX). The structural evidence from the waterfront is not matched by the limited artefactual remains; however the waterfront industry was buried before the end of settlement, which may have skewed the evidence, and the ironwork was generally in poor condition due to the acidic sand. Notwithstanding the ambiguities over the extent to which the fleeces were finished at Brandon, the preponderance of sheep bones tends to suggest that they were the most significant livestock within the locale at this time and Crabtree concludes that the faunal remains of sheep provide ‘strong circumstantial evidence for commercial wool production’, even if this is not matched by textile production on site. Similar arguments have been made for Middle Saxon Thetford (Crummy 2002; Atkins and Connor 2010).

Trade and exchange
Of the twenty Anglo-Saxon coins from Brandon, sixteen are sceattas and these are concentrated in a narrow date range up to the 750s when Brandon is likely to have been integrated into the general monetary circulation in East Anglia (Chapter 9.II). Metal detectors were widely used during the excavation and although a few coins were undoubtedly taken at night in the early years, this is unlikely to have had a significant impact on the total number of coins recovered. Sites such as Coddenham and Barham have produced more coins, almost exclusively from metal detecting. This is the strongest evidence that Brandon was not a commercial trading centre. It also indicates that arguments suggesting that Middle Saxon Thetford was a market place or trading centre may be a little misplaced (Andrews 1995, 27; Atkins and Connor 2010, 116–7). In this respect the ceramics evidence is particularly important, alongside other components of commodity exchange. Ipswich Ware occurs practically everywhere across Middle Saxon East Anglia and may not be particularly relevant to the discussion; it is noted below. Beyond Ipswich Ware, there is just a single sherd of imported ceramic from Middle Saxon Thetford (Andrews 1995, 103; Blinkhorn 2010, 76). Similarly, at West Fen Road, Ely there were no imported sherds at all, although three sherds were recovered from a small excavation at the Lady Chapel in Ely itself (Blinkhorn 2005, 2011, 71–3). Both Brandon and Flixborough have produced larger quantities of imported wares. Fifty-one sherds from Flixborough came from around fifteen vessels in four different fabrics, but Vince noted that ‘imported pottery was clearly rare and numerically unimportant on the settlement’ (Young and Vince 2009, 364). Seventy-six sherds in four different fabrics were recovered from Brandon (Table 6.1). This sounds reasonably impressive, but it can be compared with 71 sherds from a single and relatively small site at Hamwic, where imported pottery extended to 33% of the Middle Saxon assemblage and where eight pits contained only imported material (Ellis and Andrews 2006, 90, 95 and table 1). Vince (2001, 189) has noted that Flixborough, for all of its artefactual splendour and obvious wealth, shows little sign of being particularly important, alongside other components of currency exchange. Ipswich Ware occurs practically everywhere across Middle Saxon East Anglia and may not be particularly relevant to the discussion; it is noted below. Beyond Ipswich Ware, there is just a single sherd of imported ceramic from Middle Saxon Thetford (Andrews 1995, 103; Blinkhorn 2010, 76). Similarly, at West Fen Road, Ely there were no imported sherds at all, although three sherds were recovered from a small excavation at the Lady Chapel in Ely itself (Blinkhorn 2005, 2011, 71–3). Both Brandon and Flixborough have produced larger quantities of imported wares. Fifty-one sherds from Flixborough came from around fifteen vessels in four different fabrics, but Vince noted that ‘imported pottery was clearly rare and numerically unimportant on the settlement’ (Young and Vince 2009, 364). Seventy-six sherds in four different fabrics were recovered from Brandon (Table 6.1). This sounds reasonably impressive, but it can be compared with 71 sherds from a single and relatively small site at Hamwic, where imported pottery extended to 33% of the Middle Saxon assemblage and where eight pits contained only imported material (Ellis and Andrews 2006, 90, 95 and table 1). Vince (2001, 189) has noted that Flixborough, for all of its artefactual splendour and obvious wealth, shows little sign of being actively involved in trade.

Although much has been made of the topographical isolation of the site as being typical for a monastic site, it may well have been close to the lowest crossing point of the Little Ouse, which automatically would have placed it at a strategic location for product exchange. It is argued that this crossing was a little to the west of the site (Chapter 11.V). Political factors, not least the patronage of the victorious Viking army, may account for the rise of Thetford through the 10th century but its location just five miles up-river from the Brandon crossing may have done it no harm.

It can be difficult to distinguish between products that were brought in from landholdings and estates that may
have been further afield, and goods brought in by trade or exchange. A significant range of material was not sourced locally, however. From sheer volume, the c.24,000 sherds of Ipswich Ware pottery indicate a substantial trading link with the only centre of production for this ware. While evidence from the Fenland Survey suggests other sites may have been well supplied with this pottery (Silvester 1988), the quantities at Brandon are far in excess of anything recovered from other sites nationally, despite extensive excavations — indeed the excavations in Ipswich itself have produced only twice this amount. The distribution of Ipswich Ware on the site shows a concentration away from the halls where food was consumed and towards the utilitarian areas of the site, and there is no evidence to suggest that it was anything more than functional. This can also be said of the imported pottery; the quantities are insufficient to suggest that it represents more than what might have been traded in through Ipswich. Much of the Tating Ware vessel was found to the south of cemetery 2 (Chapter 6.II). However, Tating Ware was just one of a number of imported fabrics found across East Anglia in particular, and although its distribution tends to be restricted to high-status sites, it is no longer regarded as a fabric with liturgical or ecclesiastical associations (Riddler 2012, 151).

Anglo-Saxon glass is best known from grave goods recovered from cemeteries, although it continued in use into the Middle Saxon period, with a continuity of forms as well as an element of innovation. Whole vessels are rare on settlement sites, but the main lines of development can be followed across the 8th and 9th centuries (Evison 2000a, 79–88). There is a high probability that glass was recycled, perhaps by itinerant glass workers or at specialised centres. Evison points out that of the 216 glass fragments, the majority were of globular beakers, bowls and palm cups, all drinking vessels, but that there were far fewer palm cups than globular beakers, in contrast to both Ipswich and Southampton. Evison notes that ‘at Brandon there is a range of the more rare and distinctive colours’ but that these can also be found at Hamwic, Ipswich, Barking, Flixborough and York (Chapter 6.VI). Much of this material was probably the work of English glass blowers but a few fragments were certainly imported, such as a monochrome beaker with moulded bosses for which there is a single comparative fragment from Ipswich, the remainder coming from the Rhineland. The finest of the glass imports are likely to be the inkwells. Examples have only been found at Hamwic, Lurk Lane in Beverley and a fragment from Liège in Belgium and they probably had an insular origin (Chapter 8.IV). There is no evidence for glassworking at the site and these extremely rare inkwells must have been brought in to the settlement. As a specialist item they may have come through a church connection concerned with the establishment of a scriptorium at Brandon. The window glass is also likely to have been imported. The preponderance of colourless glass is unusual among Anglo-Saxon assemblages but its use is supported by documentary evidence. The distribution does not show an interpretable pattern in relation to the known buildings and it may be that the focus of activity was in the unexcavated areas of the site. The quantity of glass is a clear indicator of high status, however, and is another material that must have been gifted to the site or traded in (Chapter 5.III).

The trading links with Ipswich are likely to have been by sea through the Wash, which was only c.30 miles away by water. Further indications of the coastal connection are provided by the mammal, bird and fish bone remains. The former included bones of a diver (a marine bird), a seal and a small whale or dolphin. Cetaceans were occasionally recorded as tributes paid to elites during the Middle Saxon period (Chapter 10.II), and this may have been an exotic import traded in or brought in as a gift. Large numbers have been recorded from Flixborough, which is regarded as a high status site with ecclesiastical connections where this interpretation is developed (Dobney et al. 2007). While Flixborough lies on a major estuary, Brandon was still accessible by boat. It is notable that the smaller cetaceans from Anglo-Saxon England tend to be dolphins, with the porpoise coming into fashion as a culinary item from the 11th century onwards (Riddler forthcoming b). It has been argued that dolphins were actively hunted at Flixborough, but this is debatable, and the Anglo-Saxons generally made use of stranded marine mammals (Riddler forthcoming a).

VI. Religious and funerary aspects

The following section includes a discussion of the findings of the cemetery analyses presented in Chapter 7, a brief discussion on the evidence for literacy and learning at the site, and finally considers the evidence for the monastic nature of the Middle Saxon settlement.

The cemeteries

Cemetery 1

Cemetery 1 appears to have been in existence from the earliest period of settlement on the island. The only features it cut were of Iron Age date, and the quantity of finds from around the graves indicates that little occupation soil had built up before the cemetery was started. Unlike the putative church building, the site of the cemetery was never disturbed by later features. Small quantities of Thetford Ware in its upper levels may indicate that it continued in use into the Late Saxon phase, unless these were intrusive from topsoil.

It seems likely that the area of the cemetery was defined early on, and the lack of space within it resulted in several phases of intercutting graves. This must imply a boundary of some kind, even if archaeologically undetectable. The most likely contenders would appear to be a hedge or a shallow stake fence.

Although there is no surviving evidence of a metalled pathway or track, the very strong edge to the cemetery and the parallel burials beyond the southern boundary would suggest the presence of a trackway running between the causeway and the stable 1391. The western edge may have been similarly constrained by a trackway running from the causeway to building 7098, although this area was less densely occupied and the presence of such a route appears to have had less effect on the western burials.

Alignment of the graves was influenced by landscape features and structures, and changed through the life of the cemetery. The latest phase is the closest to true east–west and may reflect the final phase of the church, particularly as the majority of burials of late date appear to be in the northern half of the cemetery.
A central space with radiating paths can be suggested from the layout of the graves. The paths appear to have been encroached upon by a few burials, perhaps in the later phases. However, several of the skeletons in these areas were disturbed even though they were not cut by later burials. It may be that the shallow depth of burials meant that they were more likely to be uncovered in areas worn away through use as pathways. This is most noticeable in the possible north-eastern pathway where the leg bones of 4009 had been moved out of alignment and the disarticulated skull 4020 was at some distance from any burials. Some of the larger deposits of charnel may represent an attempt to clear some of the bone which was eroding out of these areas. If so, however, it would make little sense to rebury them in the line of the apparent pathway to the south, where large quantities of disarticulated bone were uncovered (1865, 1888).

The central space itself appears large enough to have held a small building, although there is no evidence that any kind of structure existed there. Open areas which contain no burials are a feature of other Middle and Late Saxon cemeteries. At Caister-on-Sea, Norfolk, for example, there was a gap in the Area 4 cemetery which measured approximately 6m by 2.5m (Rodwell 1993, fig. 27). Burials were densely packed to the north and east of this area. This area was in the north-west corner of the cemetery so, unless it represents an early focus, it was not a central area in the sense of the Brandon example. Excavations at the Middle Saxon cemetery site at Sedgeford, Norfolk, revealed a similar-sized gap to the north of the ‘Boneyard’ cemetery, the part of the excavated area with greatest density of burials (SHARP 2012). A possible structure was suggested at the centre of a graveyard at Hamwic, but again nothing survived (Andrews 1997, 203). Perhaps these areas represent no more than a gathering place for bereaved relatives, but the central position at Brandon would seem to suggest that the area was important in some way. No evidence was found for a cross or similar feature, but there is a possibility that the area could have been used for preaching before the construction of the first church. The development of cemeteries independently of churches at this period has been discussed elsewhere (Thomas 1986, 121; Cherryson 2010).

There is evidence for burial in rows from the earliest phase. This is a feature which can be paralleled at several other Middle Saxon sites including Hartlepool (Daniels 2007), Hamwic (Morton 1992, 121–41), Rivenhall (Rodwell and Rodwell 1986, 80–84) and Caister-on-Sea (Rodwell 1993). No grave markers were identified, so the likelihood is that graves were marked by shallow mounds which were simply a result of backfilling and which would probably have disappeared within a few years. This would have allowed grave diggers to identify fresh burials and avoid disturbing them, but would also explain the partial alignment within the early rows of the later burials.

Intercutting of graves is also a common feature of contemporary cemeteries. In general, the practice appears to have been to rein the disturbed remains within the grave, usually around the sides but sometimes above the new burial. However, at least one charnel pit was identified at Brandon, pit 4035 within the possible monastic burial ground (Daniels 2007, 100), and if the sex distribution of the group was more mixed than appears from the sex distribution. Phase 1 also produced the greatest proportion of male burials in one part of the cemetery at Brandon, suggesting that the group was more mixed than appears in view of the poor condition of the earlier skeletons and the high proportion of unsexable individuals, it is probably unwise to attach any great significance to this. It is worth noting that the high proportion of male burials in one part of the cemetery at Hartlepool has been suggested as evidence of a segregated monastic burial ground (Daniels 2007, 100), and if the sex ratio in the early phases at Brandon is a true reflection of the contributing population it could indicate a mixed monastic and lay cemetery (but see discussion on cemetery 2 below). Phase 1 also produced the greatest proportion of child burials of any of the phases, perhaps suggesting that the group was more mixed than appears from the sex distribution.

The palaeopathological study found evidence of many of the common diseases which affect the skeleton,
including osteoarthritis and other degenerative disease, deficiency disease and infections. Three individuals had unhealed wounds and there were several more with evidence of trauma. Although such injuries are not unknown in earlier Saxon groups, they are much more a feature of later urban populations and probably reflect the stresses of a larger population confined to a smaller area. One other possibility for the cause of the unhealed wounds has to be considered. Brandon is very close to Thetford, where the Danes are recorded by the Anglo-Saxon Chronicle as having overwintered in 869–70. Potentially they could have carried out raids on local settlements and perhaps some violent deaths would have resulted from this. Two of the individuals have been assigned to Phase 3 of cemetery 1, and one is in Phase 2. The Phase 2 burial was cut by another grave, but the Phase 3 burials could both be later interments as they were undisturbed.

Outliers to the cemetery are difficult to interpret. Those to the south of the possible trackway appear to be intentionally separated from the main burial ground, although they are on the same alignment. Even if this were determined by an existing feature, it still exhibits an affinity with the main group. In medieval and post-medieval studies, burials outside the churchyard are generally interpreted as suicides, criminals or other undesirables who were denied a Christian burial. At this period there is also the possibility that the individuals were not included in the main cemetery because they, or their relatives, were not Christian, or simply because they belonged to a family group that wished to be buried in a slightly more distant location from the church. Unfortunately most of the southern group were in very poor condition, but they consisted of three unsexed adults, an individual who could not be aged or sexed, and a child of c.6 years. One of them had a pathological condition which had resulted in thickening of the skull and may perhaps have affected him mentally and physically, but the available evidence was too slight to be certain of his or her affliction.

One outlier to the north of the cemetery, skeleton 8000 (middle-aged/old female), is thought to have been disturbed by the digging of ditch 8919. Although a few of the smaller bones appeared to be articulated, notably some of the vertebrae, there is no reason to suggest that the burial was particularly ‘fresh’ when disturbed. None of the limbs were articulated, and it is likely that a shovel-load of sand could easily maintain the integrity of part of the spine. This part of the ditch cut the east end of building 8851, interpreted as the second phase of the church building. It is not, however, possible to say whether the body was upcast from within the chancel, suggesting it was a significant burial, or from a position further east. The latter seems more likely, given the documented disapproval for burial within a church at this period (e.g. Morton 1992, 134).

Given its apparent longevity, perhaps around two centuries, the minimum number of individuals in this cemetery was relatively low and would indicate an average of no more than one burial a year. The palaeodemographic study outlined above (Chapter 7) suggested a low contributing population, too small for the likely number of households in the later phases of the settlement. Even if the cemetery only lasted a century and a half, its contributing population is probably still too low to account for the whole settlement.

**Cemetery 2**

This area appears to form the western extent of a far larger cemetery located over a wide area on the raised ground to the east. The cemetery may originally have extended as far south as the southern part of the enclosure ditch, as human bone was either disturbed during its construction or redeposited over it when it was backfilled. This burial ground is assumed to belong to the medieval chapel which was thought to be located in the raised area, but based on the early date of two of the skeletons, it is possible that the cemetery originated earlier than the documented chapel and was contemporary with cemetery 1 for part of its life. Whether there was a chapel or minster associated with it at this early phase is unknown.

The area excavated included two possible foci for burials. It cannot be proved that early burial 4584 was contained by building 4531, but the possibility cannot be ignored. If the interment, that of an elderly male, was intentionally placed in the building, it is tempting to suggest that it may be an early monastic burial, perhaps a monk placed within his cell. The burials which cut the east end of the building were between the post-holes, which may suggest that some of the timber was still visible. A tantalising glimpse of something similar was found at Rivenhall in the Middle Saxon (Period 4B) cemetery (Rodwell and Rodwell 1986, fig. 57) with several burials cutting or underlying the east wall of a structure. The Rivenhall foundation was filled with a deposit of cream mortar, so it was not the same type of construction. The structure there clearly existed during the life of the cemetery, but its function was uncertain. Burials in the ‘northern group’ at Flixborough were also apparently associated with a building (Geake 2007, 114).

The clay pad to the east and on the same alignment appears to have attracted a number of infant and juvenile burials. It is clear that it was laid during the life of the cemetery, as some burials were sealed by it and at least one was cut through it with an apparent attempt to reinstate the surface. If it were a walled structure, it is difficult to see how it could still have been standing when some of the burials were made, as several appear to cut the edge of the pad or lie very close to it. Those burials which are thought to be late in the sequence appear to respect the east end. It may have been a shrine or oratory. A possible shrine has been suggested at Hartlepool (Daniels 2007), interpreted from the large number of child burials by comparison with a similar concentration near a subsidiary chapel at Whithorn (Hill 1997). There is clearly a concentration of child burials around the clay pad at Brandon, and several showed signs of deficiency disease which may be related to chronic illness, suggesting that their burial here could be intended to fulfil a need to lay them to rest close to a protective influence, such as the shrine of a saint. If the saint were female, this might also attract a higher proportion of female graves to the vicinity.

This area was not as intensively used for burial as cemetery 1. A comparable area of 11m x 6m in that cemetery, the south-west quarter, contained thirty-seven articulated burials and at least thirty-four disarticulated skulls. Although intercutting occurred in cemetery 2, it was generally not so damaging or intrusive on the earlier graves, with the exception of 8613 which was almost completely removed by 4602. This may be due to a much greater area being set aside for this cemetery from the beginning, or it could suggest that cemetery 2 had a much
shorter life and that the burials to the east were much later and simply coincidental. It is tempting to suggest that this cemetery was the more important of the two on the island, and that the later chapel was placed with respect for it, allowing it to continue in use into the medieval period.

The main difference in burial rites between this cemetery and its contemporary to the south is in the almost universal use of coffins. This was originally assumed to be due to a difference in date, but radiocarbon results have proved otherwise. Nor is it the result of differential preservation, as the tumbles of bones which is frequently associated with coffin burials did not occur in cemetery 1, except in those few graves where a coffin stain was present. Perhaps the differences represent the beliefs or wealth of a distinct community, with a monastic or secular association separate from that in cemetery 1.

Learning, literacy and the evidence for a monastery

In attempting to differentiate between the secular and the ecclesiastical across settlements of the Middle Saxon period, artefacts have inevitably played a major, and quite possibly disproportionate, role. There has not always been complete agreement as to which side of the fence individual objects should be placed and, perhaps more importantly, the relevant corpus forms a remarkably small component of any material assemblage. Objects of this category from Brandon amount to just 1.3% of the overall assemblage. Nonetheless, it is still worth examining the question of ecclesiastical artefacts in relation to Staunch Meadow at Brandon, perhaps from a slightly different perspective. In the first instance, it is important to remove several object categories from the discussion. Amongst these are antler and bone spoons. The earlier publication of spoons from Winchester rightly interpreted the majority of that corpus as domestic, with an ivory spoon alone thought to be ecclesiastical (Collins and Kjølbye-Biddle 1979, 389). Spoons are essentially domestic, and the nature of the equipment, however, was more elaborate (Porat et al. 2007). Burials with stylis are extremely rare, both in England and on the Continent. It follows that grave 4269 at the Buttermarket cemetery in Ipswich and dated to the late sixth century, where the stylus and iron knife were also found together. The provision of writing equipment at the waist has long traditions going back to the early Roman period where the equipment, however, was more elaborate (Porat et al. 2007). Burials with stylis are extremely rare, both in England and on the Continent. It follows that grave 4269 at the Buttermarket cemetery could well be the burial of someone from the Continent, or a grave showing continental affiliation, as argued for other burials within that cemetery (Scull 2009, 293). At either event, the stylus from the grave can no longer be unequivocally interpreted as the first in a long line of such Anglo-Saxon implements (Pestell 2004, 41–4). Both in England and on the Continent there is a distinct chronological gap between iron stylis buried in graves and copper alloy stylis found in settlement contexts, one of the earliest of which is the stylus (st2009) from Phase 1.2 at Brandon.

Several other stylis should be removed from an earlier list (Pestell 2004, 43, table 1) because we are dealing here exclusively with those of Middle Saxon date. A clear distinction should be made between Middle and Late Saxon stylis and it should not be assumed that they were the same in form and derive from the same ecclesiastical or secular circumstances. It remains very difficult to assign stylis to the Middle or Late Saxon period from their form alone (Pestell 2009a, 125) and consequently their context is extremely important, as also is their material. The two antler or bone examples from Ipswich are certainly stylis, but they come from contexts of the 11th to 12th century, when stylis in that material came into use for the first time since the Roman period. At the other end of the scale, the single example of a silver stylus, which comes from Flixborough, has been related to the description of a silver stylus sent by the deacon LuL at Mainz to abbess Eaddburg of Minster-in-Thanet, although this was not noted in the Flixborough volumes themselves (Ulmschneider 2000, 70). Michelle Brown has drawn attention to the late medieval practice of utilising a hardpoint, usually a stylus of silver or copper alloy, to produce a lined grid in manuscripts. In Aldhelm’s Riddles the stylus is compared with the action of the plough, in leaving a visible mark on both sides of membrane (Brown 2011, 136).
We know practically nothing of the contexts of styli recovered from metal-detecting, because they are unstratified objects, devoid of context. Whilst Pestell (2004, 41; 2009a, 125 and 130) has emphasised the potential significance of these implements, they are all unstratified and could be of Middle or Late Saxon date. If they are removed from his table and emphasis is placed instead on styli from excavated contexts, it is striking how the ecclesiastical association of styli returns to the fore once again (Table 12.2). This is not to deny either the existence or the importance of styli from metal-detected sites, but it is unwise to place too much significance on them, when we have so few excavated and well-stratified examples with which to compare them, and we know so little about their dating. Moreover, whilst Norfolk and Suffolk have large quantities of metal-detected styli, particularly in an area to the north-east of Ely, they remain a rare commodity elsewhere. A survey of Lincolnshire and Hampshire, for example, could only provide styli from Flixborough (Ulmenschneider 2000, 70–1). It should also be noted that a stylus from Hamwic, previously identified as a double-ended spoon, appears in Table 12.2.

‘Of all the ways in which Christianity altered the lives of Anglo-Saxons, the access it provided to literacy and learning was the most transforming’ (Webster and Backhouse 1991, 79). Styli are interpreted here as indicators of literacy and ‘objects of an essentially monastic activity which may, to some extent, have been disseminated with other attributes of the monastic culture’ (Blair 2005, 209 note 116) and they are accompanied at Brandon by at least six glass inkwells and an antler inkwell, as well as several Runic inscriptions and the celebrated inscribed gold plaque from the site. This represents a small corpus of material, amounting to just eleven objects in total, but the same situation can be seen in contemporary monasteries, where it is the quality, rather than the quantity, of ecclesiastical material that stands out. As Webster has noted, ‘…such objects as the gold evangelist plaque from Brandon or the elegantly inscribed leaden shrine-plate from Flixborough clearly reflect a certain status and sophistication of religious activity commensurate with a centre of significant learning’ (Webster and Backhouse 1991, 79).

A number of inscriptions were also recovered, three in runes and one in Latin. The runic inscriptions include part of an Anglo-Saxon futhorc, or runic alphabet, on the reverse of a silver pin, the personal name Aldred on one arm of a set of silver tweezers, and a small Anglo-Saxon riddle, ‘I grew on a wild beast’, found on an antler inkwell (Chapter 8.IV). The Latin inscription SCS/EVA/N/GE/LI/ST/A/IO/HA/NNIS, ‘St John the Evangelist’ occurs on the gold plaque. Aldred refers presumably to an owner or maker and is written in a serifed script, indicating that the scribe was familiar with Latin characters (Hinton 2005, 97).

Glass is an important commodity in any discussion of secular and ecclesiastical material. Evison (2009, 105–7) has drawn attention to the presence of claw beakers in Middle Saxon contexts and particularly to the separate applied foot of a fragment from Flixborough, which resembles a glass chalice. No feet survive from any of the claw beaker fragments at Brandon unfortunately, and the transformation of the Early Anglo-Saxon claw beaker into the Middle Saxon glass chalice remains a fascinating possibility, yet to be proven archaeologically. Glass inkwells, however, follow the pattern established for the other items described above. In the first instance they are rare, and in the second their distribution is confined to monastic sites, and largely to Beverley and Brandon. In the third instance, there is an example from Hamwic (Evison 2000a, 82). An antler implement from Brandon (sf9879) has been interpreted above as a possible inkwell. The window glass from Brandon has been extensively discussed above by Rosemary Cramp (Chapter 5.III). Middle Saxon window glass is not associated exclusively with monastic sites but an important distinction can be made between colourless glass, found on secular sites, and strongly-coloured glass, associated with monastic foundations (Cramp 2000, 105 and 109). Hamwic is present once again, of course, although mainly for its colourless window glass, with just one strongly coloured fragment (Hunter and Heyworth 1998, 26). Quantity may also be important, with large amounts coming from monastic sites and only a small number of fragments from other settlements. Literally thousands of fragments of vessel and window glass were recovered from 9th-century

<table>
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<tr>
<th>Stylus Location</th>
<th>Copper alloy</th>
<th>Iron</th>
<th>Silver</th>
<th>Reference</th>
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<tr>
<td>Barking</td>
<td>3</td>
<td>2</td>
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<td>Webster and Backhouse 1991, 90</td>
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<td>Brandon</td>
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<td>Caister-on-Sea</td>
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<td>Darling and Gurney 1993, 101</td>
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<td>Canterbury</td>
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<td>Carlton Colville</td>
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<td>Dacre</td>
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<td>Hardy et al 2003, 265–6</td>
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<td>Flixborough</td>
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<td>15</td>
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<td>Hamwic</td>
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<td>Jarrow</td>
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<td>Cramp 2006, 247 and 287</td>
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<td>Whithby</td>
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Table 12.2  Middle Saxon styli from excavated contexts

Note: figures for Jarrow are taken from Cramp 2006, where an iron stylus also occurs, not shown in Pestell 2004, table 1. Pestell (2009a, 130) describes the Canterbury styli as Late Saxon but they come from the Outer Court of St Augustine’s Abbey, where the majority of finds are Middle Saxon, rather than later. The Carlton Colville stylus is a tentative identification.
contexts at San Vincenzo al Volturno (Stevenson 2001; Dell’Acqua and Silva 2001; Hodges et al. 2011, 141–7). Loveluck (2007, 101) has noted that a distinction between Flixborough and northern monastic sites is that the latter possess both smithies for iron working and considerable quantities of lead alloy. Both commodities are present also at Brandon. Crucible fragments for complex non-ferrous metal artefacts were not recovered from the settlement, although they are a notable feature of both Hartlepool and Wharram Percy, as well as the Bayle at Folkestone and Barrow-upon-Humber (Loveluck 2007, 101; Cramp and Daniels 1987; Daniels 2007, 127; Bayley 1992, 59–65). Given that the Bayle at Folkestone is a monastic site in southern England (K. Parfitt, pers. comm.) the distribution is no longer restricted to northern England. The overall distribution of ceramic moulds in Middle Saxon England is an intriguing one (Table 12.3).

For other rare forms of implement, distributions are suggestive although their interpretation is not immediately obvious. Middle Saxon antler and bone stamps were almost certainly used on leather, rather than ceramics. Stamps with complex designs are known from Jarrow and Swanley (the latter made of copper alloy), with simpler examples, mainly of antler, coming from the Outer Court at Canterbury, Hamwic and Hartlepool (Riddler forthcoming c). The lead alloy pad from Brandon

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<tr>
<th>Site</th>
<th>Fork and spoon</th>
<th>Window glass</th>
<th>Whitby-type ware</th>
<th>Inkwells</th>
<th>Ceramic moulds</th>
<th>Stratified styli</th>
<th>Cross brooches or mounts</th>
<th>Insular material</th>
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Note: the potential significance of Whitby-type ware is discussed in Riddler 2012

Table 12.3 Middle Saxon object categories indicative of monastic activity

382
A telling comparison can also be made with the material culture of the early medieval monastery of San Vincenzo al Volturno. There is no doubt that this is an extremely important monastery, with a closely-dated archaeological sequence, particularly for San Vincenzo Maggiore (Hodges et al. 2011). Yet its percentage of ecclesiastical small finds is smaller even than that for Brandon, and there are no styli at all from the site. The principal objects that can be claimed to be overtly ecclesiastical are a small number of copper alloy mounts from book covers. At the same time, the site has all the attributes of a monastery, and it positively abounds in literacy, with a huge number of inscriptions recovered from both San Vincenzo Maggiore and San Vincenzo Minore. Its monastic character is defined, above all, from the decoration and adornment of its structures, and not in its material culture. With that in mind, it is important to give proper credence to ecclesiastical material culture but, for the Middle Saxon period at least, its absence in particular phases does not necessarily mean that a site is secular at that point, particularly when we so rarely find the decoration and adornment of structures that so readily defines their character.

VII. The nature and changing character of the settlement

Christopher Loveluck has examined many of the difficulties and pitfalls in reaching an interpretation of sites such as Brandon in his work on Flixborough, which shares exceptional preservation and material wealth, while also lacking a documentary narrative (Loveluck 2007; cf Blair 2011). Textually-led interpretations are viewed from the standpoint of churchmen, and excavation work has sometimes also shown a bias towards church sites and where a number of writers have tried to define the characteristics to look for in a monasterii (Cambridge and Rollason 1995; Foot 1990b and 1992), it is difficult to identify those which might pertain to a wealthy secular site (Loveluck 2007, 144–7). Such monastic characteristics include the quality of metalwork, evidence for literacy, axial alignment of buildings, multiple churches, more than one cemetery and distinct boundaries around the settlement (vallum monasterii). The latter may refer to the topographical setting of the site where it is chosen for its, possibly symbolic, isolation. While the difficulty of interpreting a site from a few finds types is noted above, the material culture from Brandon provides some strong indicators of a monastic presence, as described above. Signs of wealth and power alongside evidence for a monastic presence are not contradictory: Anglo-Saxon society in both church and state was hierarchical. Pestell argues that ‘it should be anticipated that secular rulers would have been as keen to show their Christianity and wealth on high status items as churchmen’. He also emphasises that in East Anglia many of the general characteristics apply to most of the richer sites and leave little room for a separate hierarchy of purely secular aristocratic settlements (Pestell 2004, 59–64). There is no doubt that Brandon changed during the dynamic 7th to 9th centuries and while the finds evidence can provide the signatures for both aristocratic and monastic communities, the evolving plan can contribute just as much to understanding the social dynamics.
Phases 1.1 to 1.2: second half of the 7th century
Figs 12.3–12.4
The early ground plan of Brandon reveals two phases of enclosure at the north of the island bounded by ditches, and possibly a much smaller area to the south, with separate farmsteads (Figs 12.3 and 12.4). A local parallel for the site at this early stage may be found in the excavations which have taken place in Thetford, particularly the recent site at Brandon Road (Atkins and Connor 2010, fig. 13; Andrews 1995, fig. 19). Sites such as these, with buildings enclosed by wider ditches, contrast with the earlier period, which was characterised by open, unbounded sites where building plots may have been short-lived and households were not directly linked to plots of land. This is a wide reaching phenomenon that can be seen at sites like Mucking in the Thames valley and West Heslerton in Yorkshire (Hamerow 1993; Powlesland 1997, 101–24) and is demonstrated locally at West Stow, c. 10 miles to the south-east along the Lark Valley (West 1985).

It is particularly difficult confidently to assign artefacts to this phase at Brandon but the analysis of the
small finds shows a background level of loss for smaller objects, which accumulated over time and survived through careful excavation and metal detecting in the archaeological record, alongside the limited recovery of hand-made pottery. A date for these developments in the second half of the 7th century seems likely.

If the settlement was centred, in these phases, on the north-western part of the island, with an additional focus to the south by the causeway, then the intervening area may have been open land, much in the manner of contemporary settlements in southern England and the Midlands, including Higham Ferrers (Hardy et al. 2007, figs 3.16–3.20). It has been argued that the ditches and earthworks of that site created a controlled space but also presented a visually impressive spectacle to outsiders, as well as linking the site to a nearby royal settlement (Hardy et al. 2007, 192 and 194). Such enclosures were useful also for stock control, particularly at Brandon, where the early settlement provided access to the river at the north. Impressive enclosure ditches may, therefore, have fulfilled a variety of roles.
Burial of the dead of Brandon in these early phases may have been within cemetery 1 which, at this point, would not have been accompanied by a church. Equally, burial with or without grave goods may have taken place elsewhere, perhaps beyond the island, but at any event a noticeable distance from the settlement, and beyond any excavations in the vicinity. The same situation can be envisaged for Middle Saxon Thetford, where settlement traces are, as yet, unmatched by burial evidence (Duhig 2010).

Phase 2.1: first half of the 8th century

Fig. 12.5

A major change occurred with Phase 2.1 and at the centre of this, within the excavated area, were the church (7098) and cemetery 1, which stand out as creating the new focus of a nucleated settlement (Fig. 12.5). While not huge in area, the grandeur of the church building is evident from the buttressing, the original chancel, the probable porch on the north sides and the subsequent extension of the building in two phases to the west. The central location is highlighted by the palisade-type fences and gated...
Phases 1.1–1.2 and that a new centre of power with a foretaste of later developments. Nevertheless it is evident from the church in this and later phases may be seen as a self-contained farming households close to, but separated associated with the church. The clustering of apparently buildings to the west are larger than those directly modest in proportion. The houses and agricultural its centre, served by buildings and extensions that were but from the building footprints we can see the church at 2005, 229). It is unfortunate that no dating evidence or the wealthy moving that way in the 8th century (Blair Brandon. While the movement to churchyard burial practice is complex (as noted above) the association of a church with a large cemetery is interpreted as a signature that a minister church was established in the 8th century at Brandon. While the movement to churchyard burial nationally was a gradual process, there is clear evidence of the wealthy moving that way in the 8th century (Blair 2005, 229). It is unfortunate that no dating evidence or stratigraphy could establish either a close date for the foundation of the church or indeed determine conclusively whether the cemetery preceded the church. The church seems to hold a more central position when viewed from the causeway but people must have been living and dying on the site before this date, and there was a clear empty space within the cemetery itself. However, this may have had a funerary purpose alongside the church, as noted above. Bede records the incident of a blind nobleswoman praying in the cemetery of a local nunnery ‘before the relics of the saints’ and having her sight restored (Colgrave and Mynors 1969, IV.11). Blair has observed that ‘belief may have been signified more by burial practice than by location’ (Blair 2005, 228) and this would be consistent with cemetery 1 developing alongside but initially separate from the church.

We have less rubbish surviving from this period from which to establish the general character of the settlement, but from the building footprints we can see the church at its centre, served by buildings and extensions that were modest in proportion. The houses and agricultural buildings to the west are larger than those directly associated with the church. The clustering of apparently self-contained farming households close to, but separated from, the church in this and later phases may be seen as a foretaste of later developments. Nevertheless it is evident that the social order had changed from a small farm in Phases 1.1–1.2 and that a new centre of power with a church at its heart had been established.

The causeway at the south of the island points directly at the church and leads in this phase directly to that building, as well as the accompanying graveyard and the smaller, subsidiary buildings to the north. This area is overtly separated from the agricultural service buildings and domestic structures to the west by a long enclosure ditch. Approaching the church from the west, the exit from this enclosure is also directly aligned with the church. A third area lies to the north-west, separated once again by enclosure ditches. Within this phase, therefore, access is proscribed and it is practically impossible to travel from one area to the next without moving through specific gateways. The religious focus of the settlement lies within one area, the agricultural buildings are separately defined to the west, and the service structures leading to the waterfront are enclosed at the north-west. For the first time, therefore, the settlement has specific zones of activity.

The component elements of a Middle Saxon monastery have been described by Cramp (1976, 204–8). They include both public and private buildings, as well as cells and small structures for reading and private meditation. The larger structures would have included a common refectory, dormitory and guest house. Within this phase at Brandon the communal structures appear to lie to the north of the church, effectively within an enclosed space extending across the western (and probably the central) part of the island. No cells are visible in this phase, although the limitations of the excavated area should be noted. The use of enclosures to demarcate and define separate functional areas recalls Irish practice, seen at Balrignan Co. Louth and most noticeably at Armagh (Delaney 2010, fig. 8.2; Gaskell Brown et al. 1984, fig. 1).

*Phase 2.1.1 to 2.2: Middle 8th to early 9th century*

The site was reorganised again during these phases (Fig. 12.6) with important changes. The northern part of the island was fenced off with only a narrow gate for access and there was a concentrated building programme within the enclosed area. This includes three substantial halls at the waterfront and an enclosed area of tight fencing that included a building which had a flint and chalk floor and cell building behind, with evidence of general settlement activity in between. An important area where linen and wool were worked overlies a clearance layer that probably dates from c.AD 740. Outside of the main enclosure the farms to the south-west continued, although they were more modest in scale than before and were excluded from the new enclosure, as previously. The division between the monastic area and the farms was maintained only in part, however, with new curvilinear enclosures created. Church 8851 was less elaborate than its predecessor with no buttressing or annexes (although the buildings were almost identical in area) and it was eventually demolished. Extra buildings tentatively associated with this phase include a stable and probable paddock to the east of the site.

The nature of the occupation seems to have changed at this point with the northern enclosure assuming prominence over the southern part of the site. Large halls replace the earlier buildings on the same sites and alignment, with the further addition of hall 0734. The status of the church is ambiguous and a strong case can be made for a new church on the site of the later medieval
enclosure. In this phase there may have been several churches in use within the settlement. It is difficult to make a fair comparison between Phases 2.1 and 2.2 as changes may have occurred at a variable pace, but the impression left is of a much more self-confident and powerful central authority with larger buildings, as well as a stable and paddock for horses. At the same time, the monastic area was reduced in size, whilst the manufacturing and service area was greatly enlarged. This may be a little deceptive, however, given that the communal buildings of the monastic space may be represented by structures 7500 and 8892, which are located on the other side of the new enclosure ditch. There is little doubt, however, that the focus of occupation had shifted to the north. Only a powerful aristocrat may have had the means to orchestrate the development of the site as it appeared during this phase. The evidence from the halls, where glass vessels were broken and food was consumed, would be consistent with an aristocratic lifestyle but this is not necessarily at odds with a monastic community with an aristocratic or royal patron. Social divisions were an accepted feature of life within such a community and might be expected of sites in the personal ownership of aristocratic families (Blair 2005, 80–91). Blair has observed that the establishment of double houses ruled by an abbess, which first appeared on the Continent in the 7th
excavation. halls seem to dominate the site, this may be a misleading although seen from within the excavated area the central fits with structural and morphological evidence, and monastic site (Blair 2005, 204–12) and this interpretation there seems no reason to doubt that there was a powerful circumstance evidence for this is strong and, if correct, the settlement but the northern enclosure was maintained, with the cemeteries and funerary features occupying the space in the next phase, all contained within the established boundaries.

The rubbish heaps create a pattern that highlights areas that were kept clean or where rubbish was not generated (Fig. 12.7). A remarkable gap in the finds distribution pattern occurs around the northern ‘monastic’ enclosure that contained cell building 4531 and building 4670, later the site of cemetery 2 and building(s) 6864 (Figs 4.23 and 4.50). Excavated fence lines and shallow ditches are mirrored by these heaps. The pattern is only a little less clear with the smaller objects. There must be a strong suspicion that little domestic rubbish was generated in this area and that it was also kept deliberately clean. Elsewhere on the site there is an even starker gap over the sites of churches 7098 and 8851. This is brought into relief by the concentrated remains in the tops of ditches and over the site of the halls that lay immediately to the north. The last church here, 8851, was abandoned well before the end of the settlement with a pathway from beyond the island directed through this area. Clearly if there had been rubbish heaps they would have been moved but the total lack of rubbish is surely significant and marks this area out, like the putative enclosure to the north, as special.

In reviewing this phase from the structural changes that took place, the site clearly expanded but there is no reason to suppose that it had lost its religious focus. The missing ingredient on which we are forced to speculate is the construction of a new church in the space later occupied by a medieval chapel and close to the location of cemetery 2, beyond the excavated area. The circumstantial evidence for this is strong and, if correct, there seems no reason to doubt that there was a powerful monastic authority at the top of the social hierarchy of the site. Blair has argued that Brandon may have been a monastic site (Blair 2005, 204–12) and this interpretation fits with structural and morphological evidence, and although seen from within the excavated area the central halls seem to dominate the site, this may be a misleading impression given the important areas of the site that await excavation.

A further consideration here should be the vexed question of a *vallum monasteri*, a possible boundary ditch. Alongside the distinctive topographical setting of a low island within a marsh (albeit connected to the higher ground on the eastern side), the site became enclosed. This boundary was extant when the excavations began and seems to fulfil no useful function — with marshland to the west at that time — other than to complete a circuit of the site. Thirdly there was the inner enclosure, less substantial, but also gated. Loveluck has suggested that one might expect all high status settlements to be enclosed by such features (Loveluck 2007, 144) but it was undoubtedly a feature of monastic sites in particular (Cramp 2006, 349–50). Brandon in its topographical setting certainly shares some similarity with the known ecclesiastical sites at Iken and Blythburgh, which occupy similarly distinctive locations on headlands overlooking the rivers Alde and Blyth. Burrow Hill, Butley (where a rich Middle Saxon site lies close to the medieval abbey) shows even more similarity to Brandon, being situated on an island within the river marsh, but it also, like Brandon, lacks historical documentation (Fenwick 1984).

**Phase 2.3: early to late 9th century**

Fig. 12.7 Within the enclosed settlement the central division was maintained in Phase 2.3 with a new gated entrance (Fig. 12.7) but the enclosure was expanded on the eastern side, indicating further building beyond the edge of excavation. The new enclosure tolerated church 8851, at least for a while, but that building was not replaced and the new access into the enclosure was simplified with a new gate. Two new halls, 8927 and 8927, were erected very close to the sites of buildings 7500 and 8892 from the previous phase. There was a significant, although relatively slight, change in the alignment of these buildings. The previous halls from Phases 2.1 and 2.1 were almost directly east–west, in keeping with the two churches; the new alignment is closer to that of the waterfront and cemetery 2 and the northern enclosure. Conspicuous by its absence is the putative third church, which may well have set the new alignment. A fence line directed visitors entering the inner enclosure towards the door of the new hall, 8927, while denying direct access to the newly enclosed area to the east. Possibly this hall was a reception building for visitors: a clay floor and evidence for a hearth suggest it was comfortable enough. Figure 12.7 shows an interpretative plan of the various refuse heaps and, while rubbish was present throughout the life of the settlement, several of the heaps were demonstrably late and a number are illustrated here. Food debris was piled up between the central buildings and alongside the entrances.

In the northern area the enclosed enclosure was maintained, outlined by the heaps of rubbish that surrounded it. The fenced area included one or perhaps two new cell buildings and the area of the first cell, 4531, was encroached upon by cemetery 2. Perhaps the most tantalising burial is that of an old man apparently within the building, although no direct stratigraphic association could be made. This burial was at the tip of the cemetery and therefore the location may be highly significant. Was this a cult figure or saint that provided the focus for the clay platform that was surrounded and cut by burials and the concentration of children in this cemetery? The prevalence of local saints seems to have been a feature of ecclesiastical sites of the period with a large but unknown number disappearing under the Viking invasion and the 10th-century reforms of the church (Blair 2005, 143). While speculative, the arrangement of the burials would not contradict this interpretation (Chapter 7). The buildings outside the enclosure to the south-west were again replaced and their footprints were further reduced.

When we consider these phase changes there is a clear level of continuity, with the halls replaced in the same area and the northern enclosure maintained as a shape — albeit now being used as a burial ground, or else the burial ground had spread to the west, into the area of excavation.
If burials were encroaching on this area of the site perhaps we should consider the significance of the separate, gated area immediately to the east of the main ‘reception building’ 8927. Was the expansion of this area intended to compensate for the shortage of space within the original site due to the large area of cemetery and the putative third church on the mound? The site had been steadily expanding since the first church and cemetery were in use and if their function was now taken up within the enclosure it may have constricted the site. If these suggestions are correct it may also signal the marginalisation of the western portion of the island and perhaps account for the proliferation of rubbish heaps. Possibly as a part of this process the waterfront bleaching and dyeing industry had been abandoned, although there was a gap in time before the rubbish accumulated. Alternatively this quite specific industry may have been related to a double house monastery and might reflect the decline of these institutions by the 9th century. At any event, there are signs that the central focus of the settlement had changed once again, with the northern manufacturing area much diminished in scale and a
pathway or droveway inserted to the north-west and outlined by ditches 6850 and 6851. This looks as if it might represent a new access to the main religious area, via the lower (southern) part of the new graveyard. The agricultural area to the west is also diminished in scale and enclosed by new curvilinear ditches. For the first time since Phases 1.1 and 1.2, appreciable areas of open space had reappeared.

Phase 2.4: late 9th century

Fig. 12.8

Few features are positively linked to a later Saxon phase (Fig. 12.8). The bridge has been tentatively placed within this phase, whether this feature appeared at this time or slightly later is uncertain but it is likely to have related directly to a prestigious church building within the central enclosure whether it was Middle, Late Saxon, or medieval. A ditch next to the causeway had a gap on the western side implying some continued settlement, although this may have been to existing buildings, and terminated in the first phases of what was to become the
medieval enclosure ditch that surrounded the medieval church, identified during the evaluation in 1979. The finds distribution plots (Chapter 4, Fig. 4.62) reveal a concentration of Thetford Ware pottery over a clay spread in this area although no other artefacts were concentrated there, which suggests it does not reflect significant or sustained activity. The presence of Thetford Ware in the rubbish heap that buried the site of the smithy, alongside Ipswich Ware, may signal the transition between these pottery types. A solitary pit at the waterfront was cut through the rubbish heaps and seems to have been the last such activity in this area.

VIII. Brandon in its regional setting

A traveller approaching Brandon from the causeway would have seen an island in the middle of a marsh but this local view belies a strategic location at the lowest crossing point of the Little Ouse, which was a major navigable river into the fens and beyond to the North Sea. The fens, with their extensive waterways and exploitable resources, were no hindrance to trade or communication, which is demonstrated by the faunal remains and by the quantities of imported materials. Brandon was one of many successful settlements founded on rivers that drained through the fens into the Wash with Ely the largest and most prominent, and navigable from Brandon (Fig. 1.1). A number of sites in west Norfolk, loosely categorised as productive through metal-detected finds, and with connections to the Wash, have been examined by Andrew Rogerson (Rogerson 2003). The six sites identified by Rogerson are Bawsey, Burnham, Congham, Rudham, West Walton and Wormegay. Rogerson is rightly cautious in applying a single interpretation to the high level of activity, but four of them later acquired monasteries. Pestell has presented further evidence for religious continuity, working back from medieval foundations, for sites in east Suffolk, including Burrow Hill (Pestell and Ulmschneider 2003, 133–7). Determined excavation work on the Norfolk sites might allow an informed interpretation of these sites (Rogerson 2003, 121) but the Brandon excavations have demonstrated how difficult it is to understand a site even after extensive (if partial) excavation. It is clear that Brandon was not isolated and can be compared with many regional sites in terms of topography and finds (allowing for the less intensive results from surface metal detecting when compared with the results from excavated contexts).

Lacking documentary evidence for Middle Saxon Brandon, we cannot hope to trace the impact of the political changes that may have affected the overlordship. While Brandon lay towards the western edge of the East Anglian kingdom, the territory itself was subject to Mercian domination from the late 8th century to the second quarter of the 9th century. It may only be in the artefactual remains that such influences might be detected but this might depend on the parent monastery rather than the political allegiance of the presiding abbot. Blair has drawn attention to the heavy-handed Mercian regime in Kent (which is documented) including the habit of intruding royal and aristocratic managers as titular abbesses and abbots of the great lower Thames minsters and ‘people like this would have no problem at all in combining an opulent lifestyle, and loyalty to the regime with, maintenance of the old monastic high culture that gave them a veneer of legitimacy’. Blair admits that this is a speculative interpretation of the evidence from Flixborough (Blair 2011, 9–10). The same interpretation, applied to Brandon, might explain the changes between Phases 2.1 and 2.2, but this cannot be proven by excavation alone.

IX. Brandon in its ideological landscape

The mechanisms of the church, with the recording of landholdings in charters and the ability to confirm and perpetuate ownership, were attractive incentives for dynasties eager to consolidate their position in an age when warfare and the uncertainty it brought were endemic. The 8th century witnessed the success of the church as an institution and there is no doubt that the legitimacy that it could give to land ownership and to aristocratic hierarchies, partly because of its primary role in literacy and learning, was a significant factor (Pestell 2004). The symbiotic association between the church and state was new to Anglo-Saxon England and its boundaries were being explored. Blair has observed that the establishment of double houses ruled by an abbess offered an opening for aristocratic widows and spinsters to promote the interests of the family (Blair 2005, 85). The usefulness of the church to aristocratic networks as a means of cementing private ownership of monastic estates while avoiding military service left Bede uncomfortable, and in his letter to Egbert he laments the danger to the state of the church holding too great a proportion of the land, leaving insufficient for the lay nobility who were required to defend their world against the barbarians. Bede comments on the many forms of 8th-century monasticism and he was clear in his own mind that there was no consistency in practice or motivation, with secular rulers establishing themselves as abbots over religious communities for which they had no training or true calling, and then abusing their authority (Plummer 1896; Blair 2005, 105–7). Blair has commented that sites such as Brandon and Flixborough may fall within a group that were ‘founded with indiscriminate enthusiasm’ by 8th-century aristocrats, and may have been those particularly abhorrent to Bede (Blair 2005, 204–12). Bede’s history must be at the heart of any historical understanding of the Anglo-Saxon church and although he was a religious commentator in an evangelical age his fears for the development of English monasticism were voiced at the time when a church was being built at Brandon.

The aristocratic monastic rule suggested for Brandon may have been perfectly acceptable to most observers at that time, and an estate centre with a genuine monastic association, where aristocratic lifestyles were maintained. From cemetery 1 there was clear evidence for violence and the recovery of three sword hilts, apparently to be recycled, would seem to indicate a level of secularism. Pestell’s observation (2004, 59–64) that the widespread identification of religious sites from the finds leaves little room for a separate hierarchy of purely secular aristocratic settlement seems valid up to a point, but there does remain a considerable number of Middle Saxon sites for which an ecclesiastical function has not been suggested (Table 12.3). It may be that in an age of faith, rich aristocratic sites that were not linked to monasticism in any way were the exception. Hines has commented that
the ‘lay and religious character of settlements could be thoroughly confused — something which leaves one wondering whether there is any point in archaeological speculation on the possible monastic character of certain fairly rich 8th-century sites that have been excavated, for instance Flixborough and Brandon (Hines 1997, 391). Perhaps excavations on a range of sites with artefactual as well as structural evidence may enlighten this debate, as suggested by Rogerson (2003). The evidence of literacy is sufficient to claim that Brandon was an important centre of learning with a scriptorium, and that this was part of a continuing religious commitment from the site. The evidence of the three sword hilts, the 9th-century halls from Phase 2.2 and the conspicuous consumption suggests that the site may also have had a high profile within the secular world. Pestell has observed that ‘in reality, estates would in most cases have been run by secular controlling interests such as royal and aristocratic families,’ and that ‘their presence provides a context for the wealth of settlements such as Brandon and Flixborough just as much as a religious community’ (Pestell 2004, 59). It is slightly ironic that estate centres of the 7th and 8th centuries, like Yeavering, Cowdery’s Down and Higham Ferrers, have all produced little material culture at all, whilst their structural archaeology is impressive in each case (Welch 1992, 43–53; Hardy et al. 2007). Field archaeology is unsuited to interpreting the belief systems and political history of a site and untangling the interaction between the secular and religious world. Everything suggests also that during the Middle Saxon period the secular and the religious were so closely entwined that it is difficult to distinguish between them. Whatever the secular importance of the site, the revisiting of Staunch Meadow with the construction of a medieval stone chapel suggests that there was at least a local legacy of spiritual importance strong enough to outlive the Viking depredations of the late 9th century. The historical research has not been able to confirm that the medieval chapel was that of St Andrew, which disappears from documentary sources in the 13th century. However, the records do provide circumstantial evidence that Brandon may have been an outlying monastery held by the Abbey at Ely (Chapter I.VI), much in the manner of Medeshamstede and its colonies (Foot 2006, 268–76), which would undoubtedly be an interpretation that cannot be proven from the excavations as they stand, particularly with the incomplete excavation of one of the cemeteries.

X. The end of the settlement

‘869. In this year the host went across Mercia into East Anglia, and took winter quarters in Thetford; and the same winter St Edmund the king fought against them, and the Danes won the victory, and they slew the king and overran the entire kingdom, and destroyed all the monasteries to which they came. At the same time they came to the monastery of Medeshamstede (Peterborough) and burned and demolished it, slew the abbot and monks and all that they found there, reducing to nothing what had once been a rich foundation’ (Garnonsway 1978, 74).

Whether the Danes came by water through the Wash on the way to Thetford, which would have led them past Brandon, or by land to East Anglia, Brandon was only five miles from Thetford. Middle Saxon Thetford appears to have been a dispersed rural settlement (the largest collection of Ipswich Ware so far excavated has yielded only 240 sherds, Chapter 6.II). It was here, from a defended camp as yet undiscovered, that they ravaged the countryside. While there was no evidence for a conflagration at Brandon, it seems highly unlikely that this settlement survived unscathed. Both Brandon and Middle Saxon Thetford appear to end at the same time (Atkins and Connor 2010, 117). There can be no doubt that Brandon was a wealthy and influential site and relied on a network of landholdings that were vulnerable to the dislocation caused by an aggressive and successful invasion. The swift decline of the site is evident and the dating evidence suggests it was late in the 9th century. It is surely not a coincidence that whereas Brandon shrank from the ‘island’, Thetford grew into a regional centre for trade and production, becoming a prosperous Late Saxon town.

It has been demonstrated by the excavations at BRD071, and by chance finds, that settlement moved from Staunch Meadow towards a site which may have been close to the church that is referenced in Liber Eliensis, where Leofric and Aethelflaed had asked Bishop Aethelwold to consecrate a church. This may have been the precursor to St Peter and St Paul’s at Brandon. It may be worth reflecting on the development of the Late Saxon and early medieval village from the 10th century generally in the light of what had gone before at Staunch Meadow. Certainly in the earlier phases at this site, the coming together of farming households around a church seems to foreshadow later events, perhaps a movement stalled by the Viking incursions of the 9th century?

XI. Conclusion

While re-emphasising the dangerous territory entered when characterising an archaeological site that lacks written sources in terms of ideology and politics, the evidence would seem to support the suggestion that a minster church was imposed in Phase 2.1 with an associated burial ground, possibly connected with a parent monastery at Ely. The expansion from Phase 2.2 bears the hallmarks of a proprietary monastery with high status residents and complex zoning including a rich material culture alongside a significant monastic presence. While the richness of the lifestyles signposted in the area of the halls points to a comfortable living for some, the evidence for literacy and writing would sit quite comfortably in one of the better-documented monasteries. As a likely regional centre of power, the Viking invasion necessarily disrupted the network of supply to Brandon and probably deposed the elite in residence. The subsequent building of a stone church at the focal point of the island provides an insight into how Brandon was viewed from the Late Saxon period.
Appendix 1: Major groups and features

The following is a list of the main group and feature numbers mentioned in the text, providing a basic concordance to area of the site and phase. Area codes are as follows: N – northern area; N Enc – Phase 1 northern enclosure; C – central area; S – southern area around the bridge; SE – south-eastern area to the east of the church; SW – south-western area and enclosure; WF – waterfront.

A schematic plan of the 2.5m square contexts is also included (Fig. A1.1). The area of site covered by this grid is shown in Figure 1.4 (1983–1988 excavation areas).

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<td>C</td>
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<td>SE</td>
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<td>9247</td>
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</tr>
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<td>9368</td>
<td>cemetery 1</td>
<td>C</td>
<td>2</td>
</tr>
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<td>9369</td>
<td>cemetery 2</td>
<td>N</td>
<td>2.3</td>
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<td>9371</td>
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Figure A1.1  Schematic plan of the 2.5m square contexts
## Appendix 2: The burials

### Cemetery 1 articulated skeletons

<table>
<thead>
<tr>
<th>Sk.</th>
<th>Sex</th>
<th>Age</th>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1351</td>
<td>Unsexed</td>
<td>?</td>
<td>V. Poor</td>
<td>V. small fragments of pelvis, L. leg and R. fibula.</td>
</tr>
<tr>
<td>1385</td>
<td>Male</td>
<td>17–25</td>
<td>Poor</td>
<td>Very fragmentary skeleton, but most bones represented. No maxilla or mandible.</td>
</tr>
<tr>
<td>1406</td>
<td>?Female</td>
<td>18–25+</td>
<td>Poor</td>
<td>Most long bones and skull present in fragmentary state, and with surface crumbling away.</td>
</tr>
<tr>
<td>1439</td>
<td>Unsexed</td>
<td>Adult</td>
<td>V. Poor</td>
<td>3 bags of very small fragments, R. lower arm, R. and L. femora, and very fragmentary adult skull.</td>
</tr>
<tr>
<td>1499</td>
<td>Male</td>
<td>45+</td>
<td>Poor–Fair</td>
<td>Most of skeleton present but fragmented.</td>
</tr>
<tr>
<td>1501</td>
<td>Unsexed</td>
<td>35–45+?</td>
<td>V. Poor</td>
<td>R. arm and scapula, both legs, pelvis, ribs, vertebrae and skull frags, all very fragmentary.</td>
</tr>
<tr>
<td>1527</td>
<td>Unsexed</td>
<td>18–25</td>
<td>Poor</td>
<td>All bones present but extremely fragmented. Thin fragmentary skull, maxilla and mandible.</td>
</tr>
<tr>
<td>1553</td>
<td>Male</td>
<td>c.18–20</td>
<td>Fair–Poor</td>
<td>Most bones present but fragmented, very fragmentary thin skull.</td>
</tr>
<tr>
<td>1587</td>
<td>?Female</td>
<td>18–25</td>
<td>Poor</td>
<td>Very fragmentary skeleton and skull.</td>
</tr>
<tr>
<td>1588</td>
<td>?Male</td>
<td>MA+?</td>
<td>Poor</td>
<td>Very fragmentary and incomplete skeleton and skull.</td>
</tr>
<tr>
<td>1624</td>
<td>Unsexed</td>
<td>Adult</td>
<td>Poor</td>
<td>A few fragments of eroded skull, arms and legs.</td>
</tr>
<tr>
<td>1656</td>
<td>?Male</td>
<td>Young</td>
<td>Poor–Fair</td>
<td>Very fragmentary skeleton and skull.</td>
</tr>
<tr>
<td>1706</td>
<td>Male</td>
<td>25–35?</td>
<td>Fair</td>
<td>Most of skeleton present, skull very fragmentary and incomplete.</td>
</tr>
<tr>
<td>1707</td>
<td>?Female</td>
<td>Young</td>
<td>Fair</td>
<td>Fragmented remains: legs, R. humerus, L. radius and ulna, feet, a few fragments of skull.</td>
</tr>
<tr>
<td>1708</td>
<td>?Female</td>
<td>18–22</td>
<td>Fair–Poor</td>
<td>Fragmented skeleton and skull with flaky periosteum.</td>
</tr>
<tr>
<td>1709</td>
<td>Female</td>
<td>Young</td>
<td>Fair</td>
<td>Most bones present, skull fragmentary.</td>
</tr>
<tr>
<td>1746</td>
<td>?Female</td>
<td>MA?</td>
<td>Poor</td>
<td>Fragmentary skeleton and skull with surface erosion.</td>
</tr>
<tr>
<td>1772</td>
<td>Unsexed</td>
<td>Adult</td>
<td>V. Poor</td>
<td>Very small frags of skull, arms, hands, ribs, shoulders, vertebrae and pelvis.</td>
</tr>
<tr>
<td>1773</td>
<td>Unsexed</td>
<td>35–45?</td>
<td>V. Poor</td>
<td>A few eroded skull frags, vertebrae, ribs, some long bones, 2 teeth and some animal bone.</td>
</tr>
<tr>
<td>1778</td>
<td>Child</td>
<td>5–6</td>
<td>Fair–Poor</td>
<td>Fragments of most major bones.</td>
</tr>
<tr>
<td>1802</td>
<td>Child</td>
<td>c.6?</td>
<td>V. Poor</td>
<td>Very small fragments of juvenile skeleton and skull.</td>
</tr>
<tr>
<td>1804</td>
<td>Unsexed</td>
<td>35–45?</td>
<td>V. Poor</td>
<td>Fragments of thick skull, mandible, scapula, clavicle, cervical vertebrae and ribs.</td>
</tr>
<tr>
<td>1816</td>
<td>Male</td>
<td>&lt;30</td>
<td>Fair</td>
<td>Most of the skeleton has survived but all bones are fragmented with flaky periosteum.</td>
</tr>
<tr>
<td>1830</td>
<td>Male</td>
<td>MA?</td>
<td>Fair–Poor</td>
<td>Almost complete skeleton and fragmentary skull.</td>
</tr>
<tr>
<td>1836</td>
<td>?Female</td>
<td>35–45</td>
<td>Poor–Fair</td>
<td>Very fragmentary, both arms missing but most other bones represented.</td>
</tr>
<tr>
<td>1838</td>
<td>?Female</td>
<td>c.25–30</td>
<td>Good</td>
<td>Almost complete skeleton.</td>
</tr>
<tr>
<td>1840</td>
<td>?Male</td>
<td>16–18</td>
<td>Fair–Poor</td>
<td>Most of the skeleton and incomplete skull, fragmentary.</td>
</tr>
<tr>
<td>1842</td>
<td>?Male</td>
<td>16–18</td>
<td>Fair</td>
<td>Skeleton without head and R. arm.</td>
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<tr>
<td>1843</td>
<td>Child</td>
<td>c.9–10</td>
<td>Fair–Poor</td>
<td>L. leg and R. lower leg only.</td>
</tr>
<tr>
<td>1844</td>
<td>Child</td>
<td>7–8</td>
<td>Poor–Fair</td>
<td>Most of skeleton present in fragments.</td>
</tr>
<tr>
<td>1845</td>
<td>Child</td>
<td>c.15?</td>
<td>Poor</td>
<td>Cervical and thoracic vertebrae, frags of ribs, R. scapula, L. innominate, L. humerus and skull.</td>
</tr>
<tr>
<td>1849</td>
<td>Female</td>
<td>MA?</td>
<td>Fair</td>
<td>Fairly complete skeleton and skull.</td>
</tr>
<tr>
<td>1850</td>
<td>Male</td>
<td>c.30</td>
<td>Fair</td>
<td>Most of skeleton, but L. radius and innominate missing.</td>
</tr>
<tr>
<td>1857</td>
<td>Child</td>
<td>7–8</td>
<td>Poor</td>
<td>Small frags of a few vertebrae, ribs, L. pubis and ischium, proximal half L. radius, skull.</td>
</tr>
<tr>
<td>1860</td>
<td>?Female</td>
<td>Adult</td>
<td>Poor</td>
<td>C6–T4 and some lumbar vertebrae, frag R. ilium, ribs, scapula, clavicle, proximal R. radius and ulna.</td>
</tr>
<tr>
<td>1882</td>
<td>Female</td>
<td>MA–Old</td>
<td>Fair</td>
<td>Most of skeleton and skull.</td>
</tr>
<tr>
<td>1898</td>
<td>Female</td>
<td>18–25</td>
<td>Fair</td>
<td>Most of the skeleton and fragmentary skull.</td>
</tr>
<tr>
<td>1900</td>
<td>?Male</td>
<td>MA–Old</td>
<td>Poor–Fair</td>
<td>Most bones present but fragmentary.</td>
</tr>
<tr>
<td>1906</td>
<td>Child</td>
<td>8–9</td>
<td>Poor</td>
<td>V. frag bones: scaps, R. clav, R. hum, R. fem, R. ilium, lower legs, ribs, vertebrae.</td>
</tr>
<tr>
<td>1907</td>
<td>Male</td>
<td>&gt;30</td>
<td>Poor</td>
<td>L. shoulder and humerus, hips and legs, fragmentary with surface erosion.</td>
</tr>
<tr>
<td>1917</td>
<td>Male</td>
<td>35–45?</td>
<td>Fair</td>
<td>Most of the skeleton and skull, R. femur and fibula missing.</td>
</tr>
<tr>
<td>1918</td>
<td>Child</td>
<td>12–24m</td>
<td>Fair</td>
<td>Fragmentary skull, most long bones (except R. forearm), and R. ilium.</td>
</tr>
<tr>
<td>Sk.</td>
<td>Sex</td>
<td>Age</td>
<td>Condition</td>
<td>Description</td>
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<tr>
<td>1919</td>
<td>Male</td>
<td>35–45+</td>
<td>Poor</td>
<td>Most of skeleton, except L. forearm and lower leg.</td>
</tr>
<tr>
<td>1920</td>
<td>Male</td>
<td>MA?</td>
<td>Poor</td>
<td>L. arm, lower vertebrae, pelvis and legs.</td>
</tr>
<tr>
<td>3060</td>
<td>Female</td>
<td>MA</td>
<td>Poor</td>
<td>Most bones present but fragmentary.</td>
</tr>
<tr>
<td>3062</td>
<td>Unsexed</td>
<td>Sub-ad</td>
<td>Poor</td>
<td>Very fragmentary skeleton: mandible, L. arm, R. radius, L. pelvis and femur, hands.</td>
</tr>
<tr>
<td>3070</td>
<td>?Male</td>
<td>35–45</td>
<td>Poor</td>
<td>Very fragmentary skeleton with no R. leg.</td>
</tr>
<tr>
<td>3072</td>
<td>Male</td>
<td>MA</td>
<td>Fair</td>
<td>Most of skeleton, but L. humerus and lower leg missing.</td>
</tr>
<tr>
<td>3073</td>
<td>Unsexed</td>
<td>18–20</td>
<td>Fair</td>
<td>Most bones in fragmentary condition and incomplete skull.</td>
</tr>
<tr>
<td>3074</td>
<td>Female</td>
<td>35–45?</td>
<td>Fair</td>
<td>Most of skeleton, but R. forearm, innominate and femur missing.</td>
</tr>
<tr>
<td>3081</td>
<td>Female</td>
<td>MA</td>
<td>Fair</td>
<td>Most bones present, fragmentary.</td>
</tr>
<tr>
<td>3083</td>
<td>Child</td>
<td>c.13</td>
<td>Fair</td>
<td>Skull, L. humerus, and shoulders, plus R. humerus and femur from 3088.</td>
</tr>
<tr>
<td>3086</td>
<td>Female</td>
<td>25–35?</td>
<td>Fair-Poor</td>
<td>Mandible, shoulders, L. arm, pelvis and legs, all fragmented.</td>
</tr>
<tr>
<td>3090</td>
<td>Male</td>
<td>Young</td>
<td>Fair-Poor</td>
<td>Fragmentary skeleton and skull.</td>
</tr>
<tr>
<td>3094</td>
<td>Child</td>
<td>18–24m</td>
<td>Fair-Poor</td>
<td>Skull, R. arm and pelvis, fragmentary.</td>
</tr>
<tr>
<td>3095</td>
<td>Female</td>
<td>Y–MA?</td>
<td>Fair</td>
<td>Most of skeleton and skull fragments.</td>
</tr>
<tr>
<td>3096</td>
<td>Unsexed</td>
<td>18–25</td>
<td>Fair</td>
<td>Most of skeleton and skull.</td>
</tr>
<tr>
<td>3099</td>
<td>Male</td>
<td>Sub-ad</td>
<td>Fair</td>
<td>A few fragments of arms, pelvis and femora.</td>
</tr>
<tr>
<td>3100</td>
<td>Male</td>
<td>MA–Old</td>
<td>Fair</td>
<td>Most of skeleton, but skull missing.</td>
</tr>
<tr>
<td>3101</td>
<td>?Female</td>
<td>MA?</td>
<td>Fair</td>
<td>Most of skeleton, lacks R. tibia and fibula.</td>
</tr>
<tr>
<td>3103</td>
<td>Female</td>
<td>Adult</td>
<td>Good</td>
<td>Most of post-cranial skeleton, except L. shoulder and humerus. No skull.</td>
</tr>
<tr>
<td>3105</td>
<td>Unsexed</td>
<td>Adult</td>
<td>Fair</td>
<td>Lower legs only.</td>
</tr>
<tr>
<td>3106</td>
<td>?Male</td>
<td>Y–MA?</td>
<td>Fair</td>
<td>Most of the post-cranial skeleton, but L. innominate and leg are missing.</td>
</tr>
<tr>
<td>3110</td>
<td>Male</td>
<td>35–45</td>
<td>Fair</td>
<td>Most of skeleton and incomplete skull.</td>
</tr>
<tr>
<td>3113</td>
<td>Male</td>
<td>Young</td>
<td>Fair-Good</td>
<td>Most of skeleton and skull.</td>
</tr>
<tr>
<td>3114</td>
<td>Child</td>
<td>c.?</td>
<td>Poor</td>
<td>Very fragmentary skeleton lacking R. arm.</td>
</tr>
<tr>
<td>3116</td>
<td>Female</td>
<td>18–20</td>
<td>Fair-Good</td>
<td>Most of skeleton and skull.</td>
</tr>
<tr>
<td>3131</td>
<td>Child</td>
<td>c.12m</td>
<td>Poor</td>
<td>Fragments of skull and L. limb bones only.</td>
</tr>
<tr>
<td>3132</td>
<td>Child</td>
<td>9–12m</td>
<td>Fair</td>
<td>Skull, R. shoulder and arm, pelvis and legs.</td>
</tr>
<tr>
<td>3134</td>
<td>Child</td>
<td>18–24m</td>
<td>Fair</td>
<td>Skull, R. arm, both legs.</td>
</tr>
<tr>
<td>3135</td>
<td>Female</td>
<td>&lt;30?</td>
<td>Fair</td>
<td>Most of skeleton and skull.</td>
</tr>
<tr>
<td>3136</td>
<td>Child</td>
<td>c.13</td>
<td>Fair</td>
<td>Most of skeleton and skull.</td>
</tr>
<tr>
<td>3137</td>
<td>Child</td>
<td>3–4</td>
<td>Fair-Good</td>
<td>Most of skeleton and skull, but lacking pelvis and L. femur.</td>
</tr>
<tr>
<td>3140</td>
<td>?Male</td>
<td>Old</td>
<td>Fair</td>
<td>Fragments of radii, pelvis and femora only.</td>
</tr>
<tr>
<td>3141</td>
<td>Female</td>
<td>MA–Old</td>
<td>Fair</td>
<td>Most of skeleton and skull.</td>
</tr>
<tr>
<td>3144</td>
<td>?Male</td>
<td>20–25</td>
<td>Good</td>
<td>Fairly complete skeleton and skull.</td>
</tr>
<tr>
<td>3146</td>
<td>?Female</td>
<td>Adult</td>
<td>Fair</td>
<td>Frags of mandible, L. malar, clavicles, R. scapula and humerus only.</td>
</tr>
<tr>
<td>4001</td>
<td>Female</td>
<td>&gt;30</td>
<td>Fair-Good</td>
<td>Almost complete skeleton and skull.</td>
</tr>
<tr>
<td>4002</td>
<td>Unsexed</td>
<td>Old</td>
<td>Fair-Poor</td>
<td>Frags of skull and R. arm only.</td>
</tr>
<tr>
<td>4004</td>
<td>Child</td>
<td>c.8</td>
<td>Fair</td>
<td>Skull, L. arm and legs.</td>
</tr>
<tr>
<td>4007</td>
<td>Child</td>
<td>18–24m?</td>
<td>Poor</td>
<td>Frags of skull and femora only.</td>
</tr>
<tr>
<td>4009</td>
<td>Female</td>
<td>MA?</td>
<td>Good</td>
<td>Most of post-cranial skeleton except lower legs and R. shoulder. No skull, mandible present.</td>
</tr>
<tr>
<td>4012</td>
<td>Child</td>
<td>4–5</td>
<td>Fair</td>
<td>Skull, L. arm and legs.</td>
</tr>
<tr>
<td>4016</td>
<td>Male</td>
<td>MA?</td>
<td>Fair-Good</td>
<td>Skull, frags of both arms, axial skeleton and femora.</td>
</tr>
<tr>
<td>4017</td>
<td>Female</td>
<td>MA?</td>
<td>Poor–Fair</td>
<td>Skull almost complete, unbroken. Most long bones present but fragmentary.</td>
</tr>
<tr>
<td>4018</td>
<td>?Female</td>
<td>18–21</td>
<td>Fair</td>
<td>Most of R. leg missing, some bones disarticulated but most seem to belong together.</td>
</tr>
<tr>
<td>4019</td>
<td>Male</td>
<td>Old?</td>
<td>Fair</td>
<td>Skull, R. arm and shoulder, L. ulna and both femora.</td>
</tr>
<tr>
<td>4021</td>
<td>Male</td>
<td>18–25</td>
<td>Fair</td>
<td>Skull, frags of arms, ribs and spine.</td>
</tr>
<tr>
<td>4022</td>
<td>Unsexed</td>
<td>c.18–20</td>
<td>Poor–Fair</td>
<td>Very fragmentary skeleton and skull.</td>
</tr>
<tr>
<td>4027</td>
<td>Female</td>
<td>Young</td>
<td>Fair</td>
<td>Most of skeleton and skull present.</td>
</tr>
<tr>
<td>4029</td>
<td>Child</td>
<td>&lt;6</td>
<td>Fair</td>
<td>A few fragments of skull, ribs, vertebrae and R. ilium.</td>
</tr>
<tr>
<td>4038</td>
<td>Male</td>
<td>Y–MA?</td>
<td>Fair</td>
<td>Fairly complete skeleton and skull.</td>
</tr>
<tr>
<td>4039</td>
<td>Male</td>
<td>Adult</td>
<td>Fair</td>
<td>R. leg and L. lower leg only.</td>
</tr>
<tr>
<td>4040</td>
<td>?Male</td>
<td>Adult</td>
<td>Fair</td>
<td>L. lower leg, R. fibula and feet only.</td>
</tr>
<tr>
<td>4042</td>
<td>Male</td>
<td>18–20</td>
<td>Poor</td>
<td>Most of skeleton, except L. lower arm. Lower leg of 4098 probably belongs to this individual.</td>
</tr>
<tr>
<td>4043</td>
<td>?Male</td>
<td>c.30</td>
<td>Poor</td>
<td>L. shoulder, arm, innominate and leg and R. lower leg.</td>
</tr>
<tr>
<td>4048</td>
<td>Male</td>
<td>MA?</td>
<td>Poor</td>
<td>Most of skeleton and mandible, but no skull.</td>
</tr>
<tr>
<td>Sk.</td>
<td>Sex</td>
<td>Age</td>
<td>Condition</td>
<td>Description</td>
</tr>
<tr>
<td>-----</td>
<td>-------</td>
<td>----------</td>
<td>-----------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>4050</td>
<td>Female</td>
<td>18–22</td>
<td>Fair</td>
<td>A few fragments of skull and most of skeleton. R. innominate missing.</td>
</tr>
<tr>
<td>4054</td>
<td>Male</td>
<td>Young?</td>
<td>Fair–Poor</td>
<td>Fairly complete skeleton and skull.</td>
</tr>
<tr>
<td>4055</td>
<td>Male</td>
<td>Young?</td>
<td>Poor</td>
<td>Frags of skull, L. arm and innominate, plus frags of R. arm, torso, feet and hands from 4062.</td>
</tr>
<tr>
<td>4057</td>
<td>?Female</td>
<td>30+</td>
<td>Poor</td>
<td>Frags of skull and upper half of skeleton only.</td>
</tr>
<tr>
<td>4060</td>
<td>Male</td>
<td>Old</td>
<td>Poor</td>
<td>Most of skeleton except skull, very fragmentary.</td>
</tr>
<tr>
<td>4061</td>
<td>?Female</td>
<td>Y–MA?</td>
<td>Poor</td>
<td>Most of skeleton except skull, in fragmentary condition.</td>
</tr>
<tr>
<td>4062</td>
<td>Unsexed</td>
<td>Adult</td>
<td>V. Poor</td>
<td>Lower half only, very fragmentary.</td>
</tr>
<tr>
<td>4065</td>
<td>Unsexed</td>
<td>Sub-ad</td>
<td>Poor</td>
<td>Fragments of skull, mandible and R. shoulder only.</td>
</tr>
<tr>
<td>4066</td>
<td>?Female</td>
<td>Adult</td>
<td>V. Poor</td>
<td>Fragments of the legs only.</td>
</tr>
<tr>
<td>4067</td>
<td>Male</td>
<td>Adult</td>
<td>V. Poor</td>
<td>Most of skeleton in very fragmentary state.</td>
</tr>
<tr>
<td>4072</td>
<td>Unsexed</td>
<td>Adult?</td>
<td>V. Poor</td>
<td>A few fragments of torso and L. arm only.</td>
</tr>
<tr>
<td>4073</td>
<td>Male</td>
<td>Young?</td>
<td>Poor</td>
<td>Most of skeleton and skull in very fragmentary state.</td>
</tr>
<tr>
<td>4074</td>
<td>Unsexed</td>
<td>Adult</td>
<td>V. Poor</td>
<td>A few fragments of skull, R. arm, torso, femora and R. tibia.</td>
</tr>
<tr>
<td>4076</td>
<td>Unsexed</td>
<td>Adult</td>
<td>35–45?</td>
<td>Poor</td>
</tr>
<tr>
<td>4077</td>
<td>Male</td>
<td>35–45?</td>
<td>Poor</td>
<td>Most of skeleton in fragmentary state.</td>
</tr>
<tr>
<td>4078</td>
<td>Male</td>
<td>Adult</td>
<td>Poor</td>
<td>Most of skeleton and skull, fragmentary.</td>
</tr>
<tr>
<td>4079</td>
<td>Male</td>
<td>Adult</td>
<td>Poor</td>
<td>Legs and feet only.</td>
</tr>
<tr>
<td>4080</td>
<td>Unsexed</td>
<td>Adult?</td>
<td>V. Poor</td>
<td>A few fragments of R. leg, L. lower leg and L. innominate.</td>
</tr>
<tr>
<td>4081</td>
<td>Unsexed</td>
<td>Adult</td>
<td>Poor</td>
<td>Legs and feet only, very fragmentary.</td>
</tr>
<tr>
<td>4083</td>
<td>?Female</td>
<td>Adult</td>
<td>Poor</td>
<td>Legs and feet only.</td>
</tr>
<tr>
<td>4086</td>
<td>Female</td>
<td>30+</td>
<td>Poor</td>
<td>Fragments of R. arm, shoulder, ribs, vertebrae and pelvis.</td>
</tr>
<tr>
<td>4089</td>
<td>Male</td>
<td>35–45?</td>
<td>Poor</td>
<td>Most of the skeleton and skull in fragmentary and eroded state.</td>
</tr>
<tr>
<td>4093</td>
<td>Unsexed</td>
<td>Sub-ad</td>
<td>V. Poor</td>
<td>A few fragments of L. shoulder, ribs, vertebrae and L. leg.</td>
</tr>
<tr>
<td>4097</td>
<td>Child</td>
<td>c.9</td>
<td>Fair–Poor</td>
<td>R. arm, ribs, ilium and femur only.</td>
</tr>
<tr>
<td>8000</td>
<td>Female</td>
<td>MA–Old</td>
<td>Fair</td>
<td>Fragments of maxilla and mandible, torso, arms and L. femur.</td>
</tr>
<tr>
<td>8001</td>
<td>Female</td>
<td>18–25</td>
<td>Fair</td>
<td>Fragmentary skeleton and skull.</td>
</tr>
<tr>
<td>8003</td>
<td>Male</td>
<td>35–45?</td>
<td>Fair–Good</td>
<td>Skull (8004) and most of skeleton.</td>
</tr>
<tr>
<td>8005</td>
<td>Male</td>
<td>25–35</td>
<td>Fair–Poor</td>
<td>Most of skeleton and skull in fragmentary state.</td>
</tr>
<tr>
<td>8007</td>
<td>Female</td>
<td>MA</td>
<td>Poor–Fair</td>
<td>Most of skeleton except L. tibia (present on plan).</td>
</tr>
<tr>
<td>8008</td>
<td>?Male</td>
<td>30+</td>
<td>Fair</td>
<td>Most of skeleton except skull and R. humerus.</td>
</tr>
<tr>
<td>8011</td>
<td>Unsexed</td>
<td>Adult</td>
<td>Fair</td>
<td>L. leg and R. lower leg only.</td>
</tr>
<tr>
<td>8013</td>
<td>Male</td>
<td>30+</td>
<td>Fair</td>
<td>L. clavicle, L. forearm, hands, lower legs and feet.</td>
</tr>
<tr>
<td>8017</td>
<td>Child</td>
<td>12–13?</td>
<td>Poor</td>
<td>Pelvis and legs only.</td>
</tr>
<tr>
<td>8019</td>
<td>Female</td>
<td>25–35?</td>
<td>V. Poor</td>
<td>Fragmented and flaky bones and skull.</td>
</tr>
<tr>
<td>8020</td>
<td>Female</td>
<td>18–25</td>
<td>Poor</td>
<td>Most of the skeleton and skull in fragmentary state.</td>
</tr>
<tr>
<td>8021</td>
<td>?Male</td>
<td>35–45?</td>
<td>V. Poor</td>
<td>Most of skeleton in fragmentary and flaky condition.</td>
</tr>
<tr>
<td>8022</td>
<td>Male</td>
<td>25–35?</td>
<td>Poor</td>
<td>Most of skeleton and skull in fragmentary and flaky state.</td>
</tr>
</tbody>
</table>

**Cemetery 2 articulated skeletons**

<table>
<thead>
<tr>
<th>Sk.</th>
<th>Sex</th>
<th>Age</th>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4557</td>
<td>Child</td>
<td>c.4</td>
<td>Poor</td>
<td>Most of skeleton and skull in fragmentary state.</td>
</tr>
<tr>
<td>4558</td>
<td>Female</td>
<td>c.30–35</td>
<td>Fair</td>
<td>Fairly complete skeleton and skull.</td>
</tr>
<tr>
<td>4559</td>
<td>Child</td>
<td>c.2?</td>
<td>Poor</td>
<td>Fragments of skull, R. arm, pelvis and legs.</td>
</tr>
<tr>
<td>4563</td>
<td>Female</td>
<td>MA–Old</td>
<td>Poor</td>
<td>Most of skeleton and skull in fragmentary state.</td>
</tr>
<tr>
<td>4580</td>
<td>Child</td>
<td>11–13</td>
<td>Poor</td>
<td>Most bones and skull in fragmentary, flaky condition.</td>
</tr>
<tr>
<td>4584</td>
<td>Male</td>
<td>Old?</td>
<td>Fair–Good</td>
<td>Fairly complete skeleton and skull.</td>
</tr>
<tr>
<td>4587</td>
<td>Female</td>
<td>Young?</td>
<td>Fair</td>
<td>Almost complete skeleton and skull.</td>
</tr>
<tr>
<td>4602</td>
<td>?Female</td>
<td>MA–Old?</td>
<td>Poor</td>
<td>Most of skeleton and skull in fragmentary state.</td>
</tr>
<tr>
<td>4665</td>
<td>Child</td>
<td>5–7</td>
<td>Fair–Poor</td>
<td>Most of skeleton and skull in fragmentary state.</td>
</tr>
<tr>
<td>4675</td>
<td>?Male</td>
<td>Adult</td>
<td>Poor</td>
<td>Fragmentary skeleton and skull.</td>
</tr>
<tr>
<td>4727</td>
<td>Child</td>
<td>c.4</td>
<td>Poor</td>
<td>Very fragmentary skeleton (limb bones only) and skull.</td>
</tr>
<tr>
<td>4728</td>
<td>Child</td>
<td>c.6m</td>
<td>Poor</td>
<td>Very fragmentary skeleton (humeri, femora, tibiae) and skull.</td>
</tr>
</tbody>
</table>
Appendix 3: Chemical analysis

Chemical analysis of the copper alloy small finds
by Nigel Blades

Introduction
One hundred and twenty-one Middle Saxon copper alloy small finds were chemically analysed during 1990–91. Of these, 121 were Middle Saxon in date, and there were three Early Anglo-Saxon objects. The remaining finds were Late Bronze Age (one object), Roman (three objects; one brooch analysed from two samples), medieval (three objects), post-medieval (ten objects) and undated (nine objects). The Anglo-Saxon finds included fifty pins, thirteen strip/sheet offcuts, twelve strap-ends, nine tweezers, eight rings, six buckles or buckle plates, five vessel fragments, three styli, three keys, and a variety of other miscellaneous objects.

Method of chemical analysis
Quantitative analysis was carried out at Royal Holloway and Bedford New College, University of London, using inductively coupled plasma-atomic emission spectrometry (ICP-AES). The elements sought were: copper, zinc, lead, iron, nickel, arsenic, bismuth, antimony, phosphorus, sulphur, cobalt, chromium, manganese, vanadium, cadmium, silver, and gold. The technique necessitated the removal of a small sample from the object, typically 5–10 mg, which was dissolved in aqua regia (3 parts hydrochloric acid: 1 part nitric acid) and the resulting solution pumped into the ICP system. Sampling was carried out either by drilling, or, in the case of sheet metal, by cutting away a small piece. This was then filed clean of corrosion products to expose unaltered metal. These methods ensured that a sample of the core metal was obtained, which could reasonably be assumed to represent the original composition of the artefact.

Nomenclature
The alloy names used in this report follow the guidelines set out by Bayley (1991):

Bronze: an alloy of copper and tin; zinc, if present, is at a level of less than one third the tin.

Brass: copper with zinc; tin, if present, is at a level of less than one quarter the zinc.

Gunmetal: an alloy of copper with both tin and zinc as alloying components.

'Leaded': this term is applied to any of the above containing more than 4% lead.

Results
The full results of the quantitative analyses are available in archive. The objects were assigned to alloy categories using the nomenclature described above, with the following results: 65 Bronze (53%), 11 Gunmetal (9%), 32 Brass (26%), 14 ‘impure copper’ (<10% alloy metals) (12%).

The majority of the alloys are bronzes, with brass as the next most popular category. This contrasts with the preceding Early Anglo-Saxon period, where the alloys used were mostly bronzes and gunmetals. An earlier study of 380 Early Anglo-Saxon copper alloys, mainly from East Anglia, found that 53% were bronze, 41% gunmetal and only 5% brass (Blades 1995). This result is in accordance with what has been found by other researchers (e.g. Mortimer 1990). It is thought that this typical Early Anglo-Saxon alloy composition is due to the widespread recycling of metal, where use of scrap from various sources, such as Roman metalwork, and the mixing of brass with bronze leads to a mixed alloy composition with all the major alloy elements, zinc lead and tin present to some degree.

The Early Anglo-Saxon bronzes in the study above had a median zinc content of 1.49%, compared with only
have been made using the same metal. The stylus sf4993 are also of similar composition and may also indicate that they were made at the same time. Pin sf5332 and sf2293, indicating that they were made at the same time. If these were the case, then it may be that pins of the various typologies were in use at the same time. Pin sf2313 and sf2315, which must come from the same set. Pins sf2313 and sf2315 were of the same composition, as were sf0835 and sf2293, indicating that they were made at the same time. If this were the case, then it may be that pins of the various typologies were in use at the same time. Pin sf5332 and stylus sf4993 are also of similar composition and may also have been made using the same metal.

As well as the major alloy components, a range of trace elements were analysed. These impurities occurred at low levels in the Brandon objects, which is what is found for Early and later Anglo-Saxon alloys also.

Summary
The two basic compositions in use at Middle Saxon Brandon were a fairly pure brass which was used for both small castings and wrought metalwork and a bronze, often leaded, which was used for casting, and with lower lead content for wrought-working. There was no apparent correlation between the alloy used and artefact typology. The number of mixed quaternary alloys (copper-zinc-lead-tin) present was small. The fact that straightforward binary alloys (copper-tin and copper-zinc) outnumber the mixed quaternary alloys suggest that much of the metal from Brandon represents fresh production. This is particularly the case with the brasses containing around 29% zinc, In the Early Anglo-Saxon period it is significant that none of the analyses contained this amount of zinc, and most of the alloys were quaternary, consistent with extensive recycling.

Multivariate analysis of the copper alloy chemical data
by Sue Anderson

Methodology
The data provided by Blades’ study were analysed using the MVSP statistical package. This package enabled principal component, principal co-ordinate, correspondence and cluster analyses to be performed on the data, and scattergraphs or dendrograms to be plotted. Analysis of the entire dataset showed similar results for the first three analytical methods, so it was decided to use correspondence analysis alone as it seemed to produce the best clusters for objects with apparent associations (for example spoons sf5648 and sf5654). Cluster analysis was also carried out for most datasets, as the dendrograms provided readily interpretable results in a clearer form. All elements were included in the analysis, despite the inevitable skewing which the major elements (copper, zinc, tin and lead) brought to the data. It was thought more meaningful to use the full composition of the objects when attempting to group them. An attempt was made to cluster the finds based on trace elements alone, but no clear groupings were found either for the pins or for the non-pin Saxon finds.

Results
Data were analysed in the following sets: all objects by period; all objects by find type; Anglo-Saxon and non-Anglo-Saxon objects by find type; Anglo-Saxon strap-ends; Anglo-Saxon pins by type; all period offsets.
All objects by period

Fig. A3.1 shows the distribution of finds in a correspondence analysis of all objects by period. This shows a very tight cluster of Middle Saxon finds to the left side of the plot, with a looser cluster to the right. These clusters can be spread slightly by applying various data transformations (square root, log 10, etc.) or by detrending, but the basic patterns remain the same. The large clusters correspond to bronze on the left side, with leaded bronze at the upper end, and brass to the right; gunmetal falls between the two main clusters.

Most of the outliers are of earlier or later date, most notably the Late Bronze Age sword fragment (sf2324), the Early Anglo-Saxon vessel fragment (sf2326, an outlier because it is an import rather than because of its date), one sample from Roman brooch (sf2101) and a post-medieval vessel (sf2108). Within, or close to, the main Middle Saxon cluster (bronze) there are three post-medieval objects: chape sf2275, wire fragment sf8684 and rivet/stud sf2103. Also in this cluster are two Roman objects: another sample from brooch sf2101, and pin sf9859. Several undated objects in this cluster (sf3298, sf3413, sf8227, sf9836) were all offcut fragments and likely to be Middle Saxon. The two Early Anglo-Saxon brooch fragments (sf5548, sf5866) can be seen very close to each other as the two red triangles to the right of the main Middle Saxon cluster. Objects dated as Middle Saxon also form outliers, including ring sf1128, bowl fragment sf9981, decorated polyhedral-headed pin sf5536, stylus sf2009, and key sf0602.

In the more extended cluster to the right of the plot (brass), four post-medieval objects form their own small group amongst the Middle Saxon objects. These are stud sf2290, buckle sf2099, tap handle sf2281 and mount sf2271. Medieval objects associated with this group are sheet fragment sf2558 and mirror case sf2120, which has a similar chemical composition to Middle Saxon spoon fragment sf5485, the triangle underlying it. Several undated objects, most of them rings, fall at the outer edges of this cluster, suggesting that they are all of the same period. It is worth noting that several rings assigned to the Middle Saxon period are also in this area of the plot.

Anglo-Saxon objects by find type

Fig. A3.2 shows the data for Anglo-Saxon finds by find type. Removal of the relatively few non-Saxon finds does not alter the pattern significantly, as would be expected. It can now be seen that the dense cluster to the left is largely made up of pins, but that there are also several tweezers, rings and offcuts. Strap-ends are more common in the cluster to the right of the plot, with very few pins in comparison with the left side. Rings appear to be equally common in both plots, but due to the difficulty in dating these objects, some are not included and there may in fact be more to the right side. Unusual objects, such as the Early Anglo-Saxon vessel, a needle, two keys, three stylus and several spoons, appear either on the edge or at some distance from the larger clusters.

A data transformation (square root) was applied to the Anglo-Saxon finds to look for smaller clusters within the dense cluster to the left. These groups were also shown to be relatively similar using a cluster analysis dendrogram. Table A3.1 lists the objects which appear to show tight clusters.

Analysis of some of the more common find types was attempted separately, although only the pins formed a large enough group to provide meaningful results. The data was therefore split into ‘pins’ and ‘non-pins’, and the results are discussed below.
Pins

Fig. A3.3

Figure A3.3 shows the correspondence analysis with square root data transformation for the pin types. There is a small cluster of biconical undecorated pins to the right (sf0900, sf2313, sf2315, sf8686), together with a polyhedral undecorated type (sf2087). All four decorated balloon-headed pins (sf2303, sf2304, sf2068, sf2074) form a loose group in the left cluster, and the majority of globular-headed pins are also loosely grouped (sf2293, sf5310, sf5515, sf5522, sf5523). All decorated polyhedral-headed pins are in the left side cluster, but do not group closely. The more unusual types, linked pin sf5601 and reeled collar pin sf2076, are both within the larger left side cluster. In general, the results show no distinct groupings, and this is probably because the various types, though broadly contemporary, were produced over a long period of time using the same general metal composition (I. Riddler, pers. comm.).

Strap-ends

Fig. A3.4

Correspondence analysis of strap-ends alone showed no meaningful groupings, other than the very close positioning of 2341 and 2342. Figure A3.4 shows the cluster analysis for these objects, and shows that sf2341 and sf2342 are the closest in terms of chemical composition. Other pairings which are meaningful with regard to the strap-end types are sf2325 and sf8691, and sf3638 and sf8674. Like the results from the pins, this suggests that the same overall metal composition was employed over a long period of time, as shown by the relationship between early (sf0754) and late (sf2320) types (I. Riddler, pers. comm.). Unfortunately the earliest strap-ends were not sampled in this analysis.

‘Non-pins’

Fig. A3.5

Figure A3.5 shows the correspondence analysis for Anglo-Saxon finds with the pins removed, allowing other groupings to be seen more clearly.

This shows two clusters of strap-ends to the right (upper – sf2320, sf3638, sf8674; lower – sf0754, sf2341, sf2325, sf8691).
sf2342); those in the upper quadrant are all contemporary and two have niello decoration, as does sf9850 (the other strap-end in this quadrant), whilst sf2341 and sf2342 are the same type, although they show no clear relationship in either date or type with sf0754 (I. Riddler, pers. comm.). The group of rings in the upper right quadrant has been discussed above. The two overlapping buckle fragments (sf2559, sf2561) in the bottom left quadrant are parts of one object, as are the two spoon pieces in the bottom right quadrant (sf5648, sf5654). The upper right quadrant contains a group of four tweezers (sf1309, sf2115, sf8459, sf8560) which have been noted above (Table A3.1, Group 5) as a small cluster. Otherwise there are no particular groups of individual find types.
Non-Saxon objects by find type
Fig. A3.6
Correspondence analysis of the non-Saxon finds by type is shown in Figure A3.6. Other than the undated rings and a few offcut pieces, it shows no real clustering of finds by type. Even the two post-medieval vessels are at some distance from each other. It may be of interest that the Roman pin and fragment of wire are very close together, but both are within the area which is covered by the dense Middle Saxon cluster in other plots. The Roman brooches are all very widely spread, despite two of these samples being from different pieces of the same object (the spring
and the foot), suggesting that the pieces were made separately. Could this be evidence for re-use of an earlier artefact in the Middle Saxon period, with a replacement pin? Unfortunately it is not clear which sample relates to which part of the object, but it would be interesting if it were the pin which fell within the Middle Saxon cluster.

**Offcuts**

Fig. A3.7

Offcut fragments (sheet, strip) were plotted in case their chemical composition might indicate that they were fragments of the same object. Figure A3.7 shows the cluster analysis for this data. This shows close similarities between sf2014, sf2274, sf2020 and sf2272; sf3413 and sf2319 and sf2282, but no significant patterns were noted when compared with the objects themselves (I. Riddler, pers. comm.).

**Conclusions**

Multivariate analysis of the chemical data for these copper alloy objects has shown that there are two main groupings within the Middle Saxon assemblage, corresponding to brass and bronze alloys. Within these larger groupings, some clusters of artefacts were identified. Several earlier and later finds showed distinct differences from the Middle Saxon material, notably the Late Bronze Age sword fragment, two Roman brooch fragments, the Early Anglo-Saxon brooches and bowl, and some post-medieval objects. However, within the Middle Saxon assemblage, there were no particular groupings by type, confirming Blades’ suggestion that there was no correlation between metal type and object type. This was true whether the full element composition or trace elements alone were taken into account. As Riddler has suggested (pers. comm.), this may simply be because a basic ‘recipe’ for copper alloy was being followed throughout the Middle Saxon phase at Brandon.
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Corpus Christi College, Cambridge MS CCCLXXXIII, f.102 Be Gesceadwisan Gerefan
BL Sloane MS 73, fo.138v
Aelfgar of Milton
Aethelflaed 11
Aethelthryth (Etheldreda), St 9, 10, 393
Aethelwold, bishop of Winchester 9, 11, 393
agriculture 328, 334–5, 374–5; see also animal bone; plant remains
animal bone
Brandon Leisure Centre
assemblage 350–1
bird bones 353
mammals 351–3, 352
Staunton Meadow
assemblage 296
bird 308–10, 310, 311
butchery 308, 309, 309
discussion 311–12, 374–5, 377
distributions 107, 108, 109, 110–12
mammals 296–300, 297, 298, 299
badger 296
cat 306
cattle 303–4, 304, 309
deer 296, 297, 307–8, 307
dog 306, 307
hare 296, 298
horse 306
marine 296–8, 297
otter 296, 297
pig 305–6, 305
rabbit 296
sheep 300–3, 301, 302
methodology 296
see also fish bone
antler/antler working 255, 294, 307–8, 376
antler tine implement 347, 350
apple/crab apple (Malus sylvestris/domestica) 328, 330, 375
ard marks 27, 356
Armagh (Co Armagh) 387
armour, Civil War 341
arrowhead socket 266
ash 323, 329, 373
auger see spoon bits/auger
awls
bone 284, 284
iron 283, 376
axe 283, 376
axe marks 134, 135, 139
bakeries
discussion 360, 361, 366, 373
excavation evidence 61, 62, 77, 78
Balkingham (Co Louth) 357, 387
Barham (Suffolk) 376, 382, 383
Barking Abbey (Essex)
cemeteries 10
glass vessels 176, 377
monastic finds 380, 381, 382, 383
pottery 165, 380
barley (Hordeum spp) 28, 325, 328–9, 353, 375
bars
discussion 358, 359, 360, 366, 368–9
excavation evidence 55, 56, 57–9, 58
phasing 24
radiocarbon dating 18
timber 133, 136, 139
Barrington (Cambs) 198, 199, 201
Barrow-Upon-Humber (Lincs) 382
bars, iron 278
Barton Bendish (Norfolk) 106
Bawsey (Norfolk) 271, 392
beads, glass
Iron Age 28, 371
Roman 31
Saxon 222–4, 223, 356, 371
Bede 364, 369, 387, 392
Bede (Beds) 158, 165
belts
iron 273, 274
copper alloy 273, 274
belt mounts 29, 31, 341, 350
Beonna, coinage of 263, 271, 272
Beverley (E Yorks)
inkwells 177, 377, 381
monastic finds 380, 381, 382
pottery 151
spoons 178, 380
window glass 139, 140
Birchanger (Essex) 106
bit (horse) 275, 276; see also spoon bits/auger
bleaching 81, 168, 329, 373, 376, 389
Bloodmoor Hill (Suffolk) see Carlton Colville
Blythburgh (Suffolk) 389
boards, timber 137, 156, 139
bone working 89, 294, 374, 376
book clasps 341
Botwulf 10
box/chest fittings 184–5, 184, 192–4, 193, 216, 372
boxes, wooden 83–6, 84, 87
bracelets, copper alloy 31, 220, 222, 356
Brandon, manor 9, 11, 355
Brandon bridge (BRD014) 2, 4
Brandon Leisure Centre (BRD071)
background 2, 341–3
discussion 353–5, 393
environment and economy 28, 299, 350–3, 352
excavation evidence 22, 337, 342, 343, 369
finds 344–50, 347
pottery 162, 166, 343–4
braziers 372
BRD024 2, 5
BRD025 2, 4
BRD047 2, 4
BRD068 2, 5
BRD071 2, 5
BRD075 2, 4
BRD083 2, 5
BRD089 2, 5
BRD156 2, 5, 357
BRD164 2, 4
BRD165 2, 4
bricks see tiles/bricks
bridge
discussion 369, 391
documentary evidence 11, 355
excavation evidence 128–32, 129, 131, 132, 337
radiocarbon dating 17, 18, 19, 131
timber 133–5, 135, 138, 139
see also Brandon bridge (BRD014)
Brihtnoth, abbot of Ely 11
Brixworth (Northants) 140, 142
brooms
assemblage 219
chemical analysis 402, 405–6
discussion by type
annular 219–21, 220, 350, 356
coiled one-piece 220, 221, 371, 376
cruciform 219, 220, 356
equal-armed cross 220, 221–2, 383
La Tene 28, 29
Roman 29, 30–1, 402, 405–6
buckets
fittings 166, 185
handle 166, 356
rim, copper alloy 167, 167, 168
staves 168, 170, 372
buckles
copper alloy 224–5, 224, 371, 402, 404
iron 225
not specified 341, 347, 350
Bugga, Abbess 140
building materials
  ceramic 142–4
  fired clay 146, 147
  stone 148, 345
  structural fittings, iron 147–8, 147
  timber
discussion 137–8, 139
earth-fast stakes 135–6
  oak pile points 133–5
  window glass 139–42, 141
buildings
discussion 357–8
  agricultural 359–61, 360
  in cemetery 2 379
  characteristics 366–9
  churches 360, 361–3, 369
  halls and associated structures 363–4, 365
  houses 358–9, 360
  monastic buildings 364, 365
  workshops 360, 361
excavation evidence, Period III
  in cemetery 2 214, 214
  Phase 1.1 34–41, 56, 58, 59, 40, 41–4, 43
  Phase 2.1 49, 53–4, 53, 54, 55–6, 56, 57, 58, 59, 60, 62
  Phase 2.1.1 63
  Phase 2.2 64
  central area 67–73, 67, 68, 69, 70, 71, 73
east of church 94–100, 95–7, 98, 99
  north of building 4491 73–81, 74, 75, 76, 78, 79, 80, 82
  south-west area 92–4, 92, 93
  Phase 2.3 101
  central area 100, 102, 102, 103
  north to waterfront 104–5, 104, 105
  south-west area 109, 126–8, 126, 127
  Phase 2.4 128
phasing 22, 24
radiocarbon dating 17, 18–19
see also building materials; churches; structures
Burgh Castle (Norfolk) 198, 199, 200, 201, 370
Burnham (Norfolk) 392
burnt flint 26, 345
Burrow Hill (Suffolk) 271, 389, 392
Bury St Edmunds (Suffolk) 1
buttons 341
buteresses
buildings 44, 71, 366, 368
  church 51, 362, 366, 369, 371, 386
byres 98, 359
Caister-on-Sea (Norfolk) 378
human bone 198, 199, 200, 201
monastic finds 381, 382
Canterbury (Kent)
combs 251, 252, 256
monastic finds 381, 382, 383
pottery 165
tweezers 244
Carlton Colville (Suffolk), Bloodmoor Hill
animal bone 301, 308
broom 221
ceramic building materials 144, 145, 147, 344, 345
  combs 247, 256
  crucibles 281
human bone 211
pottery 162
  styli 381
Carr, Robert 5, 6
Castor (Cambs) 165
cauldron chain 167, 167, 168
cauldron fragment 166
causeway
  aerial view 3
discussion 337, 369, 387
  excavation evidence 36, 41, 42, 83, 84
phasing 24
radiocarbon dating 17, 18
  cemeteries
  execution 2
Cemetery 1
  body position 191–2
  bone survival and disturbance 191
  burial numbers 186
  catalogue of burials 397–9
  coffins and shrouds 192–4, 193
dating and phasing 188–91, 189–90
demography 195–7, 196, 197
discussion 362–3, 377–9, 386, 387
excavation evidence/methodology 47, 186
extent 186–8, 187
finds 194–5
grave depth 191
grave morphology 191
human bone see human bone, cemetery 1
  internal structure/alignment 188, 188
phasing 15, 24
radiocarbon dating 16, 19
Cemetery 2
  body position 215
  bone survival and disturbance 215
  burial numbers 213
  catalogue of burials 399–400
  coffins 215–16
dating and phasing 214–15, 215
demography 216
discussion 379–80, 389–90, 391
excavation evidence 104, 105, 132, 214, 214
tent 212, 213
finds 216
  grave depth 215
grey morphology 215
human bone see human bone, cemetery 2
  internal structure/alignment 213–14, 213
radiocarbon dating 16, 17, 19
Ceolfrith 10
  ceramic building material
  Brandon Leisure Centre 344
  Staunton Meadow
    assemblage 142
    discussion 144
    distribution 118, 143–4
    post-Roman 338–41, 340
    summary 142–3
chain links, iron 148; see also cauldron chain
chape 341, 402
  chapel, medieval (BRD094) 2, 4
  chapel of St Andrew 11–12, 337, 341, 389, 393
  chapel of St Mary 11–12
  chapel of the Virgin and St Etheldreda 2, 355
  charnel pit 378
  châtelaine fragment 167, 167, 168
  chemical analysis, copper alloy finds 400–6, 402, 403, 404, 405, 406
  chest fittings see box/chest fittings
  chests 375
  chisel 283, 283, 376
  church (7998)
    discussion 358, 360, 361–3, 366, 369, 386–7, 389
    excavation evidence 48–52, 48, 49, 50, 51, 52
    phasing 24, 61
    church (8851)
    discussion 358, 360, 361–3, 366, 387–8, 389
    excavation evidence 63–6, 64, 65
    phasing 24
  church of SS Peter and Paul (BRD049) 2, 2, 5, 355, 393
  Church Road (BRD048) 2, 5
  clapboarding 139, 367, 368
  cleavers (Galiurn aparine L.) 286
  cloth seals 350
  clothing 371
  Coddenham (Suffolk) 200, 242, 376, 382
coffin fittings 192, 193–4, 193, 216
coffins
  stone 337
  wooden 192–4, 215–16, 378, 380
  coin weight 341
  coins
  Roman 31
  Saxon 2, 13, 123, 271–3, 272, 376

431
medieval 341, 350
comb making 235–6, 294, 375, 376
combs
assemble 246
description
double connecting plate 250, 251, 253
double-sided composite 255, 255
handled 251–5, 253, 254, 255, 354
single-sided composite 246–51, 248, 250
discussion 255–6, 372
Congham (Norfolk) 392
copper alloy cast object, unidentified 264, 265
copper alloy objects
chemical analysis 400–6, 402, 403, 404, 405, 406
distribution 124
copper alloy waste 283
copper alloy working 285, 376
coproites 313, 321
cornflower (C. cyanus) 335
Cottam (Yorks) 256, 355, 382
Cowdery’s Down (Plants) 357, 362, 368, 393
crab apple see apple/crab apple
crucibles 150, 281, 382
cullet 142
cult burial 379, 389
Dacre (Cumbria) 139, 194, 381
Danish raids 379, 393
dark earth deposits
casual loss, rubbish heaps and manure 106–7
discussion 357, 389, 390
finds distributions 106, 108, 109, 110–25
phasing heaps 107
rubbish management evidence 107–8
dating 13–22; see also phasing
daub
Brandon Leisure Centre 344
Staunton Meadow 100, 144, 145, 146, 147
dendrochronology 15–16
Dereham (Norfolk) 10
die see mould/die
diet 299, 330; see also animal bone; plant remains
discs, copper alloy 166, 167, 168, 346, 347, 354
ditches
Brandon Leisure Centre 342, 343
Staunton Meadow
aerial view 3
Period II 26, 27
Period III
Phase 1.1 33, 37, 41, 44
Phase 1.2 44–7, 46
Phase 2.1 54–5, 55, 56, 61
Phase 2.2 64, 66–7, 71–2, 78, 89, 90, 91, 92, 94
Phase 2.3 100, 101, 103, 104, 108
Phase 2.4 128, 129, 130, 131–2
Period IV 337, 338, 339
stratigraphic relationships 13–14
see also gullies
Domesday Book 9, 11
Dover (Kent) 382
Dunwich, bishopric of 10
dyeing/dye plants
discussion 286, 371, 372, 373, 376
plant remains 314, 330
pollen 333, 334, 335–6
dyer’s rocket/weld (Reseda luteola) 286, 330, 333, 334, 373
dyer’s weed (Gentria sc. tinctoria) 335
ear-scoop 245, 246, 356, 372
earrings 347, 348
East Angles, kingdom of 9, 392
economy 372–7
Edgar, King 11
elder (Sambucus nigra) 286, 323, 325, 329–30, 334, 335, 373
Elfmham, bishopric of 10
Ely (Cambs)
abbey 9, 10, 11, 355, 393
monastic finds 380, 382, 383
pottery 149, 150, 162, 376, 380
settlement, Saxo 1, 392
enclosures
Brandon Leisure Centre 342, 343
Staunton Meadow
discussion 364, 373, 384–5, 387–8, 389, 384
evacuation evidence
Period II 26
Period III
Phase 1.1 33–41, 36, 44, 47
Phase 1.2 44–7, 45
Phase 2.1 49, 50, 51, 54–5, 61
Phase 2.2 64, 66–7, 66, 72, 92
Phase 2.3 104
Period IV 5, 53, 337, 338, 339
phasing 22, 24, 25
stratigraphic relationships 13
environmental evidence, Period II 28; see also animal bone; fish bone; plant remains; pollen analysis
Erisswell (Suffolk) 290, 356, 372
Escomb (Co Durham) 140, 142
estate centre 357, 374, 392–3
Etheldreda, St see Aethelthryth, St
Eudo the steward 11
Eustace, bishop of Ely 11
Eynsham Abbey (Oxon) 381, 382
falconry 309, 310, 375
feasting 106, 312, 363
fence lines
discussion 107, 373, 389
evacuation evidence, Period III
Phase 1.2 47
Phase 2.1 51–2
Phase 2.2 71, 80–1, 89, 83, 86, 88, 89, 99
Phase 2.3 102, 104
ferrules 266, 349, 354
ferry 11, 355
field system 343
finger rings 220, 222, 341, 347, 348, 354
fire, evidence for 63, 321
fired clay
Brandon Leisure Centre 344–5
Staunton Meadow
assemble 144
discussion 147
distribution 319, 146–7
types 144–6
see also loom-weights
fish bone
assemble 312
compared 313
condition 312
discussion 312–13, 375
distributions 312
methodology 312
fish weirs 11, 355
fittings
box/chest 184–5, 184, 192–4, 193, 216, 372
bucket 166, 185
furniture 184–5, 184
structural 147–8, 147
miscellaneous 341, 350
flax (Linum usitatissimum)
discussion 285–6, 294, 371, 372–4, 376
plant remains 325, 325, 328, 329, 353
pollen 334, 335
see also scutching waste
flax heel spike 286, 372, 376
flesh hook 180
flint 26, 281, 345, 356; see also gunflints
Fitchborough (Lincs)
animal/fish bone 106, 298, 303, 312, 313, 374–5, 377
brooches 219
buildings 362
burials 194, 379
combs 249, 256
glass vessels 175, 176, 377, 381
metalworking 278, 282, 382
monastic finds 380, 381, 382, 383, 392, 393
pottery 162, 376
settlement 355
textile production 285, 286, 287, 288–90, 294, 373, 376
window glass 139, 140, 141, 142
floor tiles, post-medieval 340
Folkestone (Kent) 382
forge see smidy
fork and spoon, copper alloy 177, 178, 179, 179, 372, 380
foundation deposit 48, 306, 362, 375
Friars Oak (Sussex) 382
furniture fittings 184–5, 184
Funsey, St 10, 364–6
gates/gateways, Period III
Phase 1.1 33
Phase 1.2 47
Phase 2.1 48, 54, 386–7
Phase 2.2 63, 66, 81, 90, 387, 389
Phase 2.3 100, 102, 389
Phase 2.4 369
girdles 371
glass vessels, Roman 31, 177
glass vessels, Saxon
appearance 170
description
bowls 171, 174–5, 174
claw beakers 171, 174, 175
globular beakers 171, 172–4, 172, 173, 354
palm cups/funnel beakers 170–1, 171
miscellaneous 171, 174, 175–6
unidentified 176
discussion 176–7, 377, 381
spatial distribution 125, 177
see also mokwells
glass vessels, post-Saxon 350
geese bone, perforated 350
Goisberton (Lincoln) 382
Great Chesterford (Essex) 198, 199
gullies, Period III
Phase 1.1 44
Phase 1.2 45, 47
Phase 2.1 49, 53, 55, 59–61
Phase 2.2 81, 83, 87, 89, 90, 94, 98
Phase 2.3 102, 103, 105, 131
see also ditches
gunflints 337
Hacheston (Suffolk) 143, 144
Hallevere 11
halls
dendrochronology 15
discussion 358, 363–4, 365, 366, 369, 387, 388, 389, 393
evacuation evidence, Period III
Phase 2.2 67–8, 67, 68, 69–72, 70, 71
Phase 2.3 100–4, 102, 103
stratigraphic relationships 14
hammer 277, 376
hammerscale 280, 281
Hamwic (Hants)
animal bone 308, 375
beads 224, 371
bells 274
burials 378
combs 246, 249, 251, 252, 256, 294
glass vessels 170, 175, 176, 177, 377, 381
monastic finds 380, 381, 382, 383
pottery 376, 380
handles
antler 295, 295
copper alloy 166, 167, 168, 356, 402
see also tap handle
Hartlepool (Co Durham)
human bone 198, 199, 200, 370
monastery 364, 378, 379, 382, 389
hasps 184, 185, 192, 193–4, 193, 216
hazel (Corylus avellana) 328, 330, 375
hearth bottoms 72, 88, 89, 279, 280, 281
hearth lining 144, 145, 146, 345
hearth discussion
ceramic building material 143, 144
halls and associated structures 363, 364
houses 359
smithing 280, 281
excavation evidence, Period III
Phase 1.1 34, 38
Phase 2.2 68, 69, 69, 72, 88, 89, 281
Phase 2.3 107, 127
hearthstone, sandstone 148
heather (Calluna)
Brandon Leisure Centre 353
documentary evidence 11
Staunch Meadow
Period II 28
Period III 323, 325, 328, 329, 333, 334, 335, 373
hemp (Cannabis sativa)
plant remains 328, 329, 333, 334, 335
processing 285–6, 372–4
Higham Ferrers (Essex) 382, 385, 393
hill guards 265–6, 265, 266, 372, 376, 392, 393
hinges
asket 184, 185
hinge pivots 147–8
hinge straps 147, 185, 192, 193, 193, 194
pinned 147, 147
historical background 9
early period 9–11
later medieval and post-medieval landscape 11–12
Holestrow (Suffolk) 356
hones
ascambles 268
description
coal measures sandstone 269, 269
fine-grained sandstone 269, 269
Norwegian rag 268, 269
purple phyllite 268–9, 269
other 269, 269
discussion 269–70, 354
hook, iron 148; see also flesh hook; wall hooks
hooked tags
description
Brandon Leisure Centre 347, 349–9, 354
Staunch Meadow 226, 227–9, 229
discussion 371
horn cores 300, 301, 303, 351
horse head burial 48, 306, 362, 375
horsehead (Vicia faba) 328, 330, 331, 334, 375
horseshoes/horseshoe fragments 275–6, 275, 341, 354, 375
houses see buildings
human bone, cemetery 1
analysis
amino acid 211
stable isotope 211
assemblage 197
catalogue 397–9
comparanda 198
condition 198
demographic analysis
age at death 197, 198–9
sex distribution 198
dental analysis 201
abscesses 201
ante-mortem tooth loss 201
calculus, hypoplasia and resorption 201–2
caries 201
unerupted/congenitally absent teeth 201
methodology 197–8
metrical and morphological analysis
cranial indices 199–200
non-metric traits 200
stature 199
number of individuals 198
pathology
arthropathies and degenerative disease 202–3
circulatory disturbances 204
genital anomalies 202
crurae orbitalia and porotic hyperostosis 203–4
infectious disease 204–5, 205
miscellaneous lesions 210–11, 210, 211
neoplasms 205
spinal 203
trauma 205–10, 205, 206, 207, 208, 209
433
Lake End Road West (Bucks) 158, 165
lady's bedstraw (Galium verum) 286, 336
Lakenheath (Suffolk) 2, 11, 26, 306, 362
lamps ceramic 153, 155, 159, 372
stone 177, 178
see also soldering lamp/reservoir
lattines 41, 61, 71, 73
laundry 293, 294
lead cames 141, 341
lead pad 284–5, 284, 376, 382–3
lead waste 106–7, 221, 281–3, 341
lead working 281–2, 382
leatherworking tools 283–5, 264, 376, 382–3
Leofric 11, 393
leprosy 370
Liber Eliensis 9, 10
lid, wooden 180, 180, 375
linen production 285–6, 294, 371, 372–4, 376
linen-smoothers 293–4, 293
literacy 263, 376, 380–1, 393
Little Ouse river environmental evidence 320, 331–3, 334
topography 1, 9, 376, 392
Livermere (Suffolk) 11
locks 180–2, 181, 372
longhouse 367
loom-weights Roman 31, 288
Saxon 144, 146, 147, 288–9, 289, 294, 344, 349
Lundenwic 380, 382
madder (Rubia tinctorum) 286, 373
Maidenhead (Bucks) 382; see also Lake End Road West
melting 329, 375
manufacturing 372–4, 375–6
manure 106
Maxey (Northants) 382
Medehamstede (Cambs) 393
Mercia, kingdom of 9, 392
metalworking see copper alloy working; ironworking; lead working
metalworking tools 277–8, 279
middens see dark earth deposits
Middle Harling (Norfolk) 165, 271, 380
minster 387, 393
mirror case 341, 402
mollusca 330, 353
Monkwearmouth (Co Durham) 10, 139, 140, 142, 201, 281
mortar 142
mould, stone 278, 279, 281
mount 402
mount/die 346, 347, 354
Mucking (Essex) 161, 384
musket balls 350
mussels 353
nails copper alloy 185
horseshoe 275, 275, 276
iron 147, 194, 216, 350
Naizingbury (Essex) 198, 199, 200, 382
needle 291, 293, 402
Newcastle (Tyne & Wear) 201
North Elmham (Norfolk) 158, 165, 201, 203, 380, 382
North Walsham (Norfolk) 106
Northampton (Northants) 362, 382
Norton (Stockton-on-Tees) 194, 198, 199, 200, 201
Norwich (Norfolk) 159, 165, 200, 313, 329
oat (Avena spp) 28, 328, 329, 353, 375
Old Erringham (Sussex) 382
Old Windsor (Berks) 158, 165, 380
opus signinum 142, 144
oratory 379
Ormesby (Norfolk) 198, 199, 200, 201
oven domes 148, 145, 146, 344
ovens ceramic building material 143, 144
discussion 361, 373
excavation evidence 61, 77, 78, 79, 89
see also oven domes
rivet/stud 402
...
loam 336
...
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