A METHODOLOGICAL EXAMINATION OF ASPECTS OF CHRONOLOGICAL AND SOCIAL ANALYSIS OF EARLY ANGLO-SAXON CEMETERIES WITH PARTICULAR REFERENCE TO CEMETERY I, MUCKING, ESSEX

Dido Florence Clark
PhD
University College London

Volume 1
ABSTRACT

This thesis is a thorough analysis of all aspects of Mucking Cemetery I, Essex, as a basis for a methodological study of Anglo-Saxon cemetery data. The work was undertaken as part of the publication programme of the two Anglo-Saxon cemeteries at Mucking, working with Susan Hirst, FSA.

The data from Cemetery I, supplemented by the far larger unpublished data sets from Mucking Cemetery II and the cemetery at Lechlade, Gloucs, are the basis of two detailed areas of methodological study. The first is an examination of the methodology of chronological analysis, particularly the use of seriation. The second part consists of an examination of one aspect of social analysis that has been largely unused - structural age groups. These methodological sections are intended to examine the rationale of analysis and aid the practical problems of the publication of early Anglo-Saxon cemeteries. The cataloguing and analysis of Cemetery I carried out by the author given here is included as a demonstration of the level and precision of data collection required to do this sort of work.

The original aspects of this work are the chronological and social analysis of the unpublished Mucking Cemetery I, using and augmenting larger datasets from Lechlade and Mucking Cemetery II. It is hoped that regional chronologies can be established using this new methodology and applied to other cemeteries insufficiently large for their own seriation. It is also argued that the stature amongst age and gender groups as well as the changing patterns of the types and numbers of artefacts, the choice of costume and burial treatment established at Lechlade can be used to suggest age from body lengths, and to
construct possible age-related cultural patterns at other cemeteries where bone evidence is lacking.
CONTENTS LIST

VOLUME 1

Introduction

Chapter 1. The data from Mucking I

Chapter 2. The methodology of the chronological and social analysis of Mucking I

Chapter 3. Principles and problems of chronological analysis

Chapter 4. The seriation of Butler's Field, Lechlade

Chapter 5. The seriation of Mucking I and II

Chapter 6. The palaeodemographic structure and cultural age patterns at Lechlade as a background to age patterns at Mucking

Chapter 7. The determination of age, gender trends and cultural patterns in Mucking I

Chapter 8. Other aspects of burial practice in Mucking I

Evaluative Summary

Bibliography
VOLUME 2
APPENDICES
1 The grave catalogue of Mucking I
2 Specialist reports on the artefacts from Mucking I
3 Survey of regional Anglo-Saxon cemetery material
4 The ‘Seriate’ program
5 Types of chronological analyses
6 Patterns of association of artefact types with age and gender groups at Lechlade in comparison with patterns in other Anglo-Saxon cemeteries
7 Single-link cluster analysis of data from Lechlade
8 Coding considerations for the seriation of the Lechlade and Mucking material
9 The coding of material at Lechlade for seriation
10 The female seriation printout of the Lechlade data
11 The coding of material at Mucking for the female seriation
12 The female seriation printout of the Mucking data
13 The coding of material at Mucking for the male seriation
14 The male seriation printout of the Mucking data
15 Conversion Period graves at Lechlade
16 The importance of the belt set from Grave 117 and other artefacts from Mucking to the interpretation of Quoit Brooch Style
17 The settlement evidence at Mucking
18 The relationship of the Migration Period to the Conversion Period cemeteries at Mucking
19 Other aspects of the burial rite at Mucking I
| Chapter 1 | Fig 1/1 | The location of Mucking and Lechlade |
| Chapter 1 | Fig 1/2 | The location of Mucking, showing solid and drift geology, Romano-British finds, and Anglo-Saxon settlement |
| Chapter 1 | Fig 1/3 | Plan of Mucking I, with Anglo-Saxon, Iron Age, Romano-British and undatable features |
| Chapter 1 | Fig 1/4 | Plan of Mucking I, with areas of possible non-retrieval |
| Chapter 1 | Fig 1/5 | View of Mucking I during rescue excavation |
| Chapter 1 | Fig 1/6 | Cropmarks in the Mucking I area, taken by J K St Joseph on 14.6.61 (Cambridge University Collection of Air Photographs, VW 38, copyright reserved), from Cambridge University Collection |
| Chapter 1 | Fig 1/7 | Aerial photograph of Mucking I and II, showing area of lucerne, taken by J K St Joseph on 14.6.61 (Cambridge University Collection of Air Photographs, ADI 20, copyright reserved), from Cambridge University Collection |
| Chapter 1 | Fig 1/8 | Aerial photographic plot with suggested cemetery boundaries |
| Chapter 1 | Fig 1/9 | Position of objects on the body |
| Chapter 1 | Fig 1/10 | Reconstruction of the motif on the applied brooch 249/4, at 1:1 |
| Chapter 1 | Fig 1/11 | The button brooches in Grave 90, at 2:1 |
| Chapter 1 | Fig 1/12 | The equal-arm brooch in Grave 90, at 2:1 |
| Chapter 1 | Fig 1/13 | The small square-headed brooch in Grave 102, at 2:1 |
| Chapter 1 | Fig 1/14 | The bead strings in Graves 93 and 283 |
| Chapter 1 | Fig 1/15 | The bead string in Grave 99 |
| Chapter 1 | Fig 1/16 | The bead string in Grave 99 in situ |
| Chapter 1 | Fig 1/17 | The buckle from Grave 117 |
| Chapter 1 | Fig 1/18 | The inlaid buckle from Grave 272 |
| Chapter 1 | Fig 1/19 | The glass bowl in Grave 99, at 1:1 |
| Chapter 1 | Fig 1/20 | The glass claw beaker in Grave 92, at 1:1 |
| Chapter 1 | Fig 1/21 | The excavator's sketch of the stoup in Grave 246 |
| Chapter 1 | Fig 1/22 | Grave 243, with shield stain |
| Chapter 1 | Fig 1/23 | Histogram of orientations in Mucking I |
| Chapter 1 | Fig 1/24 | The dugout coffin in Grave 125 |
| Chapter 1 | Fig 1/25 | An example of a coffin with a rounded head and square end, Grave 128, at an early stage of excavation |
| Chapter 1 | Fig 1/26 | The base of the coffin in Grave 128 |
| Chapter 1 | Fig 1/27 | An example of a dugout or plank-built coffin, in Grave 113, at an early stage of excavation |
| Chapter 1 | Fig 1/28 | The coffin and soil silhouette in Grave 113, at a later stage of excavation |
| Chapter 1 | Fig 1/29 | The pillow in Grave 265 |
| Chapter 1 | Fig 1/30 | The organic layer in Grave 119 |
| Chapter 1 | Fig 1/31 | The double Grave 123 |
| Chapter 2 | Fig 2/1 | The frequency of brooch types at Mucking I and II |
| Chapter 2 | Fig 2/2 | The frequency of brooch types in the Lower Thames area |
| Chapter 2 | Fig 2/3 | The frequency of brooch types at Lechlade |
| Chapter 2 | Fig 2/4 | The frequency of brooch types in the Upper Thames Valley |
| Chapter 3 | Fig 3/1 | The single link cluster analysis of artefact types at Lechlade |
| Chapter 4 | Fig 4/1 | The Lechlade seriation printout, with phasing. R = saucer brooch with Romano-British motifs, SI = saucer brooch with Style I motifs, and K = saucer brooch influenced by Kentish disc brooches |
| Chapter 4 | Fig 4/2 | The distribution of Phase 1 graves at Lechlade according to gender and age groups |
| Chapter 4 | Fig 4/3 | The distribution of Phase 2 graves at Lechlade according to gender and age groups |
Chapter 5

Fig 5/1 The seriation of the male graves in Mucking I and II, with phasing
Fig 5/2 The seriation of the female graves in Mucking I and II, with phasing
Fig 5/3 Complex stratigraphic relationships in Mucking II. The highlighted graves have been seriated
Fig 5/4 The distribution of seriated and unseriated graves in Mucking I in Phases 1ai/2aii and 1aii/2aiii
Fig 5/5 The distribution of seriated and unseriated graves in Mucking I in Phase 1aiii
Fig 5/6 The distribution of seriated and unseriated graves in Mucking I in Phases 1bi/2bi and 1bi/2
Fig 5/7 The distribution of seriated and unseriated graves in Mucking II in Phases 1ai/2aii and 1aii/2aiii
Fig 5/8 The distribution of seriated and unseriated graves in Mucking II in Phase 1aiii
Fig 5/9 The distribution of seriated and unseriated graves in Mucking II in Phase 1bi/2bi
Fig 5/10 The distribution of seriated and unseriated graves in Mucking II in Phase 1bi/2

Chapter 7

Fig 7/1 Scattergram of complete silhouettes in Mucking I against complete coffin lengths
Fig 7/2 Scattergram of complete silhouettes in Mucking II against complete coffin lengths
Fig 7/3 Scattergram of complete silhouettes in Mucking I against complete grave base lengths
Fig 7/4 Scattergram of complete silhouettes in Mucking II against complete grave base lengths
Fig 7/5 Scattergram of complete silhouettes in Mucking I against complete grave top lengths
Fig 7/6 Scattergram of complete silhouettes in Mucking II against complete grave top lengths
Fig 7/7 The distribution of graves by gender in Mucking I
Fig 7/8 The distribution of graves by age in Mucking I

Appendix 1

Fig App 1/1 Key to grave plans
Fig App 1/2 Key to glass bead colours
Fig App 1/3 Graves 90 and 91
Fig App 1/4 Grave 92
Fig App 1/5 Graves 93 and 99
Fig App 1/6 Graves 99 (continued) and 100
Fig App 1/7 Graves 102, 107 and 108
Fig App 1/8 Graves 113, 114 and 115
Fig App 1/9 Graves 116 and 117
Fig App 1/10 Graves 119 and 120
Fig App 1/11 Grave 121
Fig App 1/12 Graves 122 and 123
Fig App 1/13 Graves 124, 125, 126 and 127
Fig App 1/14 Graves 128, 129, 130 and 131
Fig App 1/15 Grave 159
Fig App 1/16 Graves 240, 241 and 243
Fig App 1/17 Graves 244 and 245
Fig App 1/18 Grave 245 (continued)
Fig App 1/19 Graves 246 and 247
Fig App 1/20 Grave 248
Fig App 1/21 Grave 249
Fig App 1/22 Graves 250, 251, 252, 253 and 255
<p>| Appendix 2 | Fig App 2/1 | Schematic illustration of areas of inlay and silver sheet in Grave 117 buckle set. The circular area within the rectangular plate is left empty as it was not certain whether this is inlay or sheet. The numbers indicate where metallurgical examination was undertaken |
| Appendix 8 | Fig App 8/1 | The distribution of the brooch types in Mucking I |
|           | Fig App 8/2 | The distribution of the buckle types in Mucking I |
|           | Fig App 8/3 | The distribution of brooch groups in Mucking II used in the female seriation |
| Appendix 19 | Fig App 19/1 | The distribution of body positions in Mucking I |
|            | Fig App 19/2 | The soil silhouette in Grave 253 |</p>
<table>
<thead>
<tr>
<th>Chapter 1</th>
<th>Table 1/1</th>
<th>The numbers and percentages of brooch types</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Table 1/2</td>
<td>The bead types arranged by material</td>
</tr>
<tr>
<td></td>
<td>Table 1/3</td>
<td>Summary of the monochrome bead colours</td>
</tr>
<tr>
<td></td>
<td>Table 1/4</td>
<td>Summary of the monochrome bead forms</td>
</tr>
<tr>
<td></td>
<td>Table 1/5</td>
<td>Summary of the polychrome bead base colours</td>
</tr>
<tr>
<td></td>
<td>Table 1/6</td>
<td>Summary of the polychrome bead forms</td>
</tr>
<tr>
<td></td>
<td>Table 1/7</td>
<td>Summary of the 'gold-in-glass' bead forms</td>
</tr>
<tr>
<td></td>
<td>Table 1/8</td>
<td>Summary of the 'gold-in-glass' bead types</td>
</tr>
<tr>
<td></td>
<td>Table 1/9</td>
<td>Summary of the amber bead forms and sizes</td>
</tr>
<tr>
<td></td>
<td>Table 1/10</td>
<td>The buckle types</td>
</tr>
<tr>
<td></td>
<td>Table 1/11</td>
<td>The frequency of the knife types</td>
</tr>
<tr>
<td></td>
<td>Table 1/12</td>
<td>Summary of the spear types</td>
</tr>
<tr>
<td></td>
<td>Table 1/13</td>
<td>The shield types from Mucking I</td>
</tr>
<tr>
<td></td>
<td>Table 1/14</td>
<td>Summary of the body positions</td>
</tr>
<tr>
<td>Chapter 2</td>
<td>Table 2/1</td>
<td>The number and relative frequency of brooch types in Saxon cemeteries with 20 or more graves</td>
</tr>
<tr>
<td></td>
<td>Table 2/2</td>
<td>A comparison of artefact types within the cemeteries and settlement</td>
</tr>
<tr>
<td>Chapter 3</td>
<td>Table 3/1</td>
<td>The numbers and types of brooch worn by females at the Saxon site of Berinsfield, according to age groups</td>
</tr>
<tr>
<td></td>
<td>Table 3/2</td>
<td>The numbers and types of brooch worn by females at the Anglian site of Norton, according to age groups</td>
</tr>
<tr>
<td></td>
<td>Table 3/3</td>
<td>The numbers and types of brooch worn by females at the (liminally) Anglian site of Great Chesterford, according to age groups</td>
</tr>
<tr>
<td></td>
<td>Table 3/4</td>
<td>The numbers and types of brooch worn by females at the Anglian site of Empingham II, according to age groups</td>
</tr>
<tr>
<td></td>
<td>Table 3/5</td>
<td>The numbers and types of brooch worn by females at the (liminally) Anglian site of Wakerley I, according to age groups</td>
</tr>
<tr>
<td></td>
<td>Table 3/6</td>
<td>The numbers of graves in Mucking I and II, with the numbers of furnished graves</td>
</tr>
<tr>
<td>Chapter 4</td>
<td>Table 4/1</td>
<td>List of graves at Lechlade with phases based on seriation, stratigraphy, orientation and artefact types</td>
</tr>
<tr>
<td></td>
<td>Table 4/2</td>
<td>The phasing of the artefacts (except weapons)</td>
</tr>
<tr>
<td></td>
<td>Table 4/3</td>
<td>Summary of the graves according to the phases and subphases</td>
</tr>
<tr>
<td>Chapter 5</td>
<td>Table 5/1</td>
<td>List of graves in Mucking I with their stratigraphic relationships</td>
</tr>
<tr>
<td></td>
<td>Table 5/2</td>
<td>List of graves in Mucking II with their stratigraphic relationships</td>
</tr>
<tr>
<td></td>
<td>Table 5/3</td>
<td>Material that has been placed in Stufen by Bohme (1974, 1986, 1989). Highlighted areas indicate Mucking I material, and italics indicate presumed dates</td>
</tr>
<tr>
<td></td>
<td>Table 5/4</td>
<td>Phased material from seriated graves at Mucking I and II, and from Lechlade</td>
</tr>
<tr>
<td></td>
<td>Table 5/5</td>
<td>List of phased graves in Mucking I, according to seriation and absolute dates. The highlighted graves are seriated</td>
</tr>
<tr>
<td></td>
<td>Table 5/6</td>
<td>Summary list of phased graves in Mucking I. The highlighted graves are seriated</td>
</tr>
<tr>
<td></td>
<td>Table 5/7</td>
<td>List of phased graves in Mucking II, according to seriation and absolute dates. The seriated graves are highlighted</td>
</tr>
<tr>
<td></td>
<td>Table 5/8</td>
<td>Summary list of phased graves in Mucking II. The highlighted graves are seriated</td>
</tr>
<tr>
<td></td>
<td>Table 5/9</td>
<td>List of phased cremations and their stratigraphic relationships. An asterisk denotes the date arrived at, or narrowed down by, stratigraphic relationships</td>
</tr>
</tbody>
</table>
Chapter 6
Table 6/1 Palaeodemographic structure of Anglo-Saxon sites with 50 or more individuals, sorted by preservation conditions
Table 6/2 Condition of bone at Lechlade in relation to the numbers and percentage of age groups, grave depths and phase
Table 6/3 Summary of bone preservation in Mucking I in relation to the numbers and percentage of grave furniture, vegetation, animal disturbance, dates and grave depths
Table 6/4 Depths of graves, and percentages of juveniles in shared graves at Lechlade, and in selected Migration and Conversion Period cemeteries according to age groups
Table 6/5 Palaeodemographic profile at Lechlade per phase
Table 6/6 Percentages of juveniles in Conversion Period cemeteries, and Conversion Period graves in cemeteries that begin in the Migration Period
Table 6/7 Summary of frequency of artefact types at Lechlade, in graves sorted by age. The percentages denote the number of individuals within an age group with a particular artefact type
Table 6/8 Summary of variables at Lechlade amongst all age groups, such as grave size, numbers and types of artefacts, and body position related to age. The percentage of grave goods is per all graves in each age group
Table 6/9 List of brooch variables at Lechlade against age. NA = not in use as part of costume
Table 6/10 The size of spearheads ranged according to age at Lechlade
Table 6/11 The average number of beads per Phase 1 bead strings according to age thresholds at Lechlade
Table 6/12 The average numbers of types of objects with Migration Period females in various cemeteries. The average is based on graves with artefact types only
Table 6/13 Numbers of brooch types with Migration Period females at Lechlade, according to age groups
Table 6/14 Aged individuals from Migration Period cemeteries (or phased graves from long-lived cemeteries), compared to Conversion Period cemeteries, with av. grave lengths and depths
Table 6/15 Weapon combinations at Lechlade in both phases, ranged against age thresholds
Table 6/16 Summary of variables at Lechlade, such as grave size, numbers and types of artefacts, and body position related to graves with artefacts and those without, both ranged against age thresholds amongst adult males in both phases
Table 6/17 Groups A to D subdivided by individuals of known age and gender at Lechlade
Table 6/18 Summary of variables at Lechlade, such as grave size, and body position related to graves with artefacts and those without, both ranged against age thresholds amongst adult females in both phases

Chapter 7
Table 7/1 Stature ranges and averages in various Anglo-Saxon cemeteries, arranged by areas of commonality
Table 7/2 List of graves sorted by age at Lechlade with body lengths and stature
Table 7/3 The range of the stature of adults and body lengths of juveniles at Lechlade, with the results of the body lengths per age group at Mucking I and II
Table 7/4 Graves in Mucking I, sorted according to age, sex and gender
Table 7/5 Graves in Mucking II, sorted according to age, sex and gender
Table 7/6 Range of upper grave lengths from selected Migration Period cemeteries (or graves in long-lived cemeteries) against age thresholds
Table 7/7 Summary of the age groups in Mucking I, subdivided by gender
<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/8</td>
<td>The frequencies of brooch and weapon graves in selected Migration Period cemeteries. The number of brooches and weapons amongst adults at Mucking relates only to the bone evidence to enable comparison.</td>
</tr>
<tr>
<td>7/9</td>
<td>Summary of the age groups in Mucking II, subdivided by gender.</td>
</tr>
<tr>
<td>7/10</td>
<td>Summary of the palaeodemographic profile of Mucking I and II, comparing the bone evidence with the age thresholds found using body length and gender.</td>
</tr>
<tr>
<td>7/11</td>
<td>Groups A - D subdivided by individuals of known age and gender in Mucking.</td>
</tr>
<tr>
<td>7/12</td>
<td>Presence and absence of artefact types per grave in Mucking I, sorted by age thresholds.</td>
</tr>
<tr>
<td>7/13</td>
<td>Presence and absence of artefact numbers per grave in Mucking I, sorted by age thresholds.</td>
</tr>
<tr>
<td>7/14</td>
<td>Numbers of brooch types with females in Mucking I, sorted by age.</td>
</tr>
<tr>
<td>7/15</td>
<td>Numbers of brooch types with females in Mucking II, sorted by age. The brooches from Grave 589 have been counted as from Grave 585.</td>
</tr>
<tr>
<td>7/16</td>
<td>Juvenile graves with brooches in Mucking II, showing artefact types, how they were used, and whether they were worn or broken.</td>
</tr>
<tr>
<td>7/17</td>
<td>Summary of average spearhead length in relation to age in Mucking II.</td>
</tr>
<tr>
<td>7/18</td>
<td>Complete weapon graves in Mucking I, in relation to age, showing other variables.</td>
</tr>
<tr>
<td>7/19</td>
<td>Range of grave lengths (upper measurement) against age groups in Mucking I and II.</td>
</tr>
<tr>
<td>7/20</td>
<td>Range of grave depths against age groups, with numbers and percentages of shared graves in Mucking I and II.</td>
</tr>
<tr>
<td>7/21</td>
<td>Summary of the percentages of brooch and weapon burials from the regional survey.</td>
</tr>
</tbody>
</table>

**Appendix 2**

- Table App 2/1: Quantitative EDX analysis of silver foils and wires on the buckle set from Grave 117.

**Appendix 3**

- Table App 3/1: Migration Period cemeteries (including some extending into the Conversion Period), from Saxon areas, with 20 or more individuals.
- Table App 3/2: Migration Period cemeteries (including some extending into the Conversion Period), from Anglian areas, with 20 or more individuals.
- Table App 3/3: Migration Period cemeteries (including some extending into the Conversion Period), from Kentish areas, with 20 or more individuals.
- Table App 3/4: Migration Period cemeteries (including some extending into the Conversion Period), in the Lower Thames region.

**Appendix 8**

- Table App 8/1: The beadstrings from Mucking I and II.

**Appendix 19**

- Table App 19/1: The numbers and percentages of coffins in relation to age groups in Mucking I and II.
ACKNOWLEDGEMENTS

I would like to acknowledge a large number of people for their help and advice. I should like to thank in particular Martin Welch and Sue Hirst, who have provided unparalleled expertise, as well as unstinting help and advice. I received a great deal of useful feedback from Glynis Edwards, Barry Ager, Clive Orton, Theya Molleson, Professor Roy Hodson, and Dr Simon Burnell.

I also wish to thank members of my family who have supported me in many ways. I cannot thank the following people enough, as without them this thesis would never have been completed: Paul Brand, Roger Brand, Janet Clark, Paul Clark, Caroline Clark, and Rowena Clark, James Schaffer, and (especially) Tom Schaffer.

I should also like to thank the following for their contributions to the catalogue:
Harry Appleyard – fibre identification
Lindsay Badenoch – preliminary work in listing grave groups, their location and drawings
Justine Bayley – analysis of beads and other scientific advice
Leo Biek – specialist report on soil silhouettes and general scientific advice
Roger Bland – identification of Roman coins
Teresa Briscoe – identification of pottery stamps
Jean Cook – specialist report on stave-built vessels
Elisabeth Crowfoot – specialist report on textiles
Dominique de Moulins – identification of botanical remains
Judith Dobie – drawing artefacts
Corinne Duhig – advice on palaeodemographic analysis
Glynis Edwards – conservation, identification of mineral preserved organic, interpretation of x-radiographs, general scientific advice and liaison with AM Lab, specialist reports on costume and bags
Vera Evison – specialist report on the glass vessels
Bill Ford – access to Stretton-on-Fosse forthcoming report
Eric Freeman – milliprobe analysis
Frank Gardiner – advice on drawings
Chris Going – comments on Roman pottery
Cathy Haith – liaison with British Museum, access to St Peter’s Tip bone report
Helena Hamerow – comments on pottery
Jon Hather – comments on wood
Michael Heyworth – specialist report on bead analysis
Simon Hillson – comments on teeth
John Hines – comments on brooches
Miles Hitchen – cemetery distribution plots
Marjorie Hutchinson – specialist report on amber beads
Carole Keepax – wood identification
Susan La Niece – metal analysis of Grave 117 buckle
David Leigh – permission to use thesis on small square-headed brooches
Ailsa Mainman – specialist report on pottery, including Grave 102
Simon Mays – specialist report on human bone
Nigel Meeks – metal analysis of Grave 117 buckle
Theya Molleson – advice on the palaeodemographic discussion
Catherine Mortimer – specialist report on the glass beads and metal analyses
Kate Morton – drawing artefacts and plans
Clive Orton – comments and advice on seriation
Gale Owen Crocker – comments on textiles not now extant
Kenn Penn – access to Morning Thorpe, Bergh Apton, Spong Hill, and Westgarth Gardens
forthcoming report
Rosemary Powers – specialist report on human teeth
Andrew Reynolds – comments on Graves 253 and 255
Seamus Ross – comments on pins
Michael Ryder – fibre identification
David Starley – specialist report on metallography of knives and spears
Jess Tipper – comments on settlement
Sue Tyler – information on other Essex sites
Penelope Walton Rogers – identification of dyes
Jacqui Watson – conservation, identification of mineral preserved organic
Siobhan Watts – specialist comments on jet-like beads
Leslie Webster – management of Mucking project, access to Broadstairs bone report
Srbojub Zivanovic – unpublished report on human bones
INTRODUCTION

Mucking is located on the north bank of the Thames estuary, in Essex. Anglo-Saxon Cemetery I, as well as Cemetery II (referred to as ‘Mucking I’ and ‘Mucking II’ respectively) was excavated under rescue conditions. Mucking I was excavated from 1966 to 1969; 63 individuals were found, although retrieval was incomplete.

The analysis of Mucking I was undertaken as part of the publication programme of the two Anglo-Saxon cemeteries at Mucking, conducted in collaboration with Susan Hirst, FSA. Three main problems were posed in the analysis of Mucking I.

Firstly, the chronological analysis of any Anglo-Saxon cemetery is potentially flawed by the problems of chain-linking of absolutely dated artefacts from one grave context to another. Secondly, there is a great lack of bone data in Mucking I. This obviously means that a palaeodemographic analysis would be very difficult without additional supplementary data. Thirdly, given the virtual absence of bone data at Mucking I, a ‘traditional’ social analysis, based on the numbers and types of artefacts within each grave, is liable to focus on gender and status, rather than age. It was felt that cultural age groups were central to the analysis of Anglo-Saxon cemeteries.

These problems provided an opportunity to investigate and devise little-used, as well as new, methodological approaches to the analysis of Anglo-Saxon material.

The site of Mucking is particularly well known as the putative settlement site of ‘federates’. Certainly the cemeteries have long been acknowledged as amongst the earliest ‘Anglo-Saxon’ cemeteries to be established.

A definition of terms used in this thesis is necessary.
The term ‘late Roman’ is used for cemeteries that do not appear to continue beyond the late fourth or early fifth centuries. ‘Sub-Roman’ cemeteries are those that have a lack of ‘Anglo-Saxon’ or indeed any or many artefacts, combined with a predominant E-W orientation, and which are often dated using radiocarbon methods into the fifth or sixth centuries or even later. ‘Anglo-Saxon’ cemeteries are those where ‘Anglo-Saxon’ artefacts are found. This term has no validity before the late fifth century, when material culture had formed identifiable patterns that are recognisable in Britain, such as regional differences.

The self-perceived identity of individuals buried within these cemeteries cannot be known. In terms of ethnicity ‘The only requisite is that people believe themselves (or are believed by outsiders) to belong to an ethnic group’ (Halsall 1996, 57). The self-perceived identity of a person or peoples cannot be ascertained from archaeological data, and does not always equate to their area of origin. ‘Peoples’ are labelled according to their use of (or absence of) material culture, so that ‘Roman’ style of dress, or ‘Roman’ artefact forms are mentioned, but in the knowledge that documentary sources suggest that differences between ‘Romans’ and ‘Germanic’ peoples could be actively socially constructed, and were malleable and subjective, at least at times (Geary 1983, 16; Shennan 1989, 1-32; Jones 1997).

Material of Böhme’s Stufen (1974) stretched from the Elbe to the Loire, particularly in Stufe I, and from the Elbe-Weser area to Britain by Stufe III especially, ie during the late fourth and early to mid fifth centuries. This material points to a culture that can be identified by the presence of wide ‘late Roman’ belt sets (although they are not restricted to this culture), and the use of inhumation, sometimes associated with graves.
with certain types of brooches, vessels and weapons, which combine to give a display of wealth and authority. This culture combines artefacts and burial practices that traditionally are seen as ‘late Roman’ (in the use of inhumation) and ‘Germanic’ (for example the brooch types), although the culture is generally given a ‘Germanic’ tag. Material of this culture is labelled as ‘mixed’ in this study (although it may be that ‘non-ethnic’ factors were more important, such as high status), so the use of the label ‘late Roman’ to describe certain artefacts that are found in these inhumations, and which is the case at Mucking, would set up a dichotomy between two labels that may have had no basis. For example, it is clear that the term ‘late Roman’ cannot be used for wide and often ornate belt sets, so they are referred to as ‘official’ belt sets or cingulae, since these were meant (even if not used in the way originally intended) to display power by using symbols of the official authority of the Empire.

The term ‘late Roman’ therefore will not be used for artefact types that cannot be closely provenanced. Avoidance of this term is also desirable as the degree of chronological separation of ‘late Roman’ from ‘Anglo-Saxon’ or even ‘mixed culture’ is by no means as clear cut as it may initially seem. It is entirely possible, given the lack of circulating coinage in the early fifth century, that ‘late Roman’ material could have continued in production later than it might appear. The decline in coin circulation would reduce the possibilities for coin-link dating of artefacts in the Elbe-Loire area, as well as in Britain but, given the relative isolation of Britain after the withdrawal of troops in AD 407 (Esmonde Cleary 1989), its effects may have been especially marked in Britain. Wide ornate belt sets are sometimes datable to as late as the mid fifth century (Stufe III),
and, when found in Britain, post-date the official end of Empire in this area, providing another reason to avoid the term ‘late Roman’ for them.

The use of the term ‘late Roman’ in discussing art styles is appropriate, as it refers to an ornamental style that is known to be found throughout the Empire, and beyond the distribution of the ‘mixed’ culture, up to the fifth century. ‘Roman forms’ of artefact are discussed, as these are again known to extend beyond the ‘mixed culture’. A ‘sub-Romano-British art style, Quoit Brooch Style, is postulated, despite the finding of artefacts in this style in cemeteries that subsequently develop an Anglo-Saxon character, because of the distinctive similarities to late Roman art styles, and because of a distribution restricted largely to Britain.
CHAPTER 1. THE DATA FROM MUCKING I

1.1 THE SITE, ITS CONTEXT AND THE EXCAVATIONS

Mucking is located on the north bank of the Thames estuary in Essex (Fig 1/1). Details of the geology, topography and circumstances of the excavation at Mucking are given in Clark (1993), and their relation to the cemeteries in particular are described in Hirst and Clark (forthcoming, b; Fig 1/2). Mucking I is located on the landward side of the plateau.

Assessing the original size of Mucking I

Numbers

A total of 63 individuals were found in 62 graves (assuming there was only one individual in each of the empty graves). In one case (131) only a shield boss was recovered, but also possibly bone. The totals include 10 cases where grave-like cuts were found, also aligned E-W, but without traces of a body or artefacts. There were up to five more possible graves indicated by stray artefacts, but these were not counted as graves (see below). Two cremations were also located in the area, but Cremation 157 is Iron Age, and Cremation 277 is undated (Fig 1/3, Chapter 1.1, see below). Grave 258 appears to have been a Romano-British grave (Fig 1/3). One feature was given the grave number 254, but proved to be merely a pit. The full details of the grave catalogue are given in Appendix 1.

The excavation

It is clear from accounts written at the time of excavation (1966 to 1969) that at least some destruction of the cemetery had already taken place (Fig 1/5). A little
later it was stated that ‘its size will never be known’ (Jones 1972, 74), and that ‘one can only guess how large Cemetery I had been’ (Jones and Jones 1975, 164). An attempt is now made to assess the amount of archaeology that could not be excavated, using aerial photographic evidence and the number of unstratified artefacts found.

Non-excavation or destruction

There is no doubt that Mucking I suffered from incomplete retrieval within the area of excavation due to the rescue conditions (Jones 1968b, 36), perhaps even more so than some other areas. Areas of over- or under-scraping are not recorded as they subsequently were in Mucking II. A road, ramp, and spoil-heaps were recorded, however, but these appear to be largely outside the boundaries of the cemetery (except towards the north). The gravel-moving belt ran over the area of graves but was moved to permit excavation underneath (Jones 1993, 7) (Fig 1/4). There was no destruction from later features. Features were relatively unobscured to the south and east.

Some of the graves in Mucking I were as shallow as 0.13m, suggesting that in theory many cremations could have been lost; indeed the two cremations found showed signs of damage. Should Anglo-Saxon cremations have existed in the area, however, one would expect clusters of sherds to have been found, but only one unstratified (decorated) sherd was recorded.

Unstratified objects

Mucking I was the first Saxon cemetery to be found, and it is worth quoting in full the circumstances of discovery, in October 1966:
It was in an area 'abandoned to quarrying at a time of exceptional gravel demand, since it contained no recognisable crop-marks. First an axe head and then a spearhead were picked up by quarry workmen while spreading outsize pebbles on an approach road to the face' (Jones and Jones 1975, 164). ‘The finds had clearly been dug out by the dragline (which lifts over a ton of gravel at a time), dropped through the hopper, carried along a quarter of a mile...passed through the washing and grading screens, and sorted out onto the reject pile, where they had been loaded onto a lorry before being spread on a muddy quarry road...scarcely damaged’ (Jones 1968b, 44; Jones and Jones 1975, 164). ‘It remained only to watch the quarry face. It was the foreman’s vigilance which was eventually rewarded by the sight of two more spearheads projecting from the face itself [in January 1967]. There followed a quick cleaning down of the face, the recognition of a partly destroyed grave and its excavation, the hasty clearing of adjacent ground and the hurried excavation of the half dozen further graves exposed...Subsequently it was possible to investigate all the adjacent land between the farming and quarrying’ (Jones and Jones 1975, 164).

Although only two artefacts were recognised at the time of excavation, more were retrieved, and include an axe, three more spears, one sword, two shield bosses and one pursmount. These are relatively large artefacts, implying that smaller, particularly female artefacts may not have been noticed. These artefacts were found in two locations, which may bear at least some proximity to where the artefacts were originally buried. It seems helpful to estimate the maximum and minimum number of graves when these artefacts are taken into account.

One group of artefacts (an axe and spear) at c 1260N x 85W may have belonged to the shield boss identified as ‘Grave 131’ in this area (a Type 3, dated
to the mid sixth and early seventh centuries). The spear (US/5) was an E2 type, which cannot be closely dated, and the axe appears to be a fifth- or sixth-century type. These artefacts could have belonged to ‘Grave 131’, or indicate three other graves, now destroyed.

At c 1170N x 70W some unstratified artefacts were found in a cluster: three spears (Appendix 1, US/3, which is too fragmentary to classify), US/4 (a C4 type), US/2, a H2 type, US 6, a fragmentary sword (undatable) and US/7, a shield boss fragment, which could not be classified). Nearby weapon burials were Graves 114, 115 and 117. Grave 115 was so badly destroyed that no objects were retrieved from it. It is possible that Grave 115 contained the C4 sixth- to seventh-century spear, and the undatable shield boss. Grave 114 contained a Type 3 shield boss (mid sixth to early seventh centuries). It may also have contained the not closely datable H2 spear US/2. It is most likely that the sword belonged to Grave 117, as this contained a high status Quoit Brooch Style buckle. The pursmount is an undatable plain iron variety (Brown 1977a), and it may have derived from Grave 93.

In conclusion, it appears that the unstratified objects from c 1170N x 70W could indicate a further seven graves (maximum numbers) but they could be accounted for by the existing graves (minimum numbers).

**Aerial photographic evidence**

Aerial photographic evidence offered some information on the original extent of Mucking I. The archaeological potential of Mucking was first revealed by J K St Joseph in 1959 (1964, pl xxxviib), and between then and 1975 over 400 photographs of the Mucking site were taken, of which only a small fraction have
been published (eg Jones 1979b). It is clear that there were ‘almost textbook conditions for cropmark development and their clarity has often been outstanding’ (Jones 1979b, 66).

The development of cropmarks at Mucking is certainly excellent compared to many other archaeological sites, but within the site the quantity and quality of the aerial photographic evidence varies considerably. In comparison to the large, deep and wide ditches that formed the majority of the outstanding cropmarks at Mucking, the cemetery features were negligible in this respect. The cemetery areas produced ‘a poorly developed rash of spots’ (Riley 1987, 97-9), due to their comparative shallowness.

Aerial photographic evidence is affected by many factors, which need to be examined, as there is great variation even within the cemetery areas. Fewer than 10% of the inhumations in Anglo-Saxon Mucking II showed up as cropmarks (estimated from Riley 1993, fig 7, Area E), while its many periglacial features recorded in excavation did not appear as cropmarks, whereas c 50% of the graves in Mucking I were seen as cropmarks, and many periglacial features were visible in aerial photographs, but were not recorded when excavated.¹

Many variables were the same in both cemeteries, including the weather conditions (including the Soil Moisture Deficit, which is good for cropmarks in Essex generally [Allen and Sturdy 1980, 4]), the average depth of graves (0.35m in Mucking I, while in Mucking II it was 0.41m), and the number of aerial photographs taken. There was no recording, however, of the presence or absence of patches of fine sediments that may have had a large bearing on the formation of

¹ The presence of periglacial areas in the B/C subsoil 'horizon' (Jones 1993, 8), known as 'natural' in the archive plans, and which contained silt were recorded.
cropmarks, as even a thickness of only 30cm of cover loam is sufficient to suppress cropmark differentiation (Wilkinson 1988, 8). There seems to have been such a spread in the Mucking I area (Fig 1/6), but as this was also in the excavated area, this probably did not skew the findings. 'Brickearth', notoriously poor at showing of cropmarks, was also absent from both cemeteries (Riley 1987; Jones 1993, 8).

Some factors varied between the two cemeteries. Both cemeteries lay on the Boyn Hill gravel subsoils, but the western part of Mucking I also lay on the Woolwich Beds, a mixed clay loam deposit (Fig 1/2). This is less prone to forming cropmarks (Wilkinson 1988, 7-8), but set against this are the periglacial features which were found equally in the gravel and Woolwich Bed deposits. The fills in Mucking I may have been slightly sandier,2 but the main reason for the discrepancy in the quantity of cropmarks in the two Anglo-Saxon cemeteries appears to have been that the crop lucerne, poor at developing cropmarks (Jones and Catton 1971, 38), was grown over most of Mucking II (Figs 1/6 and 1/7). It covered a large part of field 5044 (Jones and Jones 1973, 35; Jones and Jones 1974a, pl I; Jones and Jones 1974b, pl I; Jones and Jones 1975, 136), which covers the centre of the excavated area. In contrast, barley, far better at developing cropmarks, covered Mucking I.3 Part of Mucking II was also damaged by a quarry test hole, which shows up very clearly in the aerial photographs.

2 The fills of Mucking I graves consisted of either sand, silt and gravel or a mixture of these, with occasional clay. There is less information about the fills in Mucking II, but they appear to have been a mixture of pebbles or gravels (Biek forthcoming, a).
3 The main reason for the vast difference in the visibility of cropmarks between the Romano-British cemeteries appears to be that lucerne covered Cemeteries II and III, and Cemetery IV was located on brickearth, which greatly reduced their visibility. In Cemetery I, however, these factors did not apply, and unlike the other cemeteries, the cropmarks were excellent (Jones 1993, fig 4). nb. Cemetery I (at 300 N x 100 W) is erroneously marked as Cemetery II in fig 4.
Although the cropmarks were considerably more numerous in Mucking I compared to Mucking II, their accuracy is less than perfect: certain periglacial features could falsely appear to be graves, and some contexts were revealed and excavated that had not shown up as cropmarks. To complicate this picture further still, some cropmarks appear to have been real archaeological features, but were not excavated due to the rescue conditions.

Periglacial features can resemble archaeological features, including graves (Figs 1/6 and 1/7); nb Figure 1/8 shows the central portion of fig 7, area K, which centres on Mucking I, in Riley [1993]). These were present in Mucking I, and could account for some or many of the small and scattered cropmarks, in fact they were so numerous that many of these were not plotted (Riley 1993, 24-5, 43). Indeed Riley states that ‘At K, the marks on the cemetery site could possibly have indicated graves, but were...difficult to interpret’ (1993, 24). The virtually uniform orientation of the excavated graves, however, meant that any cropmark not aligned on this orientation could be discounted.

Some features were excavated but did not show up as cropmarks. These can be divided into non-grave features, or graves. Both suggest that features less than 0.5 to 0.3m deep, and less than 0.6 to 0.9m wide will not form cropmarks. The larger features, primarily ditches, would be expected to show up as cropmarks more readily than the smaller graves (Jones 1971, 35; Jones 1972, 71; Haigh et al 1983, 87), but this was not the case. Only roughly two thirds of the total number of non-grave features (estimated from aerial photographs and

---

4 In the area that was excavated, the ditches 5534 and 5538, the southern extent of ditches 5234 and 5530, the ?Anglo-Saxon Posthole Building 28, and some of the Iron Age Banjo settlement to the north and east of Mucking I did now show up in the aerial photographs. Ditch 5536 was the deepest of these features, at c 0.33m deep, but was not plotted on the aerial photographic plan (Riley 1993, fig 7) although it can be seen faintly in some aerial photographs.
excavation) were revealed in aerial photography. It is clear that the reason why certain features did not form cropmarks was because they were too shallow; all were less than c 0.30m deep and from 0.60 to 0.90m wide; Riley had noted that features under 0.50m across rarely show up as cropmarks (1993, 24). It is interesting to note, however, that ditches 5530 and 5234 showed up even though they were only c 0.25m deep, but perhaps this was because they were wider (at 0.90-1.20m).

Only roughly half of the graves in the Mucking I area that were salvaged appeared as cropmarks. The depth of the graves ranges from 0.05 to 0.69m deep and they were on average c 0.60m wide. It seems reasonable to assume (based on Riley 1993, 24) that only those graves over 0.50m deep formed cropmarks, but this accounts for only c 10% of the graves. Only roughly half the graves are more than 0.30m in depth, which matched the minimum depth of the ditches that formed cropmarks, so perhaps this was the minimum depth for the formation of cropmarks in features c 1.00m wide, or less.

Some cropmarks appear to have been archaeological features, but were not retrieved. They appear to comprise roughly a third of the non-grave features in the area (see below). Certainly some features could not be excavated due to lack of time, such as the southern extent of ditch 5234. There is no reason, however, to believe that any inhumation cropmarks were not retrieved: the density of the excavated graves also suggests that excavation was complete in the cemetery area available after discovery, but three graves were almost certainly missed towards the north of the cemetery (A), where the excavations were impeded (Fig 1/8).

The features which did show up as cropmarks, for example the Iron Age Banjo ditches 5154 and 5633 were substantially deeper (up c 1.0m) and wider (ie up to 3m wide).
In conclusion, the cropmarks indicated only roughly half of the density of the graves in the excavated Eastern Boyn Hill gravel area. Assuming that this can be used to interpret the aerial photographs of the western, unexcavated, extent of the cemetery, then here the density of the graves appears to have been less than in the eastern excavated area, even allowing for fewer cropmarks, although the extent is greater than the area that was retrieved. On the western side, the Woolwich Beds suggest that a half to a third of the graves were revealed as cropmarks. About 120 graves may have been lost, and the stray finds suggest up to another seven graves, with only 63 graves excavated. The total number may therefore be estimated at c 180 graves.

Conclusion

The cemetery boundaries to the south and east are clear as these areas were unobstructed. Some graves to the north may have been obscured, although cropmarks suggest that only the small area ‘A’ has been missed.

Great destruction took place in the west, but the cropmarks suggested that perhaps c 30% of the graves, and c 25% of the cemetery area had survived.

6 The fills of all the ditches were the same, ie loamy with pebbles or gravelly loam, which shows up better than gravel (Riley 1993, 24).
Non-grave features

Various non-grave features were found in Mucking I as follows.

**Prehistoric and Romano-British features**

Grave 258 was included in the Mucking I catalogue, as it was viewed at the time of excavation as part of this cemetery. Nevertheless, further analysis has led to a re-assessment of this as probably Romano-British for several reasons: spatially it is relatively isolated, was the only grave with an orientation in direct opposition to the predominant one, and it contained a basket-weave type textile of a specifically Roman type (Crowfoot forthcoming).

The only potentially substantial prehistoric feature in the Mucking I area was enclosure 6733, known as the 1100 Enclosure (Going 1993b, 20) which was 0.9m deep. It does not seem to have influenced the layout or boundaries of the cemetery, and may not have been visible. This area is one of sparsely scattered undated, prehistoric or Romano-British graves, cremations and pits. The Romano-British Cremation 157 is probably one of these scattered cremations. A greater concentration of cremations to the south form an Iron Age Cemetery (ibid, 19). A number of graves were also found near the Banjo Compound, a primarily Iron Age, but also Roman settlement area towards the east. These graves were in many cases undated, but the presence of a copper alloy bangle, and wheel-turned pottery in two of them suggests they were Roman (n.b. although on the same alignment as Mucking I, the orientation is usually the direct opposite). No substantial Romano-British features were found in the area.
Anglo-Saxon features

An overall problem with positively identifying Anglo-Saxon features is that sand-tempered sherds of this date are not easily distinguished from Iron Age ones, so that the number of Anglo-Saxon features may be under-represented.

Several Anglo-Saxon buildings and ditches were found to the east of Mucking I (Fig 1/3). GH 86 was located within the Banjo Compound, and was allocated by Hamerow (1993a, fig 195) to Phase C, ie the seventh century, as was GH 87, and the three posthole buildings 5, 19 and 28, due to their spatial positioning. It is clear that Hamerow could not assign precise dates with confidence to individual features, so in the light of this, and with re-analysis of the pottery by Tipper (in prep), these features should now be given a broader date of the sixth-seventh centuries. Further to the south, north and west, Tipper (in prep) has identified a handful of possible *Grubenhäuser* seen on aerial photographs, of which the most convincing are shown in Fig 1/8. Their positioning suggested a date in the sixth or seventh centuries.

To the north-east of Mucking I, ditches 5532, 5534, 5536 and 5538 were probably seventh to eighth century in date (Tipper in prep). The one possible Anglo-Saxon pit in the area was also found towards the north, but could not be securely dated (12912 contains only one grass-tempered sherd) (Fig 1/3).

Undated features

Cremation 277 was undatable, as it contained no finds, but its isolated nature suggests that it is not Anglo-Saxon.

Within the cemetery area, ditch 5530 contains only one fragment of red-brick, now lost but interpreted as modern by the excavators. It is possible that it
was contemporary with the cemetery, as towards the western extent of the unexcavated cemetery there may have been graves aligned along this ditch, although this must remain speculative in the extreme. (Graves on this alignment were also found in the excavated part of the cemetery, but were not aligned to ditches.) It seems much more likely that it post-dated the cemetery, as it did not divide the cemetery chronologically; it cut Grave 122 (Fig 1/3), and the aerial photographs showed that it ran to the north-west beyond the cemetery area, suggesting it was not intended as part of the cemetery (Fig 1/8). It appears to have run across the seventh- or eighth-century ditch 5572. It is very linear, and on the same alignment as the later enclosures, so it seems that ditch 5530 may have been an enclosure boundary.

The finds of ditch 5234 were not definitive in date. It was cut by Grave 99, and was probably Anglo-Saxon, as GH 87, re-dated to the sixth or seventh century (see Chapter 1.1, above), appears to have respected the line of this ditch. It is possible, however, that this ditch was Romano-British or prehistoric, although this is less probable as the alignment matched those of other, albeit later, Anglo-Saxon ditches (Tipper in prep).

There were various undated pits to the east of the cemetery area. One large pit (F6930) that cut Grave 249, is believed to be modern, and contained three or four postholes. There were also three possible scraper tracks, F6929 (which may have cut Grave 99), F6978 and F5073 (Fig 1/3, at 1170N x 50W, and 1220N x 50W).

---

7 It contained a fragment of ?Romano-British tile, a ?sherd or ?fired clay, ?slag, flints, a nail, an ?Iron Age sherd and one grass-tempered sherd, which appears to be Anglo-Saxon.
Some cropmarks appear to have been archaeological features, which although located in an area that was supposedly salvaged, were not excavated, and so cannot be dated (Fig 1/3 and Fig 1/8). This was due to hurried excavation conditions, which seems evident especially towards the north and west of Mucking I (Fig 1/4). The ditch ‘C’ (Fig 1/8), obscured at the time of excavation, may have been the unexcavated end of 5532, the seventh- to eighth-century ditch system. What appears to have been a ditch ran across ditches 5234 and 5530, and on grounds of alignment did not seem to be Anglo-Saxon (B). There were two possible Grubenhäuser, ‘E’ to the north and ‘D’ to the south. In the non-excavated area, totally destroyed before quarrying, another ditch (F), and two possible Grubenhäuser (G and H) appeared to be visible; the ditch may have been or become a cemetery boundary, or relate to the possible Grubenhaus ‘G’. Here the cropmarks of possible Grubenhäuser were much poorer than in the east. If this does amount to nearby settlement evidence, it would show a striking similarity in this respect to the situation in Mucking II. Nevertheless, this remains conjectural, and in the absence of excavation none of these features could be securely identified or dated.

In conclusion, it is possible that, although the Grubenhäuser were originally dated to the seventh century, they may have been sixth- to seventh-century in date, with a nearby ditch system of the seventh to eighth centuries. It seems, therefore, that the Anglo-Saxon settlement features which were retrieved were contemporary with the later phases of the cemetery or post-date it.
1.2 THE OBJECTS

The range of artefacts are discussed here, and all are illustrated in Appendix 1. Further details of all the artefact types, in particular the beads, can be found in the archive. Dating of artefact types is analysed further in Chapter 5, following seriation of this material.

The positions of brooches and pins are incorporated in the costume report (Edwards forthcoming), so are not discussed here. Details of the textile examination are found in the report by Crowfoot (forthcoming) and in Walton Rogers (forthcoming). The position of objects (at left or right side) is given in relation to the burial and not the observer. These are divided for descriptive purposes into grid squares (Fig 1/9). Detailed comparisons of the artefact types to Mucking II are found in Hirst and Clark (forthcoming, b).

Brooches

There were a total of 25 brooches in 12 graves in Mucking I (Table 1/1). The most common types were the disc, small square-headed and button brooches.

*Applied saucer brooches*

Two applied brooches were found in Grave 249 (Fig 1/10). Although slightly different, both fall into Dickinson’s Group 3.1, with six face-masks (1976, 108-10, pl 25 and 26) or lion-masks (Evson 1965, 70), or Böhme’s Type Spong Hill (1986, 552, Abb 65.7).

Brooch 249/3 had a less stylised but fragmentary facemask than brooch 249/4, with a star and ring motif in the centre. The hammered up rim could be a
relatively late feature, and its larger size may mean that it may be later than brooch 249/4 (Welch 1976, 211; Dickinson 1976, 101). There are almost exact parallels of brooch 249/4 to that from Fairford, Gloucs (Leeds 1912, fig 5; Dickinson 1976, pl 25; Evison 1978, pl LVI.f; BM 1909, 3-9, 1) and West Hendred, Oxon (Hamerow 1993b, fig 4.4, pl 2.4). Böhme (1986, Abb 65.2-10) dates his insular Spong Hill Type to Stufe III, now the mid third of the fifth century (1989).

**Button brooches**

Four button brooches were found in Mucking I in Graves 90 (Fig 1/11) and 99. The button brooch 90/1 is a Class Di (Avent and Evison 1982, 22.4, 82, pl XVI). Martin Welch (pers comm) would date this group to within the first half of the sixth century on the grounds that the designs on the button brooches are secondary to the Scandinavian mask designs seen on Class A and L brooches. This is later than the first half of the fifth-century date given by Evison (Avent and Evison 1982), the reasons for which are discussed in Chapter 5. The button brooch in Grave 90/2 is an unclassified type although it is ‘very similar in design outline to Class Di and probably only a miscasting’ showing cheeks, nose and a mouth (Avent and Evison 1982, 22.3, 91, 99, pl XVIII). Welch (1983, 53) argues that part of the design could represent an arm.

In Grave 99 both button brooches belong to Class Ei (Avent and Evison 1982, 99, 22.1, 22.2, 84, pl XVI). This class is only found at Mucking (including the example from Mucking II, Grave 690B), but has been dated to within the first half of the sixth century on the same grounds as above (M Welch, pers comm). The other subtypes of Class E brooches were found in south England and northern

---

*Evison describes these as face-masks elsewhere (1978, 266-7).*
France, and similarly occur only in one cemetery each: Class Eii at Alton and Vierville, and Class Eiii at Alfriston.

**Disc brooches**

Four disc brooches were found in Graves 108, 123A and 252. They all belong to Dickinson’s Type 4 (and fall into the correct diameter range), that is displaying a quincunx of circles and dots. The disc brooches in Graves 123A and 108 are of Type 4.2, with a quincunx of single or double circles and dots (Dickinson 1976, pl 33). The example in Grave 252 is a Type 4.7, featuring a quincunx of circles and dots with linear and stamped border (ibid, 128, pl 34).

All the examples had iron pins. The pair (Grave 123A) was tinned, one of the others was not (Grave 252) and one was uncertain (Grave 108). Disc brooches are dated from the second half of the fifth to the mid sixth century (Dickinson 1979), whereas Welch (1983, 57) would date these into the late sixth century.

**Broad-band annular brooch**

A broad-band annular brooch was found in Grave 246. It is an Ager Type E, defined as having no functional notch (1985, 24). He categorised this one as an E2, ie with a separately applied pin, but there are remains of an earlier attached iron pin which had been repaired, so originally it would have been an E1. Type E brooches are not closely datable, but they were in use in all areas of Anglo-Saxon England from the mid quarters of the fifth century up to the seventh century (Ager 1985). The repair means that this example was probably buried some considerable time after manufacture, probably within the sixth century.

**Pennanular brooch**
A penannular brooch was found in Grave 249. This is a Fowler Type E brooch, defined by its animal-headed terminals (1963). It should be noted that this is not a Type C, contra White (1988, 11, 213). White states that graves containing this type, also known in Celtic contexts, are dated primarily from the second half of the fifth to the early or mid sixth century (1988, 23). The fact that it was probably in a bag could indicate that it was non-functional or old, but there is no sign of the replacement of the pin, for example, which was in leaded bronze, like the loop; generally this type is often found worn and broken (Fowler 1963, 103).

Armbrustfibel

The brooch in Grave 100 appears to be an Armbrustfibel, a type of crossbow brooch. This may be an example of Böhme’s type A, with a trapezoidal foot and small bow, dated to Stufe I (1974, 8-10, Abb 1), now dated to the late fourth century (1989), but does not closely match other examples of his, all dated to Stufen I and II, now up to the first third of the fifth century (Böhme 1989). It also compares with the fifth-century Ruuthsbo type (Schultze-Dörrlamm 1986, Abb 38.5-6), although this type usually has a more solid section, shorter catch-plate and only one or two lobes at the end of the foot. On the other hand, the notch-and-groove decoration of the Mucking brooch is closer to that of her late fifth to early sixth-century Elbe-Germanic Ozingell Type (ibid, Abb 27).9

Armbrustfibe1n are rare in England. White (1988, 39, 46-60) has suggested that the new migrants perhaps only vaguely remembered them, were too poor to obtain them, or that such brooches were unavailable, so that Romano-British Colchester or Nauheim type brooches were used as substitutes. The ‘hybrid’

---

9 I am indebted to Barry Ager for these observations.
nature of this brooch may imply that it was an insular product. It was broken and found in a bag.

*Equal-arm brooch*

Only one equal-arm brooch was found in Mucking I, in Grave 90 (Fig 1/12). The parallels to Saxon brooches in the Elbe-Weser area have already been published (Jones *et al* 1968, 219, pl L1.b; Evison 1977, 130-1, 138; Böhme 1986, 527-37, Abb 49.1, Abb 50.1 and 2, Abb 52.1). It is similar to the example from Sahlenburg / Galgenberg, Grave 19 (Böhme 1974, Abb 36.16; Böhme 1986, Abb 50.1) ‘...in shape and motifs, but it has only a faint trace of the outer beaded borders which are a prominent feature of this type’ (Evison 1977, 130-1; Welch 1975, 89, fn 3; Welch 1983, 53), although the Mucking example is a cruder copy, and matches another from Westerwanna (Böhme 1986, Abb 50.2). This type of brooch was manufactured in *Stufe* II (Böhme 1974). This brooch is discussed further in Chapter 5. Evison has pointed out that the applied pin catch could be a mend, but these were often applied separately (1977, 130-1).

*Cruciform brooches*

A pair of cruciform brooches were found in Grave 92. It is possible to summarise the comments made by Catherine Mortimer (Appendix 2). They are a Mortimer Type D5 (1990), ie with lappets and an expanded foot (animal head) parts. On the basis of the lappet style, this brooch should be Type D5c (with a ‘descending animal’), which is probably sixth century in date, but based purely on the stage of ‘development’ of the brooches.
**Small-long brooches**

The pair of small-long brooches from Grave 93 \(^{10}\) with cross-shaped headplates and crescent-shaped terminals are related to Böhme’s *Typ Borgstedt-Rothwell* (1986, 554-8), found mainly in north Germany (including Schleswig-Holstein) and Anglian Britain (but with two examples from East Kent). One of the examples of this type on his fig 72 appears to have the unusual vertically grooved bow of these brooches, but none has such a fully crescent-shaped foot. Leeds (1945, 32) noted that such grooved bows are characteristic of Norwegian brooches of the fifth and early sixth centuries. Böhme’s group is placed in *Stufe III*, now seen as mid fifth century (1989), but these brooches may have originated around the last quarter of the fifth century and possibly continued into the early sixth century (J Hines, pers comm).

**Small square-headed brooches**

Two pairs of small square-headed brooches were found in Mucking I, in Graves 99 and 102 (Fig 1/13). These were one of the more common brooch types in Mucking I. The pair of mercury gilded copper alloy brooches from Grave 99 are clearly closely related to an unstratified copper alloy pair (nos 3427-8) and the single silver brooch from Grave 2 at Highdown, Sussex (Welch 1983, 74, figs 88a and 117a). Leigh (1980, 104, pl 43) placed the Mucking brooches in his Kentish Series III, ie copper alloy type, which he dated to after c AD 530.\(^{11}\) While in general these brooches are most like the copper alloy pair, the border of annular punchmarks is not found on these, but it is on the silver brooch. The animal

---

\(^{10}\) Although these are a matching pair, the presence of a groove below the bow in Grave 93 suggests that they were not made in the same mould.

\(^{11}\) A similar brooch was found in Cremation 31, Alton, Hants (Evison 1988, 8, fig 42).
ornament on the Mucking brooches is sharper than on the Highdown copper alloy pair and the ornament on the bow panels more clearly zoomorphic.

More unusual are the pair from Grave 102 with their divided triangular feet and asymmetric, very stylised animal ornament. The zigzag decoration on the bow may have been intended to give the same effect as the zigzag silver lines outlined by double nielloed borders found on the silver brooches. Though there is no parallel for the triangular foot among the Kentish small square-headed brooches, both Leigh (1980, 121-9) and Evison (1968, 217-18) seemed to conclude that this was an eccentric development of the usual lozenge-shaped foot, since on other grounds—size, shape, technique and schematic animal ornament—these examples would appear to be later examples of a Series III Kentish brooch (Leigh 1980, II, 129, fig 17, vol 3, pl 61). There are other examples with sub-triangular feet: a small-long brooch from East Surrey with a square head from Botley Hill (Welch 1996, 169, fig 4.20), a sheet metal imitation which probably once had decorative appliqués, with the dubious provenance of Herpes, Charente (British Museum, MLA 1905, 5-20, 192), and a small-long brooch from Wijnaldum, Friesland (Zijlstra 1991, 25, pl 4).12 The latter two suggest that this is a type concentrated on the north French coast and the Netherlands, as well as the Kentish area.

First-century brooch

The brooch in Grave 123A is a Polden Hill type, dated to the second half of the first century AD (Hattat 1982, 69-70). It was found in a bag assemblage, and so was not in use as part of the costume. A pin from a much larger Iron Age

---

12 I am indebted to Barry Ager for these observations.
A penannular brooch occurs in the adult Grave 252 (Kilbride-Jones 1980) but this time appears to have been in use as a dress pin.

Miscellaneous

A brooch spring was found in an unrecorded position in Grave 116, without other traces of a brooch.

Ornaments

Pins

There were five, or possibly six iron pins in Mucking I. The crook-headed pin in Grave 108 is dated to the sixth century (Ross 1992, 204-5). The two hook-headed pins in Graves 127B and 266 are dated to the late fifth or early sixth century (ibid, 198-201). It was not possible to classify the pins in Grave 99, as the length of the shaft is unknown. In the case of the pin from Grave 102, the shaft is too long to belong to the Ball-Headed Type (ibid, 295-305), Kingston Disc-Headed Type (ibid, 224, 231), Biconical Headed Type (ibid, 284) or Inverted Pear Type (ibid, 288), as defined by Ross (1992). A possible pin fragment was found in Grave 243.

Bracelet

The bracelet in Grave 250 was wire-drawn with an expanded joint. Wire bracelets with sliding knots are not closely datable as these are identical to late fourth-century ones, at Lankhills for example (Clarke 1979, fig 85.439), while the type can be found in Anglo-Saxon graves into the early sixth-century graves (Dickinson 1976, 240). Sixth- and seventh-century examples were also found at
Buckland, Dover, in Kent (Evison 1987, 85). The example from Grave 250 was probably worn on the wrist.

*Finger rings*

The finger rings in Cemeteries I and II are remarkable for their relative frequency and the range of decoration (Fisher 1979, 36). The two examples in Mucking I were found in Graves 99 and 283. Both rings in Mucking I are silver expanding types (ibid, 27), both made in sheet silver and incised. That in Grave 99 has overlapping ends, and that in Grave 283 is a spiral type. Both have decorative edge grooves (and vertical grooves at the tapering terminals). This decoration appears to be the commonest type of decoration for this type of ring (ibid, 36).

These are the most popular type of finger ring, and are found throughout the Anglo-Saxon period, but especially in the fifth and sixth centuries (ibid, 29-37; see Hirst and Clark forthcoming, b). Silver examples tend to be later, largely sixth to seventh centuries in date (Dickinson 1976, 199).

The finger rings in Graves 99, found on the right side, and 283, found on the left side, were both lying in the waist/pelvic area, and were probably worn on a finger, as the arms have left no trace. This is the most common position for such rings (Fisher 1979, 28). Other possibilities are that they were contained in a purse, or formed part of a necklace (Fisher 1979, 27), although this does not seem to have been the case with the Mucking I examples.
Beads

The cemetery yielded 102 monochrome, 27 polychrome and 216 beads in non-glass materials (Table 1/2). A technical analysis of the monochrome beads has been undertaken by Mortimer and Heyworth (forthcoming).

Monochrome beads

The 102 monochrome glass beads in Mucking I (excluding gold-in-glass type beads) comprise just over a quarter of all the beads. Only six out of the 51 graves contained monochrome beads. In general, there was a scattering of every colour in each grave, with the only concentration of one colour being found in Grave 99, which contained purple beads. The general classification is based on the beads from Mucking II (Hirst and Clark forthcoming, b).

Table 1/3 shows the number of monochrome beads according to colour, in descending order of frequency. The most common colour is medium or dark blue (7.7 and 7.8) with 28 beads, followed by opaque yellow (5.1) with 15 beads, opaque red (2.1 and 2.3) and rose/purple (1.1) with 12 beads in each colour, and opaque white and blue white (8.1 and 8.2) with 10 beads. There were eight beads in pale blue green and blue green (6.5, 6.6) and seven in semi-translucent blue green (6.7). The colours semi-opaque green (6.1), dark green (6.3) and green black (6.4), opaque pale blue (7.6), green blue (7.4), semi-opaque green blue (7.2) and translucent yellow beads (5.2) are found in percentages of 1 to 2% each.

The most common shapes (Table 1/4) are annulars (A2) at 45%, followed by discs (A1) at 27%. The other forms all consisted of under 10% of the total:
spirally coiled globulars (B2), cylinders with a small perforation and thick wall (G1), globulars (B1) and a barrel (D1).

1.1 Rose/purple

Twelve percent of the monochrome beads in Mucking I are of a rose/purple colour, and were found only in Grave 99. Although the forms fall equally into annular/discs and spirally coiled globulars, this is a somewhat artificially imposed distinction, as the annulars also appeared to have been wound, and were not well marvered. They could have come from the same batch. Purple beads are not closely datable, being of the late fifth century onwards (Guido 1999, 55-7). No polychromes used this colour, either as a base or decorative colour.

2.1, 2.3 Red beads

Red beads were found in four graves in Mucking I (90, 93, 99 and 123A), with a maximum of five in Grave 99. Although no beads in Mucking I were red brown, four beads were streaked with black (2.3) due to inhomogeneities, all in Grave 99. The most common form was a disc, of which there were seven examples, with one annular and one globular bead, dated by Guido (1999, 60) from the fifth to eighth centuries, with the emphasis on the sixth century. There were two thick walled cylinders in Grave 123A. These shapes fall within the range of types found in Mucking II, apart from the type of barrel-shaped bead in Grave 99, which is a type concentrated in Kent and which is often, but not always, late sixth and seventh century in date (Hawkes 1973, 193). Opaque red is the most frequent base colour amongst the polychromes, comprising 41% of them (11 beads).
5.1 Opaque yellow

Opaque yellow accounts for 15% of the sample, and is the second most frequent colour. These beads were found in all the graves with monochrome beads apart from Grave 93. The maximum number in one grave was six, in Grave 99. Most of the beads in this colour are in the form of a disc, with one annular, dated by Guido to the late fifth, sixth and sometimes the seventh centuries (1999, 38). There were four thick walled cylinders, dated primarily to the late sixth century (Hawkes 1973, 193). Amongst the polychromes, opaque yellow is the third most common base colour, at 11%.

5.2 Translucent yellow

One fragmentary example in translucent yellow was found in Grave 99. Only one polychrome bead used this as a base colour.

6.1 Semi-opaque green

There was only one semi-opaque green bead, a disc in Grave 123A. No polychromes used this colour.

6.3 Dark green

There were two annular/discs in dark green in Mucking I, in Grave 99. Two polychromes (7%) used this as the base colour.
6.4 Dark green/black
There were only two such beads: one a disc/annular in Grave 99 and one a globular in Grave 125. Black beads are dated to the late fifth or early sixth centuries (Guido 1999, 20). One bead, the polychrome bead in Grave 116, used this as the base colour.

6.5, 6.6, and 6.7 Blue green
There were six beads in pale blue green (6.5) and all are annulars, two in blue green (6.6), also annulars, and seven in semi-translucent blue green (6.7), of which some were discs, but most were annulars. Only two polychromes used 6.7 as a base colour.

7.2, 7.4 Green blue
There was one disc in semi-opaque green blue (7.2) and one annular in green blue (7.4). No polychromes used this as a base colour. There were no examples of pale green blue (7.1) and semi translucent green blue (7.3).

7.6 Opaque pale blue
There was only one bead in opaque pale blue (7.6), an annular from Grave 116. There were no examples of translucent pale blue (7.5).

7.7 Blue and 7.8 Translucent dark blue
The most common colour amongst the monochromes was translucent blue (7.7), of which nearly all were annular, apart from two coiled globulars and one
fragmentary bead. They were found in all the graves with beads, apart from Grave 90, with the maximum number of eight in Grave 99. One bead from Grave 99 is missing, but was described as 'deep blue'. No polychromes used this as a base colour. Seven beads, all annulars, are found in translucent dark blue, all in Grave 99. No polychromes used this as a base colour. Annular beads are dated primarily to the fifth and the first half of the sixth centuries (Sherlock 1977, 8).

8.1 and 8.2 Opaque white and blue white

There were six beads in opaque white, with two discs, three annulars, and one fragmentary bead. They were found in four graves. There were four blue white beads, all discs. Opaque blue white was not used in polychrome beads, but opaque white was the second most common base colour amongst the polychromes, at 22%. White beads are dated from the second half of the fifth century but primarily to the sixth and seventh centuries (Guido 1999, 31-2).

Polychrome beads

There are a total of 27 polychrome beads (7% of the total number of beads). The two most common colours are opaque red and opaque white. This is in marked contrast to the monochrome beads, where the most common colours are medium and dark blue (28%), opaque yellow (15%), opaque red (12%) and purple (12%). Table 1/5 shows the base colours in descending order of frequency, with opaque red forming 41% and opaque white forming 22% of the total. Opaque yellow is the next most common colour at 11%. The other colours occurred less frequently, at under 10% (Table 1/5). The most common form is the barrel at 33%, the disc at
30%, and cylinders at 22%. Bicones, annulars and globulars each were found in quantities of under 10% (Table 1/6).

P4 - wiredrawn single spiral

The three examples were all found in Grave 116. These opaque red cylinder beads have an opaque yellow spiral wire drawn in one direction only (ie ‘scallops’). These are very similar to those in Schretzheim, Group 49.11 and 12 (Koch 1977, 212, Farbtafel 5), which she considers typical of *Stufe* 3 (565-590/600), but are also found in *Stufe* 4 (590/600-620/630). Similar beads of all colours were found in Dover (D14) in two graves of Phases 3 and 4, ie AD 575-650 (Evison 1987, table VII). These come under Guido’s red ‘combed’ beads which she dates to the sixth and seventh centuries, and which may have been imported from the Alamannic area (1999, 61-2).

P6 - zigzags

A large green/black annular with a white zigzag was found in Grave 116. This most resembles beads of Koch’s Group 27 (also including waves) which were common in the sixth and seventh centuries (1977, 205, Farbtafel 2, 27.12). Guido, however, dates black beads with white or coloured zigzags (1999, 22-3) to the fifth and sixth centuries. These beads are probably imports from Slavic or Germanic areas.
P9 - double crossing waves

Double crossing waves were the most common decorative type. In Grave 90 there are two discs in opaque yellow with narrow crossing blue green waves, dated primarily to the sixth century (Guido 1999, 40), although they have been dated later; narrowly spaced waves are believed to have been made from c AD 600 (Koch 1977, 206-7, Farbtafel 3, Group 34). Amongst these, certain types ought, however, to be distinguished. In Grave 116, there was one opaque red disc with white waves (1h), an opaque white disc with narrowly crossing pale blue waves (1j), and one large opaque yellow bicone with high crossing red waves (1i). All of these could be late sixth to seventh century in date, as they are small or medium-sized barrel shaped beads with narrow or high crossing waves, or are large with high crossing waves (Penn forthcoming).

P10 - irregular linear trails

One bead falls into this category, and consists of a semi-translucent blue green cylinder, with opaque yellow and red trails. This was probably intended to form a pair with the spiral and wave P19 bead, also in Grave 99, but it was perhaps less expertly executed, or became damaged by marvering. Translucent beads with opaque trails may be fifth to sixth century in date (B Brugmann, pers comm).

P11c - spots

Two opaque white discs in Grave 99 were very similar, with pale blue green and opaque red spots. On one bead, two spots of each colour were placed nearer opposite ends of the bead, whereas on the other, the spots, now with four in each colour, were more irregularly placed and sometimes had trails. These relate to
Koch’s Type 3, particularly 3.2 (1977, 199, Farbtafel 1), dated to the late Stufe 3 to early Stufe 4 (c 565-620/630). Guido (1999, 33) dates white spotted beads to c 550-650.

P12 - warts

The only bead of this type in either cemetery was a large barrel in opaque red, with three opaque yellow ‘warts’. This is similar to a bead type in Koch’s Group 24, although of a slightly different shape. These are dated to Stufen 3, 4, and 5, ie 565-650/660 (1977, 204, Farbtafel 2.3), and have a similar date in Grave 10, Mill Hill, Kent (Brugmann 1997), however, they can be fifth century in date, as with the example from Liebenau (Siegmann 1997, Abb 3.9-11).

b) Combined motifs

P15 - stripe and zigzag

There were two large barrels in dark green in Grave 102 with a yellow zigzag around the centre, overlaid by three red stripes. These are dated to the sixth and seventh centuries by Guido (1999, 45-6).

P16 - stripe and two zigzags

This large translucent green yellow barrel from Grave 116 is decorated with two white zigzags, divided by a stripe around the circumference. A similar motif can be found in bead 30.2, but in different colours (Koch 1977, Farbtafel 3). Translucent beads with opaque trails may be fifth to sixth century in date (Brugmann, pers comm).
P17 - stripe and single irregular wave

One barrel, in Grave 99, was found in white with a blue green stripe and single irregular wave.

P19 - spiral and wave

The semi-translucent blue green barrel with an opaque yellow spiral and opaque red wave is similar to that classified under P10 also in Grave 99 (see above). As we have seen, translucent beads with opaque trails may be fifth to sixth century in date (Brugmann, pers. comm.).

P23 - double crossing wave and single row of spots

This was the most common form of polychrome decoration in Mucking I.

P23a same colour wave and spot

There are five examples of this type, all found in Grave 116 (1m-p): all are in opaque red, three with white crossing waves and spots, of which one was a large barrel, one a globular and one a cylinder, and two barrels with yellow waves and spots. All of these fall into the category of small or medium-sized barrels with narrow or high crossing waves, and sometimes spots, dated to the late sixth and seventh centuries (Penn forthcoming). Similar, but large beads, such as 116/1n can also be late (Penn forthcoming).
P23b different colour wave and spot

There were two discs of this type: one in opaque white with blue crossing waves and red spots from Grave 99, and one translucent yellow bead with opaque yellow crossing waves and red spots from Grave 93. Again, these beads have widely spaced waves, and so are datable to the sixth and seventh centuries, although the white examples tend to mid sixth century onwards (Hirst and Clark forthcoming, b). This is similar to Koch’s type 21 (1977, 202-3, Farbtafel 1).

P28a – spiral-trail cabled

The sole example of this type, in Grave 123A, consists of a red opaque cylinder with a two-ply S-twisted yellow and semi-opaque green twisted cable. They are known as ‘traffic light’ beads (Penn forthcoming) and are late fifth to mid sixth century in date, with a primarily East Anglian distribution.

‘Gold-in-glass’ beads

There are very few examples of this type of bead, found in three graves (90, 123A and 256), with most coming from Grave 256. Full details of the classification and examination by Justine Bayley (forthcoming) and descriptions of individual beads are given in Appendix 1. There are no triple drawn globular beads (Table 1/7). The most common form is the single bead, with only a few doubles occurring, although it should be remembered that doubles can often be broken and resemble singles. As there are so few of these beads (Table 1/8), the relative frequency of
each type may be misleading. They are believed to date primarily to the first half
of the sixth century (Clark forthcoming, h).

Non-glass beads

Amber beads

Nine graves yielded a total of 207 amber beads, which constitute 57% of the beads
from this cemetery. They were examined by Hutchinson (1995), whose detailed
observations are to be found in the grave catalogue (Appendix 1), including the
particular details of wear. Examples of worn amber beads occur in all the graves in
which amber beads were found, except in Grave 125.

Over half of these beads were found in one grave, Grave 256, while there
were 29 beads in Grave 99, three graves with around ten, and four graves with one
to three beads. The most common form by far is the irregular barrel, with a handful
of irregular wedge, long bicone, disc, cylinder and globular shapes (Table 1/9). The
majority of these beads are medium sized, and this applies to all the shapes apart
from the wedges, which were all large.

The presence of amber in itself need not be dated any more closely than
from the mid fifth to the earliest seventh century (Dickinson 1976, 204-5), although
amber beads seem to be most common in the second half of the sixth century
(Huggett 1988, 66).

Pewter bead

One fragmentary pewter bead was found in Grave 99. This is similar to beads
from Portway, Andover, Hants in pewter or leaded bronze (Cook and Dacre 1985,
A pewter bead was also found in Grave 184 at Lechlade, Gloucs (Clark forthcoming, h).

‘Jet-like’ beads
The analysis of the ‘jet-like’ beads is discussed in full elsewhere (Watts forthcoming). The five beads, all in Grave 99, are of an intermediate material that could not be identified more closely than either cannel coal, or lignite.

Faience bead
Only one faience bead was found, in Grave 283. These are probably Roman in date, and are discussed further elsewhere (Hirst and Clark forthcoming, b).

Copper alloy bead
A cast grooved cylindrical copper alloy bead found in Grave 99 appears to have been a neck string stopper. It does not seem to be closely datable.

The bead strings
There were nine bead strings, which fall into three main categories, according to the bead strings found in Mucking II (Hirst and Clark, forthcoming, b, Table Appendix 8/1):

a) Those that are primarily amber (Grave 283).

b) Those that are primarily glass, largely blue in colour, and monochrome glass (Grave 93).
c) Those that were primarily glass, with a mixture of coloured glass, where the beads are primarily monochrome (Graves 90 and 99).

The strings in Graves 102 and 125 were too small (with a maximum of five beads) to be categorised.

The exact position of the beads as found is known in nearly all cases from the excavation records or photographic slides, except for Graves 256 and 283.

Two strings belong to Group One, that is strings that are primarily made up of amber. It was possible to fully reconstruct the string in Grave 283, as the general layout is known, although the positioning of each individual bead is not. Here there were two strands, each of eight amber beads, graduated in size with a central faience bead (Fig 1/14). For Grave 256 a rough sketch is all that exists, and here it appears that the 15 ‘gold-in-glass’ beads were interspersed among the 129 amber beads.

There were four strings in Group Two, that is, consisting primarily of monochrome beads. In the larger strings, although similar beads do not always occur in even numbers, it is possible that there was meant to be a rough symmetry, with grading by size, with the placing of similar beads on opposite sides of the string.

In Grave 99, the string was able to be largely, but not completely reconstructed, due to animal disturbance (Figs 1/15 and 1/16). Here the larger amber beads are placed towards the centre of the string, making the string graded in size. The long biconical amber beads and monochrome glass beads (primarily blue, purple, green, red, yellow and white) were interspersed at fairly regular intervals. The string is not symmetrical, but the general layout on each side tends to match the other side. It is interesting to note that similar polychrome beads
were paired on each side of the string: the stripe and wave beads (bead no. 21, 99/4n and no. 76, 99/4q, nb. bead no. 21 is fragmentary, but appears to be very similar to bead no. 76), the spiral and trail beads (no. 58, 99/4r and no. 8, 99/4o) and the spotted beads (no. 42, 99/4pi and no. 47a, 99/4pii). Only the wave and spot bead (99/4s, no. 37) is a singleton, but it is possible that animal disturbance had removed its pair.

The smaller mixed groups of glass and amber beads comprise Group Three. The clearest example in Grave 123A consists of runs of amber (up to seven beads) interspersed with red, yellow, blue and green monochromes with a single ‘gold-in-glass’ and polychrome bead. In Grave 102 there were two polychrome wave and stripe beads with two smaller and one larger amber bead. Unfortunately, reconstruction of the string is not possible, but it may have been symmetrical.

The strings were probably tied to pairs of brooches in the case of Graves 90, 99, 102 and 123A. In Graves 116, 125, 256 and 283, the beads were found in the neck area, but as no brooches were present, they were either sewn onto the costume, or formed a necklace.

The group of beads in Grave 93, found in the lower central chest area and forming a small loop, may have been worn as a bangle on the right wrist (Fig 1/14). The occasional finding of beads near wrists has led some excavators to interpret the strings as bangles, bracelets or armlets. Unfortunately, most of these examples cannot be relied on with certainty as the excavations are not recent.\textsuperscript{13} It is also possible that these beads were sewn onto the costume, around a high waist.

\textsuperscript{13} For example, at Sleaford, Lincs, in Graves 48 and 65 (Thomas 1887, 391-2), Grave 3 in Cheesecake Hill, Yorks (Mortimer 1905, 287), Newport Pagnell, Bucks (Smith 1905, 204), or Kempston, Beds (Smith 1904, 182). Interestingly, beads may have been sewn onto the sleeve in Grave 126, at Basel-Kleinhüttingen, in Alammania (Christlein 1979, 80, Abb 54).
This appears to have been a ‘Saxon’ trait (Owen-Crocker 1986, 45), found for example at Lechlade, Gloucs (Clark forthcoming, h). On balance it would appear that the bead string probably hung at the waist.

**Buckles and belt fittings**

There were a total of 18 buckles in 17 graves (two being found in Grave 244). Thirteen were of iron and five in copper alloy (Table 1/10).

*Zoomorphic buckle with fixed trapezoidal plate*

The much published buckle in Grave 91 (Evison 1968; Evison 1981a) is an example of White’s Type B2 (1988, 46, 52), or Hawkes and Dunning’s Group IIIB (1961, 59-60), a type of two-piece buckle, in other words a buckle where the loop and plate are cast in one piece, with semi-circular a loop and open-jawed animal heads confronted across the hinge-bar. This type has been categorised more finely by Böhme (1974, 73; 1986, 508-9, Abb 31.1) as a ‘Krefeld-Gellep Type’, that is a small zoomorphic type with a trapezoidal plate. It appears to have been an import, as the main distribution is concentrated in the Meuse and Rhine valleys, and in northern France, with a only few found in Britain. These buckles are often associated with Type Krefeld-Gellep / Samson / Abingdon swords (Böhme 1974, 71-3, Fundliste 16; 1986, 508-9, Liste 2, Abb 33-4). Evison (1968, 236) pointed out, however, that the buckle in Grave 91 may be a crude copy as it
differs from most of the European parallels in having a twisted loop. It may conceivably have been manufactured in southern Britain.

The manufacture of this type of buckle has been dated to Stufe III, now the mid third of the fifth century (Böhme 1989), with burial continuing into the late fifth century or still later (Welch 1983, 89). There is no evidence of wear on the buckle in Grave 91 (G Edwards, pers comm). The iron tongue, however, may be a replacement.

_Quoit Brooch Style belt set_

A uniquely complete wide five-piece belt set was found in Grave 117 (Fig 1/17), and has been widely discussed, in the first instance by Evison (1968). It consists of a buckle plate, counter plate, rectangular plate and two triangular plates.

This belt set has been classified by Ypey (1969) as Form A, and by Böhme (1974, 55-7, Karte 11; 1986, fn 7, Abb 3) as Type A, ie relief cast five-piece, a type he placed in Stufe I, but it is distinct both in form and in terms of decorative motifs from such late fourth-century wide relief cast buckles (Evison 1968, 231-4).

This splendid belt set was a key artefact in defining and dating the Quoit Brooch Style, being clearly linked to _cingulaf_ or wide ‘official’ _buckles_ that acted as insignia of the Roman Empire, or at the very least symbols of power and authority, and to other items of Quoit Brooch Style metalwork, as recognised and discussed by Evison in 1968 (Chapter 5). There is no evidence that the Grave 117

---

14 This is not in fact the case, as it is grooved, but it must have been the intention to convey given this impression.

15 It is cast in one unlike the wide multi-piece belt sets that are primarily _Stufe_ I in date, ie the late fourth century (Böhme 1989; White 1990, note 63).
belt set was in pristine condition when buried (G Edwards, pers comm), but artefacts decorated in Quoit Brooch Style often appear to have been old and damaged when buried.

The belt set was found with a belt stiffener and various fittings (previously unpublished), which were probably used to reinforce a narrow leather strap behind a wider strap. This strap would have travelled behind the counter plate and buckle plate through the buckle loop, in order to hang outside. Evison (1968, 240) argued that the copper alloy strengthening strips found in ‘Simple’ belt sets to strengthen the wide leather belt had typologically evolved to become cast in one to form a solid rectangle, but this does not appear to have been the case (Böhme 1974, 55-83).

The belt set was decorated by relief casting ('chip carving' no longer being regarded as an appropriate term), combined with incised (hatching) and punched designs, and with silver wire sheet and inlay. The motifs are zoomorphic, geometric and vegetal, combined with stylised face motifs. The most probable outlines of the sheet and inlay are based on the metallurgical analysis by Catherine Mortimer (Appendix 2) and the appearance of the belt set when first excavated, seen in Fig 1/17. The only discrepancy with Vera Evison’s 1968 description is that the oval aperture of the buckle was cast and not cut.

Iron inlaid buckle

The iron kidney-shaped buckle in Grave 272 (Fig 1/18) was inlaid with alternating criss-cross brass (yellow) and copper (pink/brown) strips. It seems probable then that the buckle from Grave 272 originally had an inlaid plate that is

---

16 This is *contra* the observation made by White (1988, 57).
now missing. Such buckles are dated primarily from the mid to late fifth century (Evison 1965, 20), but they were occasionally being buried into the early sixth century (Welch 1983, 97).

Alternating inlaid colours are also found on buckles elsewhere,\(^{18}\) as is trellis and criss-cross inlay.\(^{19}\) Although seen primarily as Frankish (Evison 1965, 20), at least some inlaid buckles might have been of British origin, as inlay techniques were familiar to Quoit Brooch Style craftsmen, which, it is argued here, was an insular art style (Chapter 5).

**Kidney-shaped copper alloy buckle**

A kidney-shaped copper alloy buckle was found in Grave 249. This has no trace of inlay, but has transverse grooves. The iron tongue suggests the possibility that an original copper alloy tongue has been replaced. Kidney-shaped buckles are primarily fifth century in date and continue into the sixth century (Dickinson 1976, 249).

**Sixth-century heavy cast copper alloy buckles and rivets**

One example of a heavy, cast, bevelled D-shaped buckle, missing the tongue, was found in Grave 116, in association with two shoe-shaped rivets. The presence of the latter leaves little doubt that this was originally a shield-on-tongue buckle of the very common sixth-century Merovingian type, Böhner’s Type A6.

---

\(^{17}\) Unfortunately, the remaining evidence for leather is insufficient to confirm this.

\(^{18}\) The buckle loop from Grave 28, Howletts, Kent, in gilt silver and silver wire (Evison 1955a, 36, pl IV.d).

\(^{19}\) As on buckles from Grave 25, Howletts, Kent (ibid, 36, pl IV.b), Grave 10, Alfriston, Sussex (ibid, 38, pl V.c; Welch 1983, 94-5, fig 4.e) and Bifrons, Kent (Evison 1955a, 41; Evison 1965, pl 5a; Werner 1953a, Taf 6.7). Welch (1983, 94-5) has also pointed out similar cross-hatched buckles from Kärlich, in the Rhineland.
Accompanying iron fragments may be the remains of a replacement tongue of different form.

Böhner (1958, 181-2) dated the type generally in his Stufe III (525-600). Martin (1989, 132-5) has traced a taxonomical evolution of the type which places the earliest, slender forms in the late fifth or beginning of the sixth century. An increasing number of coin-dated finds on the Continent have defined the heyday of the ‘classic’ form, with associated shoe-shaped belt-rivets, more narrowly as the period c 525-575 (or approximately the middle third of the sixth century), but there is ample evidence of individual examples continuing in use at least until 600 in Francia (Burnell et al 1994, 146-8). A similarly later than expected date is arrived at for the well-furnished weapon Grave 61 at Wünneberg-Fürstenberg in eastern Westphalia (Melzer 1991, 38-9, 80-6). In England, examples are concentrated in east Kent (Brugmann 1999, passim), with at least one notable occurrence in the Upper Thames region at Watchfield, Oxon (Scull 1986, 111-12). In Kent the type can also persist into the early seventh century, of which Grave 96a at Dover, Buckland, is just one instance (Evison 1987, 87-9, fig 45). The fact that the Mucking piece was missing its original tongue, and was accompanied by only two (rather than the usual three), rather worn belt-rivets, suggests that it may have been in use for a long time when buried.

Oval iron buckles

Three examples of oval buckles were found in Mucking I (119, 276 and 283). They are not closely datable. The buckle in Grave 276 had an iron loop and tongue, and a square copper alloy plate.
D-shaped iron buckles

There were seven examples of D-shaped buckles. Two buckles had plates: one in Grave 245 was fragmentary and one in Grave 108 was rectangular. They are not closely datable.

Circular iron buckles

Three examples of circular buckle loops were found in Mucking I. These are often fifth-century in date, although they may persist into, and even throughout, the sixth century (Dickinson 1976, 250-1). One of them, in Grave 252, had a square plate, with originally five copper alloy rivets.

Belt stiffener

A possible belt stiffener was found in Grave 244, with (but not near) two iron buckles, one oval and one circular.

Personal Accessories

Spindlewhorl

The only spindlewhorl, a fossil sponge, was found in a bag in Grave 100. This is a Hamerow (1993a, 65) Type 4 (ie spindlewhorl in other materials) and is not closely datable.

Shears

One example of iron shears was found in Grave 99. These are normally believed to be dated from the second half of the seventh and eighth centuries (Geake 1997, table 6.1), although this need not necessarily always be the case. This example
was full size and functional (ie over c 9cm in length) (Myres and Green 1973, 108). The shears were placed near a glass bowl at the feet.

_Awl_

An awl found in Grave 244 had been buried in a ?calfskin bag. Tools are not closely datable.

_Knives_

There were 19 knives from the same number of graves. The knives have been classified according to Evison’s scheme (1987, 113), but this had to be extended as certain knives at Mucking did not fit this typology (Hirst and Clark forthcoming, b). The new categories are Type 7 (curved back and angled cutting edge) and Type 8 (curved back and incurved cutting edge). The position of the tang relative to the blade was also noted:

a) Tang central with shoulder both sides.
b) Tang central with smooth junction both sides.
c) Tang in line with back, with shoulder at junction with cutting edge.
d) Tang in line with cutting edge, with shoulder at junction with back.

By far the most common type was Type 1, of which there were six with tang type a, four with type b, and one with tang type d. There were only two Type 2 knives, with one type a and one type d tang, and two Type 3 knives, both with tang type d. Even less well represented were one Type 6 knife, with a tang type d, one Type 7 with tang type d, and one Type 8 with tang type a (Table 1/11).

The dating of knives, based on the chronology from the Trier region (Böhner 1958, 214-5) has recently been brought into question. Knives in Anglo-

60
Saxon areas at least appear to have been associated with artefacts with a wider chronological range at Castledyke, Barton-on-Humber, Humbs (Drinkall 1998), Apple Down, Sussex (Down and Welch 1990, 102), and Norton-on-Tees, Cleveland (Sherlock and Welch 1992, 49) and Buckland, Dover (Evison 1987, 115). Thus Type 2 has been re-dated from the mid fifth to seventh centuries from a narrower mid fifth- to sixth-century date. Type 3 (Evison 1987, 113-15), equivalent to Böhner’s Type C, has been re-dated from the early sixth to early eighth centuries, instead of being restricted to the seventh to early eighth centuries. Type 6 has been dated from the seventh to the eighth centuries, but has been given a broader date from the late fifth to the seventh centuries. Type 1 is not closely datable.

**Keys**

Two examples of iron padlock keys were found in Graves 123A and 246. Both were suspended from the waist, probably in bags. They are not closely datable, but a suspension loop and a form widening slightly towards the head is an Anglo-Saxon trait, and distinguished from Roman or medieval keys (Ottaway 1992, 676).

**Comb**

One example of a composite single or double comb was found in Grave 99, but is not closely datable, as only the rivets survive. It was found at the pelvis, and may have been tucked into the belt, hanging from it, or kept in a bag. There may have been more examples of combs for which evidence would not have survived unless they were composite, and remains of the rivets were found.
Tweezers

Two examples of ‘Roman type’ tweezers, ie full size, functional and made in copper alloy with incised decoration (Lethbridge 1951; Myres and Green 1973, 105) were found in Graves 244 and 246, and one probably plain example in Grave 123A (now missing but seen in an x-radiograph). The example in Grave 244 appeared to have been suspended from a second buckle, or even kept in a bag. The two other tweezers appear to have been kept in bags. The example in Grave 246 seems to have been repaired, as it was rivetted through the loop. ‘Roman type’ tweezers are not closely datable.²⁰

Toilet set

One example of a toilet set with one ear-scoop and one broken implement was found in the neck/chest area with amber beads in Grave 256. They are not closely datable, but are found in later fifth- to late sixth-century graves in the Upper Thames Valley (Dickinson 1976, 224).

Cosmetic brush

One example of a fragmentary cosmetic brush was found in a possible bag in Grave 249, and this is an artefact type discussed by Brown (1974). It has been suggested that the earliest examples in the Upper Thames Valley are late fifth century, and in general they do not appear to be later than sixth century in date (Dickinson 1976, 223).

²⁰ They are believed to be fifth or early sixth century in date (Hawkes et al 1974, 79; Evison 1987, 118) although later examples have been found (Down and Welch 1990, 103; Dickinson 1976, 221-2). They are rarely found in Roman contexts (White 1988, 149).
Pursemount/firesteel

Two pursemount/firesteels were found; one horse-headed type in Grave 99, and one unstratified bird’s head type. Both were plain iron examples and are thus not closely datable (Brown 1977a).

Bags

There appear to be the remains of six bags: in Graves 99, 100, 123A, 244, 246 and ?256. They were recognised by a cluster of artefacts which would have been contained in bags, in conjunction with stains observed in the ground during excavation, and sometimes with traces of leather or textile. In Grave 244 there were remains of an iron frame covered with leather. Bags are not closely datable.

Iron rings

Iron rings were found in two graves: three in Grave 99 and five in Grave 123A. It has been proposed that they were used as scrap for recasting as jewellery (Myres 1978), or for suspending other artefacts (Evison 1987, 199). It seem more probable, however, that they were part of amuletic bag collections (Brown 1972, 109; Brown 1977b; Meaney 1981, 222-8; White 1988, 149-50; Ager 1989, 223), as Dickinson notes that they are often found in sets of three or four and graduated in size (1976, 229), like the examples found in Mucking I. They are not closely datable.
Containers

Glass vessels

Two glass vessels were found in Mucking I. The comments made by Vera Evison (Appendix 2) can be summarised here. Bowls such as that in Grave 99 (Fig 1/19) occurred in graves of the late fifth to sixth century. They were no doubt imported from the Rhineland or northern France, where they mostly occurred in contexts of the first half of the fifth century (Koch 1987, I, Abb 19).

The claw beaker from Grave 92 (Fig 1/20) has most of the characteristics of Type 3c (Evison 1982, 67, no 33, fig 11a), basically a stemmed beaker with two zones of horizontal trails and two rows of four claws each applied in the plain area in the middle. This example was probably made in Anglian territory. The dating of mid sixth century for the type suggested earlier still stands (Evison 1982, 48-9).

The stoup

One copper alloy bound stave-built stoup, with three hoops decorated in a repoussé arcade and dot motif, was found in Grave 246 (Fig 1/21). Further comments by Jean Cook can be found in Appendix 2. The decorative motifs on the hoops suggest that it could belong to the late fifth- to early sixth-century group of stave-built vessels from northern Gaul (Evison 1965, map 8). It was made of Taxus Baccata sp (yew), the predominant type of wood used for stave-built vessels (Morris 1984, 230). It also falls within the normal range of sizes for stave-built vessels (Morris 1984, 129). Stave-built vessels were often placed near the head, and this was the case in Grave 246.
Wooden vessels

There is evidence for six wooden vessels, probably bowls, in Graves 100, 117, 126, 241, 249 and 251, although there were almost certainly more than these, for which the evidence does not survive.

Three bowls were identified solely by the presence of small circular stains. All of the bowls were over 130mm in diameter, which matches the dimensions from Morris' sample (1984, fig 8.15). Repair clips were found in two graves: 241 and 249. In Grave 241 Betula sp (birch) was identified on one clip and Fagus sp (beech) on the other by Graham Morgan. The pair of clips in Grave 241 therefore either mended a linear crack or repaired two rim splits. A single clip was found in Grave 249, and Acer sp (maple) was identified (J Watson, pers comm). It appears that the clips fell in when the bowl decayed.

Two staples were also found in Grave 126, but unfortunately no wood could be identified. Morris suggests that these may have represented two bowls, presumably placed on both sides of the head (ibid, 175), although there could not have been enough room on the left side of the head for this. More probably they mended one bowl, and were perhaps subject to animal disturbance. Nevertheless, such staples have also been found in other cemeteries, and have been interpreted as being part of leather caps or hats, perhaps even holding a veil in place (Owen-Crocker 1986, 52), although this seems unlikely (G Edwards, pers comm). Similar staples, also in copper alloy, were found on each side of the head at Little Wilbraham, Cambs (Lethbridge 1931, 73, 79, fig 39.9) and at Holywell Row, Suffolk (ibid, 19, fig 9.5), for example. Wooden vessels are not closely datable.
Pottery accessory vessel

Only one accessory vessel was found, in Grave 102, above the head to the right side. This was a stamped carinated round bellied bowl, of the undated Fabric 3a and decorated. A fuller discussion of the classification of the fabric, form and decorative motif is discussed with the cremation pottery (Hirst and Clark forthcoming, b).

Although most accessory vessels are not closely datable, this vessel was allocated to the early sixth century based on the associated square-headed brooches and the statement by Myres (1977, 51-2) that stamped chevron vessels mostly belong to the sixth century (Jones et al 1968, 217-8). This pot did not prove to be datable by itself for the fabric was an undatable one, as was the style of the decorative motif.

Weapons

Sword

The fragmentary and unstratified sword (Appendix 1, US/6) cannot be closely dated in the absence of a hilt. It seems most probable, however, that it may have belonged to Grave 117. If so, this would be associated with the Quoit Brooch Style belt set, dated to the early fifth century. The sword could be of this date or even earlier, as they are often buried as heirlooms. The pattern welding is very clear, with triple pattern welding in a herringbone pattern. The sword was found in a scabbard, which appears to be of wood (unidentified) with a fleece lining, where the animal hairs are towards the blade and aligned across it (J Watson, pers comm).
Spears

Single spears were found in 10 graves. Four others were unstratified. Eight of the spearheads were leaf shaped (C1, C2, C4 and D2) and five were angular (H2 and K1), while one could not be identified (Table 1/12). There were two ferrules, in Graves 245 and 248.

There was one example of a Type C1 spearhead in Grave 276. This type has been re-dated to the sixth and seventh centuries (Welch 1983, 128; Härke 1992b, 86) and primarily the seventh century by Dickinson (1976, 295-6) and Geake (1997, 68). There were five examples of Type C2 spearheads in Graves 107, 120, 159, 243 and 245. This is generally the commonest type of spearhead, and is primarily seventh century in date (Swanton 1973, 52). There was one unstratified example of a Type C4 spearhead (US/4), dated from the sixth to the seventh century (Swanton 1973, 59; 1974, 10; Welch 1983, 129), and a sole example of a Type D2 spearhead in Grave 128, with a similar date range (Swanton 1973, 67; 1974, 11). The two examples of Type H2 spearheads are found primarily in late fifth and sixth-century burials, and is often decorated (Swanton 1973, 111; 1974, 20), although decoration was not evident in the case of the Mucking I examples. They can also be found in early seventh-century contexts (H Härke, pers comm). Of the three K1 type spearheads, two were found in the Graves 244 and 272, along with one unstratified example (US/5). These are dated from the middle fifth century onwards by Härke (1992b, Abb 6).

Axe

The unstratified axehead (U/S 1) is a shafted axe, 'Schaftlochaxt' (Böhner 1958, Taf 33.4-5) or a Breitaxt (Böhme 1974, 108). It is similar to one from Hassocks,
Sussex, and Welch notes that such axes have been found in fifth and sixth-century contexts in Britain (Welch 1983, 125-6, fig 79a, pl IV). Jacqui Watson notes that the unstratified axe was hafted with Prunus sp. cherry or blackthorn. Little information is available about other Anglo-Saxon axes, but tools from all periods are commonly hafted with a fruitwood or boxwood.

**Shields**

Ten shield bosses were found in ten graves, with one unstratified example (Table 1/13). The majority, ie seven of these bosses appear to be Group 3 (Dickinson and Härke 1992). There are two examples of Group 1.1, one Rhenen-Vermand type, and one unstratified fragment that was either a Group 3, 5 or 6 (AML 116). As these groups are polythetic, not every typological attribute was always met. The one example of a Rhenen-Vermand type boss, in Grave 272, was presumably a product from the workshops of the late Roman army (Böhme 1974, 114, Abb 46), as their distribution was mainly along the course of the Rhine and in northern France. They are sometimes covered with silver sheet, or are stamped (although neither was the case here). The example in Mucking I, which is concave, is dated from the late fourth century up to the middle fifth century by Härke (1992b, 82). Group 1.1 is dated from around the middle fifth to the late sixth century and Group 3 is dated from the early sixth to the beginning of the seventh centuries (Dickinson and Härke 1992, 11-12). As these are not common in the area, they may be longer-lived (Härke 1992b, 83).

---

21 The boss and flange were wider in Grave 114 than Group 3; the boss in Grave 120 could belong to Group 8, as it is similar to that from Grave 15, Wheatley (ibid, fig 15a), and it is similar to high-walled continental parallels without apices. Its wall height is within the range of Group 3, but is also similar to Group 4 (though a little too large) or Group 5 (although the apex is missing and the number of rivets is unclear: T Dickinson, pers comm); the boss in Grave 121 was wider than Group 3 (it could belong to Type 2, but the walls are convex); the boss in Grave 122 was too tall (and the walls are very thick), and the flange was narrower than Group 3.
Long grips predominate (five out of seven examples).\footnote{Where they are incomplete, the length of the grips are reconstructed from the field plans.} Two are Type IIIa (long, flat) grips, which are not closely datable and three are Type IIIb (long, flanged). The arms of these grips were all flat (even in the case of Grave 120 where the arms are missing, but recorded on the plan). They were associated with boss Groups 1.1 and 3, as in the national sample. These long grips are dated to the sixth century, although they could start in the late fifth century and probably continue into the early seventh century. There were just two short grips. One is of Type Ia2 (short, flat and slightly expanded terminals), a widespread type that was most common in the seventh century. The sole example of a Type Ib (short, flanged) grip is primarily sixth-century (Härke 1992, 84).

The diameter of the circular shield stains matched the average of the national sample, at c 60cm. Stains of this width fall within a medium range, ie 0.45-0.66m (Dickinson and Härke 1992, 45-6). Only one stain, in Grave 122, was narrower. The thicknesses of the boards (from examining rivets and the depth of the stains \textit{in situ}) ranged from 8.5 to 11.6mm, with an average of 10mm (Fig 1/22). The board depths appear to reflect local preferences (ibid, 48).

Seven iron lozenges were found in Grave 248. Such lozenges are dated from the late fifth to the late sixth or early seventh century (ibid, 27). This grave also also contained four broken fragments of iron strip. Zoomorphic iron shield appliqués were found in Grave 122. There are no close parallels for these particular appliqués, but smaller zoomorphic examples are often sixth century in date (B Ager, pers comm).

There were four examples of possible ancient damage to shield bosses: the apex in Grave 114 was bent (although not drawn at this angle) and there were
spare and empty rivet holes in Grave 122. The grip in Grave 159 appeared to be ill fitting, and so may have been a replacement, or else might indicate a change of ownership (Dickinson and Härke 1992, 58). The boss in Grave 272 was repaired, with a bent rivet, and so may have been old when buried. Such repairs are not uncommon (ibid, 58-9).

**Miscellaneous**

**Coins**

A single pierced *dupondius* or *as* was found in Grave 123A in a bag. Romano-British coins in Anglo-Saxon graves are often worn smooth and pierced as was the example here (White 1988, 101; Meaney 1981, 214).

**Miscellaneous**

Various iron and copper alloy fragments were found, whose purpose could not be determined.

### 1.3 THE BURIAL PRACTICES

**Grave dimensions**

The grave dimensions are as follows: The average length of 48 graves, where lengths were complete, is 1.88m, with lengths ranging from 1.18 to 2.49m. The width of 59 graves ranged from 0.45 to 1.27m, with an average of 0.72m. The

---

23 The five coins at the waist, which consisted of three antoniniani of Postumus, Tetricus I, and one unidentified coin (White 1988, 86, 213) were wrongly attributed to Grave 249, and are in fact from Grave 789, Mucking II. In fact, the unidentified coin proved not to be a coin.
average depth of 53 graves was 0.34m, with the shallowest grave recorded at 0.13m, ranging to a maximum of 0.63m.

The grave dimensions were measured from the top of the gravel (subsoil) layer. The depth of ploughsoil at Mucking was up to 0.45m (both ancient and modern), and was machine stripped prior to excavation. In Mucking I, the more urgent rescue nature of the excavation may have led to the loss of shallower graves, although the closely spaced layout would argue against this. The depth of overburden seems to have been consistent across the Mucking II area at least, as areas noted as ‘damaged’ ie ‘overscraped’ do not coincide with the location of graves. The misinterpretation of the depth of destruction of the ‘overburden’ by others is discussed in Hirst and Clark (forthcoming, b).

**Orientation**

There were two main problems in assessing the orientation of graves in Mucking I.

a) Magnetic readings were only taken for those graves dug in 1969. The orientations for the 1967 graves were measured from the plan by bisecting the grave shape. There were problems with the plotting of the site grid; the details of corrections are given in the grave catalogue (Appendix 1).

b) Due to uncertain or absent silhouettes in the case of Graves 115, 124, 242, 259, 271, 1131, and 1133-1139), it was not possible to establish the head end. An orientation was assigned to Grave 122 as the position of the shield boss at Mucking is usually over the lower end of the body, and to Grave 125 because of the presence of beads, assumed to be in the neck/chest area. All of these were
aligned either W-E or E-W. In the case of Grave 131, however, no actual grave cut was found, so no orientation could be assigned.

Despite these problems, it is clear that the majority of graves were oriented west of south-west (WSW-ENE) (Fig 1/23).\(^{24}\)

**Grave markers**

**Possible marker posts**

There was little evidence for any cemetery structures, although the depth of 'scraping' could easily have destroyed such traces. None of the seven postholes were datable by finds, but six were stratigraphically related to features of known date.\(^{25}\) Only one posthole was furnished with a definite *terminus ante quem* by a grave (91), and was probably Roman or prehistoric. The posthole in Grave 90 was possibly integral with the grave cut. Such postholes may have been intended for the deposition of liquid offerings, but there is no concrete evidence for this theory.

In four cases, postholes cut graves: Graves 92, 242, 265, and 266. These postholes may have belonged to the settlement or they may have been grave markers. The nearby Anglo-Saxon settlement appears to have been sixth to eighth century in date or later (see Chapters 1.1 and 8.2). Certainly the presence of pits, in Graves 159 and 240, suggests a settlement function. Only one example of a probable grave marker post was found, near Grave 128. The grave may have cut it, however, as the area is confused by animal disturbance. Nevertheless, it seems unlikely that the graves could have been so carefully laid out in rows without the aid of marker posts, as mounds from backfill would have subsided with time.

\(^{24}\) For this diagram, where an orientation was in doubt, the most probable one was chosen.
\(^{25}\) There is no reason to believe that any of the postholes in Mucking I were definitively late, ie mid seventh century in date, as they were at Buckland, Dover (Evison 1987, 143).
Some deliberate 'monumental' mounds may have been erected, but there would only have been enough space for these in the case of a few graves around the periphery of the cemetery.

Possible structures

Ledges were recorded around the grave edge in Grave 272, possibly due to the presence of hard pan, although the excavator suggested that the ledges merely reflect overcutting. It may be, however, that such ledges were not recognised at the time as being deliberate. It is possible that such ledges indicated a substantial cover. Alternatively, they could also represent a sill beam trench for the base of a mortuary structure, perhaps a 'house of the dead' (Reynolds 1976).

The form of the ledges resembles a Type 3 feature (Hogarth 1973, fig 97), except that they are tapering. A possible date of the seventh or eighth century was postulated for these features, based on the dates at St Peter's Tip, Broadstairs, Kent, although similar structures can be sixth century. Other ledges may have been lost as the Anglo-Saxon ground surface was not retrieved. The large grave cut and traces of wood on the shield boss in Grave 121 also suggest a possible timber structure.

It would seem, however, that there were many burials where the body was not covered by a cover or lid when the grave was infilled (even taking into account problems of preservation).

26 Other parallels include the sixth- to early seventh-century Graves 98 and 127 at Empingham II, Rutland (Timby 1996, 17-18), or Grave 111, Burwell, Cambs (Lethbridge 1931, 67). One-sided parallels include Grave 14, Spong Hill, Norfolk (Hills et al 1984, 62-3, fig 24), Grave 24, Standlake Down, Oxon (Dickinson 1973), or Grave 51, Portway, Andover, Hants (Cook and Dacre 1985, 55, pl XI and XII).
In the case of Grave 240, two large postholes were diagonally opposed to each another at opposite ends. Although presumably contemporary and cut by the pit at the foot end, these features are not datable. Nor is it certain that this represented a structure, as the postholes did not surround, but cut, the grave.\textsuperscript{27}

**Coffins, covers and pillows**

*Coffins*

Mucking has long been noted for the excellent evidence for the presence of internal grave furniture: coffins, biers, pillows and covers, etc (Jones and Jones 1975, 175). Coffins or biers were found in 39 or 60\% of the graves in Mucking.\textsuperscript{28}

Coffins or biers were preserved in the vast majority of cases as a dark organic edge stain, although mineralisation provided additional evidence. Traces of wood were found in eight graves: on the cruciform brooch 92/3, below the shears 99/12, on the belt set 117/1, on the coffin-mend staples 125/2, on the spearhead 244/2, and ?knife 244/4 (this could also be derived from the awl handle or be an early misidentification of horn), to the side of buckle 249/6, the beads 256/2 (possibly residually), and the finger ring 283/2. The wood was identified as *Quercus* sp (oak) in only three cases (Graves 92, 256 and 283), but this species was the only type identified in Mucking II.

A comparison with Anglo-Saxon cemeteries on other slightly acid sand and gravel sites suggests that there were many more coffins at Mucking than

\textsuperscript{27} A parallel may be found at Farthingdown, Surrey, where one grave had two slots at the foot end, and one at the head end, which may have held vertical timber boards (Meaney 1964, 241). They may have formed a structure, such as those interpreted as mortuary houses, but these are usually four-, five- or six-post structures (Down and Welch 1990, 15, 25-6).
elsewhere. The only other cemeteries with a comparably high percentage of coffins are recorded at Gilton, Ash, Kingston Down and Chartham Down, east Kent (Faussett 1856) where these were noted in around half or more of the graves, preserved by charring. As samples were not kept, it is not possible to be certain whether this was charcoal or degraded wood, but traces of charcoal have been found in Mucking II (Hirst and Clark forthcoming, b), and this may indicate the custom of charring the exterior of coffins, in an effort to preserve them, as at St Peter's, Barton-on-Humber, Humbs (Rodwell and Rodwell 1982, 301), or Snape, Suffolk (Filmer-Sankey 1992, 47). 29

It would appear that the frequency of coffin stains in Mucking I was due to good preservation, and not cultural factors. The presence of coffins appears to depend on the presence not only of sandy soils, which provide acid conditions, but also the fineness of grain for stains to be visible. Thus the only evidence of fairly common wooden grave furniture within Anglo-Saxon cemeteries has been found in sites from the sandy areas of Norfolk. 30 In sites where the pH is similar to acidic sandy sites, but where gravel is present, the occurrence of coffins has been far lower. 31 In Mucking I, the soils varied between sand and gravel, with fewer graves dug in silt and loam. There was no link of visible coffins (seen in section when excavating) to any soil type, but the visibility of coffin bases, seen much less often than coffin sides, was clearly linked to sandy and particularly

---
28 The examination of mineralised deposits and field plans has increased this number from 24 (Jones and Jones 1975, 175).
29 Occasional traces of what appears to have been charcoal were found, as in Grave 123B, which may have been part of the coffin, and in Grave 159, which may have come from the cover.
30 These include Snape, where 28/40 (70%) of graves contained grave furniture (Filmer-Sankey and Pestell forthcoming) and Spong Hill, where 37% of graves contained coffins or biers (Hills 1977b, 40). 3/9 (33%) of graves at Ardale had coffins (Wilkinson 1988, 57) in a ‘gravelly sand subsoil’.
31 ‘Frequent’ stains have also been found on the sandy conditions at Harford Farm, Norfolk, and the Boss Hall and Buttermarket sites, Ipswich (see Filmer-Sankey and Pestell forthcoming).
silty soils. It is possible that in the case of plank-built coffins, planks may have
been intended merely to form an enclosure around the body, without a base.\textsuperscript{32}
Nevertheless, the lack of visible bases, even in dugouts, where it is inherently
unlikely that they were originally absent, implies that this was due to survival
problems. Only five dugouts (roughly a quarter) had a visible base or mineralised
traces of a wooden base, even though all of these must originally have had a
base.\textsuperscript{33} A similar proportion of possible bases in plank or dugout coffins or biers
yielded visible stains or mineralised traces of wood, suggesting that here too the
low proportion was due to survival factors.\textsuperscript{34} There is no evidence that the coffins
were lined with textile or leather (G Edwards, pers comm).\textsuperscript{35}

Dugouts

The majority of the coffins appear to have been dugout tree trunks, either
definitely or probably (21), comprising 55\% of the coffins. It has been assumed
that where there was a rounded head or end, even if the other end is straight, or
where the section was rounded, this denotes a dugout. The excavators identified
the coffins as plank built (\textit{contra} Jones and Jones 1975, 175), and it is also
possible that such stains were leather or reed constructions, although this is
unlikely.

\textsuperscript{32} Welch (1992, 56) has pointed out that most 'coffins' lack a base, and may have consisted of
wooden planks placed along the sides of the grave.
\textsuperscript{33} Graves 122 (plan), 123A (notes), 125 (photo only) and 128 (plan). Mineralised traces of a wooden
base were found in 125.
\textsuperscript{34} The bier/coffin in Graves 92 (notes), bier/coffin 93 (plan), bier/coffin 99 (wood), 102 (photo), 113
(photo), 115 (plan), bier/coffin 120 (photo), bier/coffin 121 (plan).
\textsuperscript{35} A leather lining may have been found in Grave 24, Spong Hill, unless the body was wrapped in
leather (Hills \textit{et al} 1984, 40).
Such a large number of dugouts is extremely unusual in Britain, as very few examples have so far been recognised in Anglo-Saxon England.\textsuperscript{36} Examples of dugouts in north German cemeteries of the fifth and sixth centuries are known, but they were relatively uncommon until the eighth century onwards (Grohne 1953, 280).\textsuperscript{37} Some fifth-century north German examples from the Elbe-Weser area can be identified.\textsuperscript{38} Nevertheless, it would appear that dugouts are more common than plank-built coffins in an area to the south-west of this, in Westphalia (Wand 1982, 258-62), although both areas suffer from incomplete excavation and/or publication. Only the cemetery of Soest is known to have at least as high a proportion of dugouts as Mucking. Some of these coffins may also have been fifth or sixth century in date.\textsuperscript{39} The known frequency of dugouts in North Germany may be due to the predominance of sandy soils. Dugouts are, however, also known in other areas on the Continent, such as at Oberflacht, in Alamannia (Schiek 1992; Paulsen 1992), a late fifth-, sixth-, and seventh-century cemetery, where examples were waterlogged, and the making of a sixth-century

\textsuperscript{36} A possible Anglo-Saxon example was also found at Sewerby (Hirst 1985, 32), and they also seem to have been found at Gilton, Kingston and Sibertswoold, Kent. In the Kentish sites, the coffins may have been hollowed out using fire (Faussett 1856, 6), but there is a lack of detailed recorded evidence. Dugouts have been found at the Middle Saxon site of St Peter's, Barton-on-Humber (Rodwell and Rodwell 1982, 291).

\textsuperscript{37} I am grateful to Dr Simon Burnell for his guidance with the Continental parallels. In the Lower Elbe region, dugouts predominated in the post-Migration Period, in cemeteries such as Oldendorf and Ketzedorf. At the latter site, c 70\% of burials contained dugouts (Bärenfänger 1988, 174). Only 29\% of seventh- to eighth-century graves in the better preserved north-west sector at Bremen-Mahndorf contained dugouts (Grohne 1953, 278; Bärenfänger 1988, 174).

\textsuperscript{38} At least one example from the mid fifth century is known from Issendorf, Lower Saxony (Hässler 1994, Abb 12, Abb 23) with 'Simple' belt fittings of Böhme's Stufe III (1974). Unfortunately, dugouts have not been distinguished from plank-built coffins in the publications on Liebenau, Lower Saxony, apart from the general statement that biers, plank-built coffins and dugouts are all known from the period down to the end of the seventh century, ie when burials were aligned N-S (Hässler, in Kossack \textit{et al} 1984, 353).

\textsuperscript{39} Unfortunately, the only two published and dated coffins in this cemetery are from about the eighth century, but the predominance of dugout coffins, and the frequency of unfurnished burial throughout the cemetery's use, points to the possibility that dugouts could have appeared early in the cemetery's history, ie from about the second half of the fifth century.

77
dugout was recorded by Gregory of Tours (*The History of the Franks*, V.3), probably in Soissons, north-west France.

It can been seen from parallels at Oberflacht (Paulsen 1992, Taf 98, 108) or Bronze Age Danish examples (Glob 1974, fig 14, 16 and 28) for example that dugouts had flat and not rounded ends, and may be indistinguishable from plank-built coffins from their stains alone and in the absence of sections.\(^{40}\) In Mucking I stains were sometimes found with a flat and right-angled upper edge, while only a rounded lower section pointed to the presence of a dugout, as was the case in Graves 122, 241, 249 and 252.

Dugouts that were rounded at both the head and foot end were found in Grave 125, which was mended with two iron clamps (J Watson, pers comm) (Fig 1/24), as well as in Graves 127A, 130 and 250. Other dugouts, which were straight at the head end but rounded at the foot end, were found in Graves 123A, 245, 248, 251 and 257. There was the same number where the head end was rounded but the foot end was straight (100, 128 [Figs 1/25 and 1/26] 241, 244, 246 and 249). Some stains were rounded at one end, with the other end missing (116, 122, 123B, 247, and 252).

The maximum thickness of any dugout was 5 cm, in Grave 125. The average height was relatively shallow at 18.5 cm, so the troughs nearly always appear to have been shallower than half of the trunk width. Only in the case of Grave 244, where the coffin was 0.36m deep, does it appear that a full half of a trunk had been used.

\(^{40}\) Dugout coffins were formed by splitting a trunk in two with wedges, and hollowing them out with an adze. The ends would of necessity have been thicker than the sides in order to prevent splitting.
Extensions, whether possible handles or stabilisers, were identified at the bases of the dugout coffins in Graves 128 and 249. Vertical extensions were found in Grave 248, and suggest a compartment similar perhaps to one at Snape (Filmer-Sankey 1992, 47). It is quite likely that decoration of some kind once existed, as preserved on examples from Oberflacht (Paulsen 1992, Abb 13-14), but such evidence did not survive at Mucking.

Plank-built or dugout coffins

There were eight examples of coffins that may have been either plank-built or dugout coffins. A rectangular shape without a rounded head, foot end or section could have been plank built, but there is no reason to believe that such cases were not dugouts (90, 92, 99, 102, 107, 113 (Figs 1/27 and 1/28) 276 and 283). In some instances, the sides sometimes appear to have collapsed outwards, as in the case of Graves 90, 102, 113, but this could also represent the sloping sides of a dugout.

It has been assumed that plank-built coffins were held together with techniques of joinery, such as dovetailing, but pre-ninth century coffins at St Peter’s, Barton-on-Humber were based entirely upon pegged and dowelled carpentry (Rodwell and Rodwell 1982, 301). No coffins were constructed with nails. The thickness of plank-built coffins can only be estimated from the grave plans, and appears to have measured a few centimetres.

---

41 Pebbles used as stabilisers were found in Bronze Age Danish dugout coffins (Glob 1974, fig 15).
42 This could also be a very tall coffin, but the angle of the slope at the foot end makes this unlikely.
Plank-built coffin

One probable plank-built coffin was found in Grave 114. This was identified by a cross-section, with a flat base at right angles to the side. Few plank-built coffins have been found elsewhere.43

Coffins or biers

In eight cases (93, 108, 115, 117, 120, 121, 124 and 256) the lack of a recorded section and absence of collapsed or curved sides meant that these items of grave furniture could have been biers or coffins. Biers have been found in other cemeteries.44

Covers

Tight fitting coffin lids directly above the coffin have rarely been found.45 It is more useful to refer to covers, which were usually larger than a coffin lid.46

The 12 possible covers were identified in three ways:

i) The ledges in Grave 272 may indicate a possible cover.

ii) Five covers were also surmised from mineral preservation in eight cases.

Traces of wood that appear to indicate covers were found above and below small-
long brooches 93/1 and 2, on the surface of the shield boss in 121/1, on the surface of the shield bosses 131/1 and 243/3, as well as on the disc brooch 252/2, and the Iron Age penannular brooch 252/2. The wood was identified as *Quercus* sp (oak) in only two cases (Graves 121, 131).

iii) Covers were visible in only six graves: Graves 123B, 159, 248, 257, 265 and 276. The covers only extended across the whole length of the coffins (and beyond) in Graves 257 and 248; the full extent of the other examples remains unknown. It is clear that horizontal stains were less visible than those seen in section, so it could be expected that more covers existed than have been found.

When found, covers were usually above coffins or biers (covers were only found without coffins in Graves 243, 265 and 272). Covers were often placed higher up in the grave than the top of the coffin, if present.

*Pillows*

Dark organic stains at the head, interpreted as pillows, were possibly found in two graves (?108, 265), and possibly in Grave 116. The relatively high frequency is either due to preservation conditions or is unusual, as the finding of pillows is rare. That in Grave 265 was rectangular (0.51 x 0.25m) (Fig 1/29), and the other appears to have been an irregular oval shape (c 0.30 x 0.23m). Analysis could not be undertaken of their composition. The traces of pillows have been found elsewhere, in various materials, and they must have been far more common than known remains suggest.47

---

46 Occasionally covers have been observed in other cemeteries, such as the fragmentary remains at the Conversion Period graves in St Albans (Ager 1989, figs 80, 81).
47 For example a down pillow from Sutton Hoo, Suffolk (Bruce-Mitford 1983, 888-90) and the ?turf pillow from Chamberlains Barn, Beds (Hyslop 1963, 166) have been identified.
Hollows were found beneath the head in Graves 99, 100, 108, 123B, 128, and 129, and also under the feet in Grave 113 and the pelvis in Grave 244. These do appear to be deliberate as they are usually found underneath coffins.

Sometimes a pillow was suggested by a slope in the grave cut near the head. The grave floor sloped gently up from the waist to the grave cut in both Graves 123A and 123B. These graves were dug side by side. Similar examples are found fairly commonly in other Anglo-Saxon cemeteries.

**Possible footrests**

An example of what appears to have been a footrest was found in Grave 283. No details of the composition of the organic material were recorded.

**Organic inclusions**

Along the base of Grave 119, underneath the body, and below it at the foot end, a dark stain indicated the presence of organic matter. The remains were more patchy than previous illustrations suggest (Jones and Jones 1975, 58). The grave bottom was curved in section at the head end (Fig 1/30). Dark stains were also found in Grave 126, and possibly Grave 116.

There are several possibilities to explain the organic stain in Grave 119. It may have consisted of textile (either a spread for lowering the body into the grave, a cloak, a rug, or a blanket) although textile stains do not normally

---

48 Apparent shelves may in some cases be due to hard pan (257), the digging of a pit (240), or overdigging (at the foot end of Grave 123B).
49 Mineralised textiles indicate the presence of blankets or cloaks, as at Sutton Hoo, Mound 1 for instance (Crowfoot 1983, 411), indeed the two uses may have been interchangeable. Cloaks and/or blankets are suggested in the case of Graves 120?, 128, 244 and 245, perhaps covering the contents of the coffin, and spread over the cover in the case of Grave 159 (Edwards forthcoming, a). It should be remembered, however, that on the whole textiles were not normally visible as stains at Mucking.
appear to have left stains at Mucking. Rugs have been found at other sites. Alternatively the stain may have been a plant layer, although this is unlikely to have left a visible stain. The remains may have been derived from a substance much thicker than textile, such as leather, a thick pelt, fur, skin or even bark. No traces of such materials (except leather) were mineralised here (G Edwards, pers comm), but evidence for this elsewhere is known. Leather or fur was used for cloaks; a short cloak or cape of fur was an important feature of Germanic mens’ costume (Owen-Crocker 1986, 66). They may also have been worn by females, such as the garment in Grave 28, Little Eriswell, Suffolk, although this may also have been a pouch (Crowfoot 1966). There is also evidence that in certain Anglo-Saxon graves, hide or skin spreads were used. This would best explain the rounded stain derived from a thick organic material.

Extraneous material in grave fills

Straw, twigs, leaves, weeds, ?grain, grass and wood (non-coffin)

Traces of straw and sometimes twigs, leaves, weeds and possible grain were identified by Dominique de Moulins from seven graves: on the reverse of the shears 99/12 (?grass stem and straw), near the disc brooch 108/1 (vegetable matter, leaf and stem possibly from the textile or string?), on the buckle 117/1 (?straw, grass, unidentified twigs, and Polygonaceae [dock or knotweed] and Chenopodiaceae [goosefoot and orache]), on the buckle 120/3 (cereal straw and unidentified twigs), on the knife 128/2 (?cereal straw), on the surface of the shield...
boss 159/1 (*Crategus* sp [hawthorn type] twigs, now missing, and ferns), and on
the spearhead 248/1 (straw). It should be remembered that such traces have been
preserved by mineral replacement through their proximity to iron artefacts; they
are probably under-represented in the archaeological record, especially from older
excavations where microscopic examination was not undertaken.

It is not possible to state whether the organic material, primarily straw or
grass stems, was intended as a bed, formed a layer higher up, or whether
individual artefacts were wrapped in it. Information about whether traces of
vegetation were on the front or back of artefacts was rarely available (Graves 99,
159 and 248), and such traces were not found on multiple artefacts within the
same grave. The straw, grass, twigs and probable weeds in Grave 117 may have
formed a ‘bed’, as they were exclusively associated with the rectangular back
plate (117/1d). (Nb. re-analysis suggests that the inclusions in Grave 117 do not
consist of bracken as originally published [Jones and Jones 1975, 162, 175, fig
XXVII]).

In Grave 99 grass stems and straw were found underneath the shears,
again suggesting a possible organic bed; they were perhaps strewn in the bottom
of the coffin. In Graves 159 and 248, the bodies were laid in the coffin, then a
cover was placed on top, followed by the weapons (a spear and shield in each
case). In the case of Grave 159, a knife was also put on the cover, then twigs
and ferns may have been placed on top. It is also possible, however, that the
shield had been placed upright, to the side of the coffin and the cover. In Grave
248 straw was laid over the cover or on the spear, placed on top of the cover.

(Bateman 1861, 51). Such evidence was also found at Snape (Filmer-Sankey and Pestell
forthcoming).
Unfortunately, the weeds in Graves 117 and ferns in 159 can only indicate that the season of burial was not during winter (D de Moulins, pers comm).

**Twigs**

The remains of mineral-preserved twigs were found in three graves (117, 120, 159). In Grave 117 such twigs may have formed part of an organic ‘bed’ lining the grave (see above). The twigs in Grave 102 were associated with straw, though it was not certain whether this was above or below the buckle, and in Grave 159 the hawthorn type twigs were probably strewn over the coffin cover, as were the ferns (see above).

**Charcoal**

Some large fragments of charcoal, either described in the field, or identified later, were found. Flecks of ‘charcoal’ were observed in the fills of Graves 90 and 242 (‘traces’) which may be interpreted as residual. The only charcoal to be retrieved were the *Salix* sp (willow) or *Populus* sp (poplar) fragments from the fill of Grave 121. These inclusions could have been deliberate or merely residual. The fragments of charcoal in Graves 265 (above the feet) and 283 (above the head) appear to have been deliberately included, but the remains were not retrieved.

**Grain**

A possible grain imprint was found on the shield boss 114/1.

---

52 Only one twig was recovered but perhaps originally this was a leafy branch (D de Moulins, pers comm)
**Sherds and flints**

Flints were only found in the fill of one grave (Grave 126), as were residual pot sherds (Grave 127A).

**Fly puparia**

Puparia of saprophagous flies (Janaway 1987, 130) were found in Graves 90, 120, 123A and 252.

**Turves**

Turves were noted in Graves 92, 99, 120, 123A and 272. They were used elsewhere, as at Spong Hill, in conjunction with wood for walls and lids in chamber graves (Hills *et al* 1984, 6), but here merely appear to have been backfill.

### 1.4 THE PEOPLE

**Condition**

The bone evidence was extremely poor, due to the acidic sandy and sandy gravel soils. Within Mucking I, out of 63 individuals, only 29 (46%) had any trace of bone: 16 contained bone (25%), five contained teeth (8%), and eight contained bone and teeth (13%).\(^{53}\) Note that ‘individuals’ does not denote the number of actual individuals for which there is some bone evidence, or the number of grave cuts, but the maximum of a combination of both of these. When the bone evidence is poor, the number of grave cuts will outnumber skeletons, and when there are many incidences of double graves, the number of skeletons will be

---

\(^53\) Note that ‘individuals’ does not denote the number of actual individuals for which there is some bone evidence, or the number of grave cuts, but the maximum of a combination of both of these.
greater than that of grave cuts. In six cases bone was analysed by Simon Mays (forthcoming). Only one grave, Grave 100, could be identified as an adult. The seven incidences of teeth were analysed by Rosemary Powers, who identified five adults and one young adult (Mays forthcoming, tables 27 and 28).

Just over three quarters of individuals were visible as ‘silhouettes’ (48 cases, or 76%), stains which appear to closely resemble the original body shape/skeleton. Of these stains, 41 were body and head stains, three were body stains, and four were head stains. The process by which these stains were formed has been discussed by Biek (forthcoming, a), and the factors that affect preservation in Chapter 6.2. One example of a typical silhouette was found in Grave 113 (Fig 1/28). Twelve graves (19%) did not contain body stains or bone.

Palaeodemography

Only 11% (7/63) of individuals could be identified, all as adults; no juveniles were identified.

Body position

Body position could only be determined in 43 graves (68%) due to the poor bone survival. The vast majority were supine (Table 1/14) with just three graves (126, 123B?, 240) where the body was laid on the left side, three graves (130?, 247 and 255) where the body was on the right side, and one crouched burial (253).

When the bone evidence is poor, the number of grave cuts will outnumber skeletons, and when there are many incidences of double graves, the number of skeletons will be greater than that of grave cuts. The stains were clarified using ultraviolet light in Mucking I in Graves 126, 127A and 127B.
The position of the legs showed clear patterning. The majority of supine burials had extended legs. Only three supine burials (119, 244, and 265) displayed semiflexed legs. Other body positions necessarily involve flexed or semi-flexed legs, and this was the case in Mucking I. Of those individuals buried on their sides, all four had semi-flexed legs. The only crouched burial, in Grave 255, also had flexed legs. It is possible that the legs in Grave 116 may have been semiflexed but positioned vertically, as they appear to have been too short for the grave.

Arm position could be determined in just over half of the supine burials, when it was most commonly along the sides (76%). In only three graves were the arms crossed (116, 244, and 246). In two cases (248 and 266) an irregular arm position may best be explained by movement during lowering of the coffin, or collapse of the coffin during decomposition. Of those buried on their side, the arms appear to have been by the side of the body, with the hands placed on the thighs (126, 255) or with the hands on the knees (240). The arms in the crouched Grave 253 appear to have been placed on the knees. The choice of arm positions did not appear to be due to any individual holding artefacts.

Of those in a supine position, most had heads placed centrally. Where head position could be determined 18 (62%) had heads centrally, seven were or probably were inclined to the right (24%), and four were or probably were inclined left (14%). Those graves with bodies laid on the side had heads facing that direction, as expected.

---

55 The legs were at right angles or more to the trunk (Hirst 1985, 44, fn 130).
56 At Sewerby a far greater variety of arm positions was found than in Mucking I, though with no apparent correlation as to age, gender or status (Hirst 1985, 36). This may well reflect a regional difference.
Double burials

There are two double burials. In the case of Grave 123 the photographic evidence suggests that there was a small ridge of what appears to be natural in between, so that although there is some relationship between them, they were not strictly contemporary (Fig 1/31). The earlier grave must either have been marked in some way, or else the grave outline was still clearly visible. The excavator thought that the right arm of Grave 123A could have impinged over the ridge, probably making this grave later. Another possible double burial was in Grave 127, but here the burials were superimposed.
CHAPTER 2. THE METHODOLOGY OF THE CHRONOLOGICAL AND SOCIA L ANALYSIS OF MUCKING I

2.1 THE PROBLEMS AND METHODOLOGY

The analysis of Mucking I posed three main problems. The first problem, that of establishing a chronology free from potential distortions arising from chain linking, applies to all Anglo-Saxon cemeteries. The second problem, that of establishing a palaeodemographic profile, and the third, of social analysis, apply especially to cemeteries with very poor bone data.

The solution to the problems of analysis posed by Mucking I was sought in the analysis and application of patterns, chronological, palaeodemographic and social observed in other cemeteries (see Chapter 2.2, below). For this survey, it was not felt that it would pre-empt the chronological analysis of Mucking if only Migration Period cemeteries, and Migration Period cemeteries that extended into the Conversion Period, were selected for comparison, as opposed to cemeteries that were clearly only Conversion Period in date. This was because the brooches at Mucking obviously point to a chronological range that must at least be partly Migration Period in date.

The first potential problem is that the chronological analysis of any Anglo-Saxon cemetery is potentially flawed by the problems of chain-linking of absolutely dated artefacts from one grave context to another. Even when undertaking a relative chronology, the contents of graves (and therefore their similarity to each other) can be affected by non-chronological factors, such as when during a lifespan artefact types were acquired by an individual, the age at death of the individual, and how old artefacts may have been when
buried. It was decided to try to establish whether there were any patterns in the acquisition and use of artefacts, which would render such factors less hypothetical, and to pinpoint their effects more closely, in relation to Mucking I. In order to do this, the detailed examination of one cemetery with excellent osteological evidence was required in order to establish the age thresholds for the acquisition of artefacts, and to identify patterns of loss or the passing on of artefacts (amongst other questions). Such a cemetery would clearly have to belong to the same ‘area of commonality’ as Mucking I, i.e., the Saxon cultural area, so that patterns of acquisition (and other features of comparability) can be effectively investigated. The cemetery of Lechlade, Gloucs, in the Upper Thames Valley region, was selected, given the absence of suitable cemeteries from the Lower Thames area in which Mucking is situated, because it was the largest recently excavated cemetery from a Saxon area. Obviously, if collation and comparison of evidence from Mucking I and Lechlade were to be safe and effective, general similarities between the material culture of the two cemeteries would have to be studied and demonstrated (see below, Chapter 2.2, below). Certain recognisable patterns in the use of artefacts made it possible to identify particular groups of individuals who were more liable to acquire older artefacts, and to identify artefact types that were more likely to be older than others (Chapter 3). These patterns would affect both relative dating methods (find-combination methods or seriation), as well as the dating of graves on the basis of their containing artefact types dated elsewhere, known as ‘chain-linking’. Unfortunately, it cannot be ascertained at which point in its production and circulation period an artefact was acquired, or buried, and this explains why the dating of graves using chain-linking compares poorly with dating by find-combination analysis. Rather than
attempting to date the graves from Mucking by the method of chain-linking, it was decided to carry out a seriation based on correspondence analysis, using the ‘Seriate’ program.

In order to fully examine age- and status-related non-chronological bias, phasing needs to be carried out at both Lechlade and Mucking, as it seems very probable that social patterns relating to artefact use will have varied from period to period. Unfortunately, if the coding for a seriation is carried out without first examining patterns of artefact use, the sequences obtained could merely reflect social factors, such as different age and status groups, as opposed to chronology. The best way to proceed is clearly to identify as many age- and status-related trends in artefact use as possible, before undertaking the chronological analysis (Chapter 3). These social factors could then be minimised in the choice of coding.

Clarification of the possible role and effect of age and status groups at Mucking (in so far as it is possible) has to await a later stage (Chapter 7). At Mucking, with its poor osteological evidence, basic identification of the age of individuals, necessary to establish age-related patterns of artefact use, itself relies, at least partly, on establishing the phasing first. This is for two reasons. Firstly, a methodology for identifying adults at Mucking had yet to be devised that at least partly relies on using the regional Migration Period percentages of weapon and brooch graves amongst adults, so that the numbers of Migration Period graves must be known. Secondly, the size and quality of the osteological sample from Lechlade constitutes the largest dataset of aged individuals which would greatly facilitate the investigation of age-related artefact trends, and prove useful in establishing the age of individuals at Mucking. The social analysis of Lechlade must, however, also await final conclusions in the light of phasing (Chapters 4 and 6.4).
Before carrying out the seriation of the Mucking material, it was decided to run
the ‘Seriate’ program on the cemetery at Lechlade, as this provided the largest amount of
stratigraphical evidence in any known cemetery (Chapter 4). It was hoped that the results
achieved at Lechlade could serve as part of a distinct, culturally applicable seriation, as
both cemeteries lie in Saxon areas. This is desirable given the lack of regional seriations
for Anglo-Saxon material (Høilund Nielsen 1997a). Once a relative ordering of graves
had been obtained, absolute dates could be suggested. Individuals who were most likely
to have been affected by non-chronological factors were pinpointed, something that has
not been a feature of previous Anglo-Saxon cemetery analyses, whether using absolute or
relative dating approaches.

In order to seriate Mucking I effectively (Chapter 5), it was necessary to include
substantial additional data from a cemetery with very similar material; preferably a
minimum of 100 graves had to be available to carry out a separate seriation of the male and
female graves. Clearly, at Mucking I, a cemetery with only 63 graves in total, this could not
be done. It was decided, therefore, to add the dataset of Mucking II to the seriations, from
which the relative chronology of Mucking I could subsequently be isolated. Furthermore,
once the seriation had been completed, the effect of non-chronological bias in these
cemeteries could be addressed.

The cataloguing and analysis of Mucking I (Appendix 1; Chapter 1) has been
included as a demonstration of the level and precision of data collection required to
undertake a seriation. Data from Mucking II are not similarly described, as they were only
generated by the author in part (Hirst and Clark forthcoming, b). It was necessary to write
many of the finds reports for the material at Lechlade, given the incomplete analysis of this
cemetery (Clark forthcoming, a-o).

The second main problem in the analysis of Mucking I was the dearth of bone
data (Chapter 6), which rendered an internal palaeodemographic analysis impossible. A
methodology had to be devised that would provide more detailed information about the
age of individuals in the absence of osteological material. The only attempts to undertake
grouping of unaged individuals have so far been those of Lucy (1998) and Penn
(forthcoming), who used artefact combinations and rendering groups that clearly cross-
cut age categories. The ageing of individuals in Mucking I was approached by devising a
combined method using primarily body length, in conjunction with age-diagnostic
artefacts, as well as grave and coffin lengths.

A well-founded equivalence between body length and stature was required in
order to confirm that the stature of aged individuals could be related to the body length of
unaged individuals. A large comparative dataset of aged individuals of known stature
was therefore essential. As stature might to some unknown extent be subject to regional
variations, a specifically ‘Saxon’ dataset was necessary; the largest sample from this
cultural province, and indeed from any Anglo-Saxon cemetery, was again from Lechlade.
The dataset from Mucking II was also used, as this provided much more data regarding
body lengths, as well as coffin and grave lengths, which corroborated trends tentatively
identified in Mucking I (Chapter 7).

Once the ages of individuals were established as far as possible, using this
combined methodology, a discussion of the restored palaeodemographic profile could
then take place, in particular looking at the percentage of juveniles, including infants, the
frequency of older adults, and the ratio of adult males and females. A number of surveys of palaeodemographic data from Anglo-Saxon cemeteries have previously been undertaken (Härke 1992b; Crawford 1993; Molleson 1993; Härke 1997b), but all use data that has since been largely superseded by the publication of studies of new cemeteries, or else employ comparatively small datasets, not distinguished in terms of the preservation conditions of the sites, and lacking in regional differentiation. Such surveys do not provide the detailed information needed to answer the palaeodemographic questions posed. In order to furnish such information at Mucking, a suitable comparative cemetery had to be selected. The criteria were that the data had to be obtained from a cemetery within the Saxon area, and that the dataset should be large (ie a minimum of 50 individuals), well preserved, and representative of other well-preserved Anglo-Saxon cemeteries. From the general survey of Anglo-Saxon cemeteries carried out in this study (see below), sites where over 50 individuals could be identified were selected (Appendix 3). Once again, the cemetery of Lechlade met all the criteria and proved to be the most suitable candidate, as it provides the largest sample of well-preserved individuals in the ‘area of commonality’, indeed of all known Anglo-Saxon cemeteries. A detailed examination of the effects of bias on extant osteological material was considered necessary in order to assess whether there was undue skewing of the palaeodemographic profile of Mucking, and indeed of other Anglo-Saxon cemeteries, including Lechlade.

Thirdly, given the virtual absence of bone data at Mucking I, a ‘traditional’ social analysis, based on the numbers and types of artefacts within each grave, is liable to focus on gender and status, rather than age. It was felt that cultural age groups are of key
importance in the analysis of Anglo-Saxon cemeteries. Nevertheless, such questions could not be investigated without first maximising the information on age in Mucking I.

Only a few analyses have treated age in conjunction with gender as the primary cultural structuring principles, these being the studies by Pader (1982) and Huggett (1995; 1996) of analysed Anglo-Saxon cemeteries, and Halsall (1995), working on the cemetery data from the Merovingian region of Metz. Unfortunately, these Anglo-Saxon studies in particular have suffered from an absence or paucity of bone evidence, and/or the small size of their datasets. It was felt necessary that such studies, if they were to be used for the purpose of comparison, should derive from a similar ‘area of commonality’. In fact, only the studies by Huggett were primarily Saxon based, and his conclusions were hampered by poor data. The study, largely of adult males and juveniles, by Härke (1992b, 67-73; 1997b), could only point to supposed general trends. There have been no studies that have made a detailed examination of adult females, in particular of the differences between older and younger adult females.

Lechlade was judged suitable as a comparative site for investigating age and gender patterns. As mentioned above, it lies within the same ‘area of commonality’ as Mucking, and provides the largest available dataset of adult females from a single cemetery, a section of the population that has received relatively little attention (Chapter 6). This made it possible to investigate in particular the treatment of younger females in relation to older females, in a way not previously attempted. The cultural expression of age at Lechlade was then compared to individuals in Mucking I, where patterns tentatively identified were supplemented by data from Mucking II.
2.2 THE SELECTION OF COMPARATIVE MATERIAL

The survey of Anglo-Saxon cemetery material

It was decided to carry out a survey of known Anglo-Saxon cemetery material in order to establish cultural patterning, and to isolate a cemetery elsewhere which could provide a detailed dataset that could be used to elucidate chronological, palaeodemographic and cultural (specifically age-related) trends. The sites surveyed included Migration Period cemeteries, and Migration Period cemeteries that extended into the Conversion Period.

In broad terms, it has long been recognised that Anglo-Saxon material culture can be divided into three basic groups: Anglian, Saxon and Kentish. ‘Areas of commonality’ developed between the late fifth and the late sixth century (Hills 1979, 317; Carver 1989; Geake 1992, 92; Scull 1993; Hines 1994; Scull 1995); they locate regions where there has been the active creation and manipulation of material culture in order to express an identity, at both regional and local level. An area of commonality may be partly based on the convenience of estuarine and coastal travel compared with travel overland, as well as on differences in landscape and soils (Carver 1990, 122, fig 15.3). Female costume was the prime medium for social expression of such identities (Vierck 1978; Dickinson 1993). It should be remembered, however, that there was considerable mixing of regional identities, as evidenced for example by the Anglian brooches found in the east Kentish cemetery at Mill Hill (Parfitt and Brugmann 1997, 116), or the widespread finding of saucer brooches in the Midlands (Dickinson 1976, 7). The geographical boundaries of the broad regional areas of commonality can be seen from the correspondence analysis of a sample of brooches that
has defined the ‘Saxon’ cultural area, in contradistinction to the Anglian and Kentish
cultural areas (Høilund Nielsen 1997b, 83-7, fig 23). The edge of the Saxon area is taken as
-0.5 of the second axis of the correspondence analysis.

Mucking I lies within the Saxon cultural area, an area that comprised most of
southern Britain, and even some of the south Midlands, with the exception of the
‘Kentish’ areas of east Kent and the Isle of Wight.¹ Cemeteries which are considered to
belong to the ‘Saxon’ cultural area are defined here as those sites where the number of
‘circular’ (ie, applied, saucer, disc or button) brooches exceeds 50% of the total when
compared to other brooches which can be categorised as ‘ring’ brooches (ie quoit,
annular or penannular) and ‘bow’ brooches (which are very varied, but include types such
as the small-long, great or small square-headed brooches).² In Mucking I, 55% (10/18)
of the brooches were circular. The wearing of paired brooches is also a distinctively
‘Saxon’ fashion (Brush 1994) in contrast to Anglian areas where a third brooch can also
be found. The predominance of paired brooches in Mucking I and Mucking II (Tables
7/14, 7/15) may be compared to the different pattern in Anglian cemeteries (Tables 3/2,

The survey of Anglo-Saxon cemetery material in the search for suitable
comparative data has been described in Appendix 3. As Mucking is situated within the

¹ This includes the following modern counties: the western part of Kent, Sussex, Hampshire (excluding the
Isle of Wight), Wiltshire, north Dorset, east Somerset, south and east Gloucestershire, Oxfordshire,
Berkshire, Buckinghamshire, most of Bedfordshire (apart from the north part), south and west
Hertfordshire, Greater London (formerly Middlesex), and the south-east tip of Essex, within which
Mucking lies. A small part of south Warwickshire, including the middle of the Avon Valley, also forms a
projecting salient into the Saxon area; however, it should be noted that this could be merely due to the finds
vacuum of Anglo-Saxon material in neighbouring Shropshire. The Lower Avon (ie Hereford and
Worcestershire) is usually seen as a cultural boundary (Davies and Vierck 1974, 276-9).
² These calculations exclude brooches classified as ‘miscellaneous’. The ‘miscellaneous’ category
corresponds to that used by Welch (1983, 163-9) in order to facilitate comparison with the data from
Sussex and the Upper Thames. Saucer and disc brooches are found primarily in southern Britain
modern county of Essex, one might expect other cemeteries in the county to contain similar archaeological material, but this is not the case. Essex was a culturally complex area in the early Anglo-Saxon period (Hines 1994, 53; Høiland Nielsen 1997b, fig 23); the whole county falls within the transitional zone between Anglian and Saxon cultural areas. Thus, despite acknowledged links, for example to Springfield Lyons (where brooches were found that were similar to small-long brooches with cross patée derivative headplates from Mucking II), overall the distribution of this brooch variety is in the Lower Thames (Tyler 1987b, fig 15.1). Great Chesterford is clearly an Anglian cemetery, with a predominance of small-long brooches (Table 3/2). The cultural isolation of Mucking from the rest of Essex should not be surprising; it is divided from the rest of Essex by the Mid-Essex Ridge, an area of primarily Boulder Clay (Jones and Jones 1975, 137; Allen and Sturdy 1980, 6). The links to Anglian areas further to the north, such as Suffolk, envisaged as being via estuarine and coastal travel, again do not seem to be reflected in the incidence of brooch types at Mucking (contra Carver 1990, 122, fig 15.3). Thus for present purposes the region of Essex is represented by data from Great Chesterford and Springfield Lyons, and does not include Mucking.3 This region is counted as Anglian, although, judging from the correspondence analysis (Høiland Nielsen 1997b, fig 23) it is liminal. Nevertheless, this area, and indeed the counties of Northamptonshire, Cambridgeshire and Warwickshire are counted as Anglian as they cannot be viewed as Saxon areas, and to exclude them would lead to a loss of some of the

---

3 In fact, Springfield Lyons (Tyler 1987b; in prep) and Great Chesterford (Evison 1994) are the only Migration Period cemeteries in Essex where 20 or more individuals are recorded (Table Appendix 3/3). For further references to Essex, see Tyler (1996) and Jones (1980).
most valuable known cemeteries: Stretton-on-Fosse, Barrington A, or Wakerley I for example.

Investigation of the Saxon cemeteries reveals sub-regional variation in the relative frequency of individual brooch types, within the overall pattern of a predominance of circular brooch types (Table 2/1). At Mucking (both cemeteries), disc, button and small square-headed brooches were the most common types (Fig 2/1). There is a broad range of brooch types, comparable to the range found in the cemeteries of Surrey, west Kent, Greater London (formerly Middlesex), all areas connected by tributaries of the Lower Thames (Table 2/1; Fig 2/2). Cast saucer brooches were absent in Mucking I, even though they account for 18% of the brooches in the Lower Thames region as a whole.

Like the Lower Thames area in general, Mucking is ‘Saxon’ in character, although it is culturally more mixed than the cemeteries of Wessex or Sussex, for example. Despite the predominantly Saxon character of its material (discussed below, Chapter 2.2), there are obvious links to Frankia and east Kent, and, to a lesser extent, to Anglian areas.

West Kent is included in the Lower Thames region. A division in Anglo-Saxon material culture along the Medway River has long been recognised (Leeds 1913, 122; Evison 1956, 110). The *regio* of Surrey extended further east than the modern county boundary as far as the Medway River, judging by the archaeological distribution of brooch types; the modern county boundary in this area appears therefore to date from the

---

4 Note that from the survey (Appendix 3), cemeteries have been selected where there are 20 or more graves, regardless of whether such cemeteries extend into the Conversion Period or not, as the proportions are relative only to the number of other brooch-bearing graves.
late sixth century or later (Poulton 1988, 218). Härke (1992b, 67-73) noted the cultural divisions of west and east Kent, but analysed their data together.\(^5\)

The 'Lower Thames area' may be similar to what was the later kingdom of Essex, which included, at least at times, the kingdom of Middlesex and the *regio* of Surrey. The documented history of the seventh- to ninth-century East Saxon kingdom is '...One of being tugged politically and religiously between rival neighbours, and also (sometimes distant) overlords' (Dumville 1989, 134-6). These included the kings of Kent (to the south), Mercia (largely an 'Anglian' area archaeologically in the sixth century, towards the north), and Wessex (to the west). Dependence on, territorial predation by, and involvement in Kent, especially west Kent, is well attested although fortunes often fluctuated, and were sometimes reversed. The eventual detachment of Middlesex (London and its hinterlands), south-east Hertfordshire and Surrey from Essex during the eighth century was possibly an outcome of the repeated divisions of the East Saxon kingship (Dumville 1989, 136-7; Yorke 1990, 46-7). At various times, therefore, this kingdom would have straddled the Lower Thames basin, and broadly fits the earlier, Migration Period archaeology, although the area that is now the modern county of Essex presents a different case.

The survey carried out of cemeteries in the Lower Thames region (Appendix 3, Table Appendix 3/4) reveals the scarcity of recently excavated sites with reliably analysed osteological evidence that can be related to the cultural evidence, and/or the absence of large cemeteries. There are 64 inhumation cemeteries in this area, representing over 1000 individuals, but only 20% have been the subject of analyses

\(^5\) The present region of Kent includes the Isle of Wight, which has very close cultural ties to east Kent (Arnold 1982).
conducted since 1950, the cut-off point used by (Härke 1992b, 67-73). In some areas, cemeteries are absent or scarce; there is, for example, a dearth of cemeteries in the Greater London area. Only the cemetery at Orpington in west Kent is relatively recently excavated, but provides only a fairly modest sample of 64 graves (Tester 1968; 1969; Palmer 1984). The largest cemetery excavated in the Lower Thames region is at Mitcham, Surrey, with over 230 graves (Bidder and Morris 1959). Unfortunately, this site was excavated for the most part between 1888 and 1922, is inadequately recorded, and lacks any osteological ageing analysis. Overall there is disappointingly little good data, including information on grave goods, and reliable osteological analysis (Table Appendix 3/4).

A crucial component of the methodologies outlined above has been the use of supplementary datasets either to facilitate chronological analysis, and to augment analysis of cultural patterns (in the case of Mucking II), or to provide comparative material in order to elucidate palaeodemographic and cultural patterns in relation to age (in the case of Lechlade). It is important to demonstrate that the data from Mucking and Lechlade can be used together in this way, and to establish close similarity in artefactual material in order to provide a firmer basis for assuming similar patterns in demography and the use of material culture in the region.
**The selection of Mucking II as a supplementary dataset**

The two cemeteries at Mucking were sited only 150m apart. The inclusion of Mucking II in the analysis of Mucking I was deemed necessary and appropriate for two reasons. Firstly, Mucking II is far larger than Mucking I, with 282 individuals (as well as 463 cremations), and so could provide a large and similar dataset for the purposes of seriation. Secondly, the large dataset could be expected to help in distinguishing social and cultural trends that might not otherwise be discernible.

Mucking II is one of only a few Anglo-Saxon cemeteries that have been completely excavated.\(^6\) It can be demonstrated that there is a comparable range of artefact types in the two cemeteries at Mucking although this range was consistently slightly more restricted in Mucking I. This was probably due not to any significant cultural differences, but simply because Mucking I was only one fifth the size of Mucking II, and is therefore a much smaller sample. The comparison of object types in the inhumations from both cemeteries, as well as the types found in the cremations and settlement, are summarised in Table 2/2.

With regard to the types of brooches, Mucking I and II are broadly similar, although Mucking I has a smaller dataset, and a narrower range of types (10 types compared with 15 in Mucking II). There were 24 brooches from Mucking I, and 125 from Mucking II (Fig 2/1). The types found in Mucking II but not in Mucking I were great square-headed, quoit, cast saucer, supporting-arm, and lozenge-shaped brooches. Overall it is difficult to compare the percentages of types from Mucking I with those in Mucking II because the number of each type in Mucking I is relatively small. Otherwise they appear to be fairly similar.

\(^6\) Only the inhumations at Spong Hill, Norfolk (Hills et al 1994), Beckford B, Worcs (Evison 1996), St Peter’s Tip, Kent (Haithe forthcoming), Stretton-on-Fosse, Warcks (Ford forthcoming, a) and Norton-on-Tees, Cleveland (Sherlock and Welch 1992) as well as Mucking II appear to have been almost completely recorded.
Nevertheless, there appear to have been proportionally more disc and applied brooches in Mucking II than in Mucking I.

In contrast to Mucking II, where the monochrome beads form over half the total, in Mucking I they comprise less than a third of all the beads. The range of colours of the monochrome beads was far more restricted than in Mucking II,\(^7\) with only about half of the known possibilities represented.\(^8\) There are also far fewer types of polychrome beads in Mucking I than in Mucking II, and the numbers are small. Certain decorative types were found only in Mucking I,\(^9\) although the range of decorative types was altogether more restricted than in Mucking II.\(^10\) As in Mucking II, the two most common base colours were opaque red and opaque white. Only six out of the 13 types of form were found in Mucking I.\(^11\) Some types were more common than in Mucking II, but they were found in small numbers and had a more restricted range of colours within the types.\(^12\) In Grave 102 there were two large polychrome barrels in dark green (P15) with a yellow zigzag around the centre, overlaid by three red stripes, which were similar, but not identical, to beads in Graves 334 and 397 in Mucking II. The range of shapes of the amber beads, was, however,

---

\(^7\) Roughly a third of the monochrome bead colours found in Mucking II were not found in Mucking I: opaque brown-red (2.2), opaque orange (3.1), translucent yellow-brown (4.1), green yellow (5.3), pale green (6.2), very pale green (6.2a), dark olive green (6.4a), pale green blue (7.1), semi-translucent green blue (7.3), transparent pale blue (7.5), and colourless (9).

\(^8\) The more common colours, dark and medium blue and purple, were equally common in both cemeteries. Opaque red, opaque yellow, white and blue white, semi-translucent blue green, pale blue green and blue green were more common in Mucking I. The most noticeable absence there was yellow brown, which was the second most common colour in Mucking II. Semi-opaque green blue and green black beads were also less common in Mucking II than in Mucking I.

\(^9\) These were P4 (wiredrawn single spiral, scallop), P11c (bichrome spots), P12 (warts), P16 (stripe and two zigzags); all quite uncommon types, at around or under 10% each.

\(^10\) There were no examples in Mucking I of the polychrome bead types P1, P2, P3, P5, P7, and P8.

\(^11\) The most common form, annulars (A2) at 45%, was slightly less frequent than in Mucking II, but discs (A1) at 27% were a little more frequent. The other forms all accounted for under 10% each, as in Mucking II: annulars/discs, cylinders with a small perforation and thick wall (G1), globulars (B1) and a barrel (D1). All the same forms were found in the same colours (except for a barrel in streaky opaque red from Grave 99). There was roughly the same frequency of barrels and discs, with many more cylinders, and fewer of the other forms.

\(^12\) Such types were found in under 10% of cases: P6, P10, P15 and P28a.
comparable to that at Mucking II.\textsuperscript{13} Barrel and cylinder beads were more common than in Mucking II, but there were fewer bicones, discs, globulars and wedges.

The types, size and tangs of the knives at Mucking I were similar to those of Mucking II, except that no examples of Types 4 and 5 were found at Mucking I. The relative frequency of the knife types is similar in Mucking I, although there were more of Type 1 (perhaps because there were fewer types overall), fewer of Type 2, and more of the remaining types. Here the numbers are perhaps too small for meaningful comparison.

A similar range of buckles was found, including kidney-shaped, oval, D-shaped, and circular. The inlaid kidney-shaped buckle in Mucking I Grave 272 bears a resemblance to the buckles from Graves 334 and 848, in Mucking II.

The weapon combinations in Mucking I are far simpler than those in Mucking II, but they must nevertheless be considered together, as the sample from Mucking I is incomplete and relatively small. In Mucking I, one third of weapon burials contained spears only, while the remaining two thirds contained shields and spears (ie a shield combination). Nevertheless, the unstratified examples of a sword and axe suggest that within the cemetery as a whole, the combinations might originally have been more complex. In Mucking II, almost two thirds of the weapon graves contained spears, with the remainder consisting of shield, sword, axe, arrow and seax combinations, in decreasing order of frequency. There was only one sword (unstratified: see above) in Mucking I compared with the seven found in Mucking II. There was also a more restricted range of shield boss types in Mucking I (no examples of Group 6 present), but this was counterbalanced by the occurrence of a Rhenen-Vermand boss, which is typologically earlier than any found in Mucking II. The range of

\textsuperscript{13} The only type that was not present was R7, an irregular long bead of which there was only one example in Mucking II.
spear types is also more restricted, with only six types in Mucking I, as against 17 types in Mucking II; all the types in Mucking I are also found in the larger cemetery.

The cremations in Mucking II confirm the 'Saxon' character of this cemetery. The closest links of the cremation pots are to the Elbe-Weser region. The size of the pots appears to be typically 'Saxon', whilst the more complex types of stamp motifs are found predominantly in the Lower Thames region (Clark forthcoming, s).

It is clear, then, that there are easily sufficient similarities between Mucking I and Mucking II for their datasets to be safely combined for the purposes of seriation. Given such close spatial proximity and material similarities, it is reasonable to expect common cultural factors too, which justify looking for confirmation of social trends in evidence from Mucking II if there was not always sufficient evidence from Mucking I alone.

The selection of Lechlade as a comparative site

The selection of Lechlade, Gloucs as a supplementary and comparative dataset was necessary for several reasons.

Firstly, the source of any comparative seriation of Saxon (female) material, as a test for the Mucking seriation, needs to be from the same 'area of commonality', as there seems to be clear evidence that cultural-regional trends influenced burial patterns within Anglo-Saxon cemeteries. As well as satisfying this condition, Lechlade provides the largest known number of stratigraphic relationships within an Anglo-Saxon cemetery, offering a good opportunity for the internal verification of the seriation results. The excellent osteological information at Lechlade also sheds useful light on factors which could have affected the contents of graves, but which need not have any chronological
basis, such as patterns of the use and acquisition of artefacts, and the age at death of individuals. Secondly, the paucity of osteological evidence from Mucking I necessitated the comparative use of another cemetery that could be deemed representative of the palaeodemography of Anglo-Saxon cemeteries as a whole. Thirdly, a large comparative cemetery with good bone evidence was also required to provide inferential support for the investigation of social (in particular, age-related cultural) trends in Mucking I.

The largest dataset from the Saxon area comes from the cemetery at Lechlade, Gloucs. It provides a welcome addition to the material from the Upper Thames region, where there is a distinct lack of recently excavated sites (Dickinson 1976). Lechlade has yielded one of the largest assemblages of early Anglo-Saxon burials to date, numbering 223 individuals out of an estimated original total of c 450 graves (Boyle et al forthcoming). It remains unsurpassed in the quantity of skeletal material, being rivalled only by St Peters’s Tip, Broadstairs, Kent, although the quality of osteological preservation there is rather poor compared to that at Lechlade (Table 6/1). The number of graves at Lechlade is exceeded at only a few other sites. The conditions for a detailed examination of stature are also met, since this sample includes the largest group of individuals from a single site whose stature can be estimated (see Chapter 7.2).

14 There have been very few newly excavated or published Migration Period sites in the Upper Thames area since Dickinson’s thesis was written. Apart from Lechlade, new excavations with over 20 individuals are Watchfield, Oxon (Scull 1992) and Dinton, Bucks (Hunn et al 1994). Smaller cemeteries include Benhill, Walton, Aylesbury, Bucks (Farley 1976) with six individuals, Barton Court Farm, Oxon (Miles 1986) and Wantage, Oxon (Hamerow 1990). Dickinson included the data from Berinsfield, Oxon, now published (Boyle et al 1995).

15 These are: Toddington II, Beds, with around 1000 graves (Meaney 1964, 40); St Peter’s Tip, east Kent (Duhig forthcoming) with 403 graves, Morning Thorpe, Norfolk with 316 graves (Green et al 1987); Sarre, east Kent, with 294 graves (Meaney 1964, 135-6); Mucking II, a complete excavation with 274 graves; Lakenheath, Suffolk with 261 graves (Caruth 1998); Fingleham, east Kent, with 275 graves (Chadwick 1958), Sleaford, Lincs with 242 graves (Thomas 1887); and Mitcham, Surrey with around 230 graves (Bidder and Morris 1959). For further details, see Tables Appendix 3/1, Appendix 3/2, Appendix 3/3 and Appendix 3/4.

107
Another reason for choosing Lechlade as a comparative site for Mucking was that it promised to provide the best evidence for age-related cultural patterns to apply to the Mucking data. There was an overall adult female total of 86, more than in any other Anglo-Saxon cemetery (Tables Appendix 3/1, Appendix 3/2 and Appendix 3/3, Appendix 3/4). On the other hand, there were only 29 weapon-bearing males at Lechlade. In a sample of 53 sites (Migration Period in date, with some extending into the Conversion Period), greater numbers of fifth- and sixth-century weapon-bearing individuals were found at Bidford-upon-Avon (32), Empingham II (34), Buckland, Dover (34), Alfriston (35), Long Wittenham I (51), Morning Thorpe (66) and Sarre (70) (Härke 1992b, Tab 6). More importantly, there are far more weapon-bearing graves in Mucking II (59) than at Lechlade. Nevertheless, the detailed countrywide study of weapon burials by Härke (1992b) can compensate for the relatively small size of the furnished male sample at Lechlade.

As we have seen, both Mucking and Lechlade have brooch types that are predominantly Saxon in character. At Lechlade the predominant type is the saucer brooch (at 38%), followed by the disc brooch (at 20%) (Fig 2/3). This pattern appears to be broadly representative for the Upper Thames area, although at regional level the general incidence of these brooch types is more balanced (at 27% and 30% respectively) (Fig 2/4).16 There was also a scarcity of applied brooches at Lechlade (at 9%) by the standards of the Upper Thames as a whole (at 14%).

There are also strong Saxon traits in the weapon combinations in both cemeteries. At Lechlade, the frequency of the spear combinations (at 46%), is virtually the same as

---

16 The data from the Upper Thames Valley come from Dickinson (1976, 31, table 1), with the addition of new data (see above).
for the Saxon Upper Thames region as a whole, but this site has fewer shield combinations and an unusual lack of swords, with more seax combinations (Härke forthcoming). Both Mucking I and Lechlade have in common a great preponderance of shield and spear combinations, with a narrow range of spear types. The combinations in Mucking II are more varied, however. Mucking II resembles the Kentish regions in the small proportion of shields, but shows greater similarity to the Saxon areas in the occurrence of swords and other less common weapon combinations (Hirst and Clark forthcoming, b; Härke 1992b, Abb 16).

Certain individual weapons in the Mucking cemeteries appear to be of Saxon type. The Type 1.1 shield bosses, fairly common in both cemeteries at Mucking, are a predominantly Upper Thames type, also occurring frequently at Lechlade (Härke forthcoming). The shield lozenges (in Mucking I, Grave 248) are a type concentrated in Wessex (Dickinson and Härke 1992, 30). The most common shield boss type at Lechlade, Type 4, is a mainly Saxon one, but is absent at Mucking. Certain shield types had widespread distributions: for example, the long shield grips,17 and the Type 3 shield bosses, which were the most common types at Mucking, but were rare at Lechlade.18

The spears are less closely linked to Saxon areas. The spears of Types B2 (in Mucking II) and K1 (in both cemeteries at Mucking, but uncommon) are concentrated respectively in the Lower Thames area and in Saxon areas more generally. The rare C4 type spear did occur at Lechlade and in both Mucking cemeteries, although it is associated more

---

17 This type predominates in Kent, Essex and Saxon areas (Dickinson and Härke 1992, 27).
18 This type is concentrated in Kent and represents a leading type in Essex, Sussex and East Anglia (Dickinson and Härke 1992, 15).
with Kent (Härke forthcoming). Most of the spears at Lechlade and Mucking appear to be types that are not concentrated in any one area of commonality.19

Despite the general similarities of material culture between Lechlade and the Mucking cemeteries, there are also certain differences. The Mucking cemeteries, though primarily Saxon in the character of the brooch types, also contained some artefacts with east Kentish and (to a lesser extent) Anglian affinities, whilst Lechlade produced very few of these. At Mucking, unequivocally Kentish objects were the small square-headed brooches from Grave 99 (see Chapter 1). There were relatively few Kentish artefacts in Mucking II, but they include small square-headed brooches, and a Style I garnet inlaid buckle. At both cemeteries, artefacts that appear to be Frankish in origin were also found, including shield-on-tongue buckles, such as that in Grave 116 or the bucket from Grave 246. Similar items were found in Mucking II. A few artefacts at Mucking appear to reflect Anglian influence. Cruciform brooches, such as those found in Mucking I, Grave 92, and others in Mucking II, are typical of Anglian areas (Hines 1994, 53). The Type 3c glass claw beaker, also from Mucking I, Grave 92, is probably another Anglian product although such artefacts have been found as far afield as northern France (Appendix 2, Chapter 1.2). The Type Borgstedt-Rothwell small-long brooches from Mucking I, Grave 93 may have had links to Schleswig-Holstein and possibly also to Norway, and to East Anglia and the east Midlands; further small-long brooches were also found in Mucking II. The spiral trail ‘traffic light’ glass bead in Mucking I, Grave 123A is a type primarily found in East Anglia (Chapter 1.2). The predominance of twills amongst the recovered textiles is also an Anglian feature (Crowfoot forthcoming).

19 These are spear types C1-3, D1, E1-3, F1, H1-3 and K2.
The Upper Thames Valley region in general has produced fewer Anglian and Kentish artefacts than the Lower Thames region. This was also certainly true of Lechlade, where such artefacts were very few; there was a single Kentish disc brooch in Grave 17 (Clark forthcoming, d), the beads with double crossing green waves on a yellow background in Grave 130 (an East Anglian type (Clark forthcoming, h)), and the C4 spear (see above). Only the great square-headed brooch in Grave 18, and the small-long brooches in Graves 33 and 174 could display possible Anglian connections. Differences between the Upper and Lower Thames are also apparent in the relative proportions of bead types. The most obvious contrast is in the relative scarcity of amber beads at Mucking, mirroring a typical pattern of regional difference (Huggett 1988, fig 1; Hirst and Clark forthcoming, b; Clark forthcoming, h).

Conclusions

The problems posed in the analysis of Mucking I provided an opportunity to devise new approaches to the analysis of Anglo-Saxon material. It was hoped that the methodologies employed would address the practical problems of the publication of early Anglo-Saxon cemeteries, especially where the bone data is poor. An emphasis is placed on the comparative, and therefore regional nature of the study, as well as on age thresholds, as part of chronological and social analysis.

Mucking II is very similar in its material culture to Mucking I, as might have been expected in view of its spatial proximity and the strong likelihood of an identical cultural context. Despite some differences in the artefactual material between Mucking and
Lechlade, there is again a broad overall similarity, which made it seem reasonable to use Lechlade as an overlapping, comparative case-study in order to supplement, where safe and legitimate, the shortcomings of the evidence from Mucking I.
CHAPTER 3. PRINCIPLES AND PROBLEMS OF CHRONOLOGICAL ANALYSIS

3.1 METHODS OF CHRONOLOGICAL ANALYSIS

There are various methods by which a relative and absolute chronology of cemeteries can be constructed, which are here enumerated following Halsall (1996, 39-45). Relative methodologies involve archaeological methods (vertical stratigraphy, as well as ‘horizontal stratigraphy’ or topochronology), artefactual methods (artefact typologies, which include the use of art styles, the identification of ‘workshops’ or products of individual craftsmen, and metallurgical analyses), as well as find-combination methods, such as seriation. Absolute dating methodologies include scientific methods (radiocarbon dating, thermoluminescence dating, dendrochronology), and the use of coinage, as well as reference to graves of historically identified individuals or historical events that may relate to a change in burial practice. Many of these methods have been discussed by Dickinson (1976, 24-8; 1980, 18) and Geake (1997) in relation to Migration and Conversion Period Anglo-Saxon contexts respectively, and by Halsall (1996) with reference to the Continental Frankish material, but those of particular relevance to Migration Period Anglo-Saxon contexts, and to Mucking and Lechlade in particular, are discussed in more detail here.

The relative dating methods include ‘archaeological methods’. Horizontal stratigraphy, or site ‘chorology’ (Gräslund 1976), perhaps best called ‘topochronology’ (Périn 1980), can prove useful in dating internally undatable graves by determining the areas of a cemetery that correspond to chronological periods. The fundamental
The assumption here is that there is a regular development of the cemetery, whether according to a linear or a concentric pattern, to show up sequential chronological development. Such an approach has been important in the chronological analysis of various large Continental cemeteries.\(^1\) Anglo-Saxon cemeteries, however, rarely demonstrate clear horizontal stratigraphy; only occasionally does the development of a cemetery appear to have been linear, such as at Dover, Buckland (Evison 1987). Similarly, vertical stratigraphy is potentially useful as a relative dating tool, but Anglo-Saxon cemeteries rarely contain a large percentage of graves that relate stratigraphically to one another (Chapter 4).

Typological analyses, where the ordering of perceived developments in form and style of artefacts is equated with a chronological evolution, suffer from obvious problems of subjectivity. An emphasis on evolutionary typology, such as that devised by Leeds (1945) for small-long brooches, or Åberg's study of cruciform brooches (1926, 28-56, 184-94), is often based on assumptions about supposed 'degeneration' of form which may ignore other possible, non-chronological explanations, such as regional variations, or the display of differential status, for example in the case of more elaborate and plainer brooches. More recent typologies correctly place greater emphasis on associated finds in order to ascribe dating.\(^2\)

The use of art styles can link individual artefacts within a particular artefact type as well as artefacts of different artefact types. For example, an artefact decorated in Quoit

\(^1\) This approach was used for example at Rubenach (Neuffer-Müller and Ament 1973; Ament 1978, 173-87; Périn 1980, 72-5), Bülach (Werner 1953a), Schretzheim (Koch 1977) and Krefeld-Gellep (Pirling 1974; 1978; 1979).

\(^2\) Nevertheless, Gräslund (1976, 80-1; 1987, 6) argued that there would be less chance of producing a fine division of relative chronology by the find-combination method than by using purely evolutionary typology, as the find-combination method has to take into account the circulation period of the artefact. It could be argued, however, that there are difficulties not only in performing the grading or sequencing, which must be based on spurious assumptions, but also in allocating absolute time-spans to each stage of that development.
Brooch Style might be a buckle or a bracelet, but although very different in form, they will probably have been in production and circulation at around the same time. At Mucking, Quoit Brooch Style, and related late Roman motifs are discussed in some detail (discussed further in Chapter 5). There are a number of different artefact types at both Lechlade and Mucking decorated in Style I, but only one Style II artefact, a Kentish disc brooch from Grave 17, Lechlade (Clark forthcoming, d). It is important to note that although these art styles may appear to be consecutive in date, there is no reason why they should not overlap, partly as a result of the use of one or the other art style by individuals of differing status, or because of regional differences, or merely that one art style need not abruptly supplant another (Welch 1985c; 1987). At Helgö, for example, very diverse artefacts might appear to come from different workshops, even though the contextual evidence points to the existence of a single workshop (Holmqvist 1972, 256).

Objects identified as products of a single workshop, or even more usefully, of an individual craftsman, could be expected to represent a limited timespan, namely the notional working life of an individual. The work of individual craftsmen is easiest to recognise in the case of skilled and complicated metalwork. At Sutton Hoo, for example, several artefacts can be linked by a workmanship that appears to be highly individual.\(^3\) Identifying the work of individual craftsmen is of relevance to Mucking, where it appears that certain artefacts in the inhumations can be linked. (These are discussed further in Chapter 5.) Individual work has been seen in the use of similar design motifs, identical or near identical stamps, or a combination of such stamps, forming ‘stamp

\(^3\) Such pieces would include the shield strips, while the majority of the minor cloisonné mounts of the sword harness can be related to the purse-lid, shoulder clasps and sword pyramids, while all of the jewellery, except the triangular zoomorphic mount and sword pommel, are seen as the products of one gemcutter or lapidary and a master goldsmith (Bruce-Mitford 1978, 69, 88, 91, 597-9).
groups' (Hills 1977b). When found over several sites, similar pots were originally envisaged as belonging to a 'workshop' by Myres (1977) and Briscoe (1981). More plausible interpretations would point instead to the production of such pots (perhaps yearly) by women of a household, with identical and similar stamps on different sites indicating the movement of women upon marriage, and the transmission of a particular 'mental template', possibly including dies. Closely similar pots would therefore indicate contemporary and successive household groups (Arnold 1983; Welch 1992, 109-10), which by their nature would be less closely datable than 'workshops'.

The more recent metallurgical analyses of Migration Period artefacts has proved inconclusive for the purposes of establishing a relative chronology, since there are significant regional variations (Mortimer 1991), and rarely any clear correlations between typological affinity and the composition of brooches (eg Brownsword and Hines 1993). An important study of saucer brooches, focusing on those from Lechlade (Dickinson 1993), has shown that there is a unbroken continuum of alloys, which appear to indicate recycling of metal, although at Lechlade itself, there is a correlation of high-tin bronzes with late Roman-derived geometric motifs, and of low-tin bronzes with Style I designs, which may have some chronological significance (Dickinson forthcoming, a).

Methods of absolute dating include coin dating, scientific methods and reference to historical events and persons whose graves have been identified. The most important historically documented events which pertain to the evidence from Mucking relate to the end of Roman rule in Britain. Until the 1950s scholars placed the Adventus Saxonum at c AD 450, providing a strict terminus post quem for Anglo-Saxon settlement and the

---

4 Fabric analysis has not closely correlated stamp groups to fabric types (Green et al 1981, 207), although even the work of one potter could be expected to vary (Richards 1987, 30).
appearance of ‘Germanic’ artefacts, with this date being incorporated into several typologies, for example those of Quoit Brooch Style artefacts (Hawkes 1961, 51), or of various types of brooches (Åberg 1926). Based on the chronology provided by Bede (Hist Ecc, I, 15), this was an error which ‘...until all too lately, bedevilled English writings, archaeological and historical alike, about the date of the first Anglo-Saxon settlements’ (Hawkes 1989, 78). From an archaeological perspective, it has also become increasingly clear that the ‘Anglo-Saxon’ migration should not be viewed simplistically as a single event.5

The use of coin dating poses three main problems. Firstly, coinage is largely absent. Most coin-dated graves are confined to Conversion Period Kent, although an imitation Vanimundus sceat was found at Lechlade, in Grave 179 (Metcalf forthcoming). Secondly, coins merely provide a terminus post quem for their date of deposition, as coins could have been in circulation, used as jewellery, or hoarded for an indeterminate period (Dickinson 1976, 27; Geake 1997, 9). Thirdly, the scarcity of coins in Britain from c AD 420 until the mid/late seventh century has a tendency to draw material that can be generally associated with either end of the range towards these specific dates like a magnet (Whyman 1993, 64; Geake 1997, 9). These problems are discussed further in Chapter 5.

Until recently, radiocarbon dating has not been used very much for the Anglo-Saxon period, as the standard deviations rarely give date ranges that are narrow enough for the useful dating of individual graves. For the most part, it has been used as a last resort, where there is no other dating evidence, in particular for unfurnished cemetery

---

5 The problems with using the term ‘Germanic’ and ‘Anglo-Saxon’ before the late fifth century at least have been sketched in the introduction, and are discussed in Chapter 8.3.
sites (Geake 1997, 10).\(^6\) Radiocarbon dates have been used in the case of one grave in Mucking II (Chapter 5), and in the analysis of Stretton-on-Fosse, Warwicks (Ford forthcoming, a).\(^7\) More recently, however, narrower date ranges of only 50 years at 95% confidence levels in late sixth- to early eighth-century contexts have been achieved (Scull and Bayliss 1999).

The use of dendrochronology, although very accurate, has hardly figured in early Anglo-Saxon contexts, due to the absence of surviving wood in graves, although there is now a considerable catalogue of graves dated by this method (typically from elaborate, well-preserved grave-chambers) in Frankish and Alamannic territories, such as at Krefeld Gellep, Grave 2268 (Pirling 1979, 86), Cologne Cathedral (Hollstein 1980, 75), Beerlegem (Dierkens 1981, 24), Hüfingen, Grave 1 (Hollstein 1980, 68) and most recently at Lauchheim (Stork 1997, 306-10). It has been applied to certain early Anglo-Saxon settlement features, however, primarily wells, found to date from the seventh century onwards, although sixth-century contexts have also been identified (Tyers et al 1994). Unfortunately, such contexts cannot be linked to mortuary material as they lack associated artefacts.

Thermoluminescence dating is of decreasing use the more recent and historical the period. One early medieval example would be its application to the pottery from Norton, Cleveland (Sherlock and Welch 1992, 55), but here only Low Accuracy dates of \(\pm 290\) and \(300\) years were obtained.

---

\(^6\) Radiocarbon dates have been used at Queenford Farm (Chambers 1987; Haddon-Reece 1987, 58), and Church Piece, Warborough, Oxon (Harman et al 1978).

\(^7\) Here dates at 95% confidence limits spanned nearly 500 years, and over 200 years at the 68% confidence limits.
The stratigraphic and scientific methods apply to the direct dating of individual graves, usually only in the absence of datable artefacts. In the tradition of Anglo-Saxon chronological studies, however, many of the methods used, either singly or in combination, have been concentrated upon obtaining absolute datings for artefact types. Usually this has been approached by comparing artefacts to those found on the Continent, to which they are often linked by common art styles, and where coin-dated examples are much more readily available in the many, very large well-published cemeteries. The emphasis has been on the construction of chronologies for particular artefact types, the results of which have then been applied to individual graves when they contain those artefact types, in a process known as ‘chain linking’.

There are phasing schemes for the regional ‘areas of commonality’ in Britain, although they are much less developed than on the Continent. A phasing scheme for the Anglian area was first proposed by Vierck (1977), and later by Hines (1984), although the absolute dates of the latter have been questioned by Welch (1987). It is intended that recent seriation of cemeteries from this area, Barrington, Cambs (Malim and Hines 1998), Morning Thorpe, Bergh Apton, and Spong Hill, Norfolk, and Westgarth Gardens, Suffolk (Penn forthcoming) will result in a revised relative-chronological framework for the Anglian material. The Kentish material from Mill Hill has been phased by Brugmann (1997; 1999), which forms a basis for a Kentish framework. The Upper Thames Saxon material was examined by Dickinson (1976; 1980), where a find-combination method was attempted, with cast saucer brooches playing a central role. However, Dickinson was hampered by a lack of large, well-excavated cemeteries encompassing sufficient variability of artefact types. Although there is still a shortage of good datasets, the cemetery of
Lechlade (excavated in 1985) provides at least one opportunity to examine a large dataset from the Upper Thames area, while the cemeteries at Mucking furnish the only large dataset of material from the Lower Thames region.

Continental chronological practice has on the whole been approached in a different way, where graves are arranged in order of overall similarity to one another, based on correspondences of their assemblages, in a way known as the find-combination method, which produces a sequential grouping of graves, equated with phases. Once this process of sorting and comparing grave-assemblages starts to be computer-aided, it becomes known as seriation. The many Continental regional schemes, and their chronologies are summarised by Halsall (1996). The first ‘combination analysis’ was carried out by Böhner (1958) on material from the Trier region, with refinements and wider application of his results being suggested by Ament (1976; 1977). Other studies include the work of Pépin (1980), Legoux (1980a; 1980b) and Fleury (Fleury and Pépin 1978) on northern Gaul, Pirling’s on the cemetery of Krefeld-Gellep (Pirling 1964; 1974; 1978; 1979), and that of Stein (1967) for late material. Of greatest relevance to Mucking, as we have seen, is the work on the fourth- to fifth-century North German material by Böhme (1974; 1986). Such studies have led to the establishment of phases, with definition of phase-diagnostic artefact types, and where the absolute dates allocated to phases can, and are, modified in the light of further research (eg Martin 1989).

The construction of relative chronologies by analysing the combination of finds within graves was carried out as early as the nineteenth century and formed the basis of the Three-Age System (Djindjian 1985b, 14; Gräslund 1987, 17-89; Madsen 1989, 205). Worsaae was the first to argue that artefacts within one burial would have been in
use at the same time, known as Worsaae's Law (Rowe 1962). As a development of this principle 'two graves which lie close together in the true temporal order will be more likely to have similar contents than would be the case for two graves which lie further apart in the true temporal order' (Kendall 1969a, 68). Few graves will contain exactly the same types, and most will vary slightly, having either slightly earlier or later types. The similarities in types will enable two graves, A and B, to be ranged next to each other, but B may have earlier types which would range it next to Grave C, which has more types in common with B than with A. Types can be arranged into continuous relative time-scales, thereby ordering the contexts, (ie graves) (Graslund 1987, 8). Only then can absolute datings be considered, derived mainly from coins and providing in the first instance reference-dates for phase-diagnostic artefact types.

3.2 NON-CHRONOLOGICAL FACTORS THAT MAY AFFECT THE CONTENTS OF A GRAVE

Unfortunately, many non-chronological factors will affect an absolute, as well as a relative chronology. Although mortuary data, the basis of Anglo-Saxon studies, provides closed contexts allowing patterns of association between artefacts to be built up, it also poses problems. The three potentially complicating factors (relating primarily but not exclusively to metal artefacts) are: patterns of acquisition and use of artefacts (at what stage in a lifetime artefacts are acquired by an individual and how long they are kept, indeed whether they were buried); the age at death of the individual, and the age of the artefact at the time of burial (including at what stage in an unknown timespan of
production and circulation an artefact was acquired, as well as the problem of heirlooms).

Such questions, and how these relate to chain-link dating, have been addressed primarily by Wilson (1959) and Steuer (1977). Both have shown that, given the combined uncertainties of the point during an unknown production and circulation period at which an artefact was acquired, and the unknown point during an individual’s lifetime at which that artefact was acquired, the margin of error in dating a grave according to the chain-link principle can be very wide. Steuer (1977, 389, fig 44) appears to estimate the average age at death as 50 years, while the production period of an artefact could be estimated at c 30-40 years (the working life of a craftsman), and the circulation period of a type at c 60 years.

Working on these assumptions, it would be possible for two graves containing identical examples of an artefact to be separated by up to 110 years in time. This is because the artefacts could have been acquired at any point in the 60 year circulation span, and at any time of life. The individual in the first grave could have acquired the artefact at the beginning of its circulation span and died and been buried with it immediately, while the individual in the second grave might have acquired (at the beginning of his lifetime) the identical artefact at the end of its circulation span, and subsequently lived to the age of at least 50 years.

In the case of cremation pottery, long sequences of chain dating have been constructed from Continental parallels (Myres 1977). These parallels will often have been dated by associated objects, usually brooches dated in turn by occasional associations with late fourth-century artefacts, which are themselves dated by coin finds (the problems of
which have been outlined above). These increasingly tenuous links can only give rise to an ultimately insecure dating (Morris 1974; Kidd 1976, 203; 1977; Hawkes 1974, 412; Dickinson 1978, 334; Arnold 1981, 243-5; Richards 1987, 25).

In theory, the artefact with the latest date in a grave should be used to date that grave. In practice, however, the dating of graves by the received absolute dates of their artefacts has frequently involved the use of ‘core dates’. This involves making a best guess at the overall date of the grave by placing most emphasis on artefacts that appear to have the most precise dating potential. Those artefacts that display the most decorative motifs such as brooches in female graves are more likely to lend greater chronological precision than plainer, more utilitarian objects. It is important to acknowledge the hierarchy of usefulness of artefacts for assigning absolute dates, ranging from brooches and other artefacts such as belt-fittings decorated in particular art styles, to types of moderate use, such as purse-mounts, finger rings, pendants, to those types, whose dating appears to be more fluid. Some types which appear to have been the most functional, are not believed to be closely datable, such as knives, bags or wooden bowls. Thus, although in theory the latest artefact in a grave should give the date of the grave, sometimes an earlier date is arrived at, if this is based on an artefact, say a decorated brooch, that is more precisely and narrowly dated within the same range as the overall ‘latest’ object, such as a knife. If great reliance is thus placed on any one particular artefact type, which might unfortunately be wrongly dated because of the problems of chain-linking, this could lead to the incorrect dating of other artefact types, if their date ranges were adjusted according to the first artefact type.8

8 A misleading technique has been used at Stretton-on-Fosse, Warwicks (Ford 1996; forthcoming, a), where the margin of overlap of absolute dates for artefact types within each grave is estimated
Clearly, if patterns of artefact acquisition could be identified, and it could be ascertained that artefacts were only acquired at certain times of life, this would limit and control one of the possible sources of error. It might also make it possible to distinguish between artefacts that tend to be inherited, and those that are less susceptible to such chronological bias. These factors have hitherto been but little explored, yet could be highly significant for the seriation of both Lechlade and Mucking.

As we have seen, the degree of similarity and dissimilarity between grave-assemblages of artefacts is affected by three main factors: when and in what pattern artefacts were acquired, the age of the individual at death, and the age of the artefact at burial. These factors have been discussed in theoretical terms, but with the availability of improved datasets, notably that of Lechlade, and bearing in mind potential regional variations, it has been possible to identify resulting patterns in Anglo-Saxon burials. These can only be tentative, until phasing has been carried out, but it is necessary at this stage in order to lessen the impact of these factors on the seriation through the choices made in the coding stage (Chapter 2; Appendix 8).

**Patterns in the acquisition and use of artefacts**

Lechlade has provided an unprecedented opportunity to examine the age thresholds at which artefacts were normally acquired, thanks to the excellent bone evidence and large dataset. It is possible to examine relative patterns of artefact use, the relative statistically, based on the normal distribution of artefact type production spans (see below) and the joint probability of these production spans. Such techniques have commonly been used in the dating of contexts in the United States (C Orton, pers comm). This approach will suffer from the usual potential problems of chain linking: the unknown time of acquisition within a lifetime, the age of the object when acquired, and the age of the individual, and also fails to take into account the varying chronological value.
proportions of brooch types and how they are worn compared to age groups, within one
cemetery without entering into the areas of absolute dating, by selecting only graves
with brooches, and comparing age-related trends between them. It was decided to
undertake a comparative analysis of cemeteries in the Anglian areas, including
Empingham II, Lincs (Timby 1996), Norton-on-Tees, Cleveland (Sherlock and Welch
1992), Wakerley, Northants (Adams and Jackson 1990) and Great Chesterford, Essex
(Evison 1994). It should also be noted, however, that the cemeteries of Great
Chesterford and Wakerley are liminal in nature between Anglian and Saxon cultural
areas, according to the analysis of brooches by Høiland Nielsen (1997b, fig 23).

At the age of c 10-12 years some females acquired the poorer types of brooch,
namely the small-long, applied and disc types in Saxon areas, judging from the pattern
at Lechlade and at Berinsfield, Oxon (Table 3/1). Analysis of the selected Anglian
cemeteries also appears to corroborate these trends, in spite of some problems of data
compatibility and equivalence. In these cemeteries the penannular, annular, and small-
long brooch types could be acquired from this age onwards (Tables 3/2, 3/3, 3/4, 3/5).10
The particular association of small-long and annular brooches with juveniles has been
speculated upon before (Fowler 1963, 117; Lucy 1998, 48). Härke (1992b, 158) found
in a wide survey of weapon graves that spears began to be acquired at around the age of
10-12 amongst males, and this was also evident at Lechlade.

9 The finding of brooches that are in bags are excluded.
10 The most severe problems were encountered at Great Chesterford, where the broad 15-25 age group
rendered analysis impossible. Taking the median of such an age range would mean that individuals are
automatically classified as adults. At Empingham II, age groups spanned five to seven years, ie 17-25 or
16-21, which made the examination of detailed trends difficult. At Norton, the age groups were similarly
broadly defined, ie 15-21 and 12-18, and the general absence of adolescents also made distinguishing
Härke (1992a; forthcoming) has also observed that shields and a second spear were acquired primarily at around 18 years of age, which was certainly the pattern at Lechlade. An equivalent female age threshold could be identified for the first time using the data from Lechlade. This was because the osteological age groups were as narrowly defined as by two or three years, with little overlap at around the age of 18 years. It could be clearly demonstrated that at Lechlade at least the acquisition of pairs of saucer brooches also took place primarily at 18 years of age (Dickinson forthcoming, a). This pattern seems to be confirmed by the Saxon cemeteries of Berinsfield and Andover, Portway (data extrapolated from Boyle et al 1995, and Cook and Dacre 1985). Unfortunately, there was insufficient data from the Lower Thames cemeteries to ascertain whether the same pattern applies in this region; a greater variety of brooch types is encountered there, which would make such a clear-cut threshold less likely, and certainly less visible.

There may be a corresponding threshold of c 18 years for the acquisition of certain brooch types in the Anglian area of commonality, such as the great square-headed, swastika, and cruciform brooches (Tables 3/2, 3/3, 3/4, 3/5), but the associated osteological evidence is much less reliable. Given the more broadly defined age groups, it could even be that the ‘adult’ acquisition threshold for Anglian areas was as late as 25 years. Whatever the exact age of acquisition of ‘adult’ brooches, at least in some cases those brooches deemed suitable for a juvenile were evidently no longer appropriate to a new adult status, and may have been handed down to another individual who had just reached the threshold of adolescence. The occurrence of smaller annular

such trends difficult. The same was the case at Castledyke, Barton-on-Humber (Drinkall and Foreman 1998) and at Barrington A, Cambs (Malim and Hines 1998).
brooches with juveniles at Sewerby, Humbs (Hirst 1985, 101) can also be seen at Norton, Cleveland, or Wakerley I, Northants for example. It may be that in Anglian areas, at least, turnover of such distinctively juvenile brooches was fairly rapid. Dickinson (1976, 30) noted that in the Upper Thames, however, that a lot more disc, annular and small-long brooches were found in non-matching pairs (with the same brooch type and with other ‘poorer’ types) than the more elaborate brooch types. This would also suggest a high turnover of ‘poorer’ brooches in general in Saxon areas. There was no conclusive evidence for this at Lechlade, although at Mucking, four non-matching pairs were found; two pairs of small-long brooches, one disc and one applied saucer (in Mucking I, Grave 249).

It is therefore possible that different brooch types in graves might reflect not so much chronological differences, as age differentials, at least within the same regional traditions of brooch types, and when the respective brooch types are of similar form. Such ‘binary’ types in Saxon areas would appear to be disc/saucer brooches, and small-long/cruciform brooches in Anglian areas. The similarity of small-long brooches to great square-headed brooches (Vierck 1972, 78; 1977, 42-3) has long been recognised. Certain types of small-long brooches with lappets resemble in form and use the small-square-headed brooches found in Kent (Leeds 1945, 63-4). These dichotomies have been seen in terms of overall social status (Leeds 1945, 83; Dickinson 1979, 52; Welch 1983, 55-7; Welch 1985b, 14), but might more correctly be seen as representing differential adult/juvenile status, although it should be remembered that disc and small-long brooches were worn primarily by adults, who presumably were of lower status than the adults with saucer and cruciform brooches.
At Lechlade, there were no artefact types amongst the adult females that could only be acquired by older individuals. The same does not appear to have been the case, however, in the Anglian cemetery of Castledyke, Barton-on-Humber (Drinkall and Foreman 1998, 331), where cruciform brooches were acquired exclusively by females aged over 35 and simple annulars by those above the age of 45. The impossibility of closer ageing of females between 25 and 35 years should be noted here. Whether artefact acquisition by ‘middle-aged’ females is a more general phenomenon in other cemeteries is at present unknown.

Certain other standard patterns of artefact acquisition can be discerned. Amongst weapon-bearing males generally, arrowheads have only been found with juveniles, whilst seaxes and axes have normally only been found with individuals in their 30s, unlike other weapons (Härke 1992a, 156). The only examples of these weapon types found at Lechlade are four seaxes, all of which were associated, as expected, with individuals aged 30 years or over.

In addition to these patterns of acquisition at particular times of life, the wider investigation of the sizes of spears and knives appears to indicate that acquisition of these artefact types sometimes continued throughout life, and occurred not just at certain age thresholds. The correlation of knife length to age suggests that after childhood a larger knife was acquired, presumably at the major acquisition thresholds of c 12 or 18 years, but also at later stages of life, so that the longest knife blades are found with the oldest individuals, although these were only ever males (Härke 1989a). At Lechlade, however, older adults were consistently accompanied by shorter knives than younger adults, even males, although this is an observation based on a single cemetery. Spearhead lengths
were again correlated with the age of the individuals they were buried with (Härke 1992a, 158; 1992b, Abb 37). Härke (1990, 34-5) argued that this, combined with the concentration of damage to weapons in adult graves, provided evidence that weapons on the whole (excepting swords) appear ‘...to have belonged to the individual in whose grave they were found’. This would suggest a static relationship between a spear and the individual with whom it was buried. Nevertheless, his formulation seems not to address the question as to how long before death and burial a weapon had been acquired, and whether it had had previous owners. Unlike the use of shields, where damage does suggest a lifetime of use by one individual (see below), the correlation of spearhead lengths to age suggests a dynamic situation of continued acquisition of ever longer spears throughout life, and even into old age. Presumably, as an individual grew older, not only were larger spears acquired, but the spears once deemed appropriate were handed down to younger individuals. At Lechlade, as well as at other cemeteries, there was a continuum of spearhead lengths in relation to increasing age.

It also appears, judging solely by the patterns of acquisition, that artefacts other than spears and knives, were usually kept for a lifetime of use at Lechlade (apart from spears and knives). Analysis of worn, broken or reused artefacts, as recorded in the catalogue (Boyle et al 1998) seems to support this interpretation. The wear on artefacts can be attributed to normal wear and tear during a lifetime’s use only if it can be demonstrated that such wear is concentrated on artefacts found with older adults. There are considerable problems with the analysis of wear and breakage on brooches, for example (Leigh 1980, 484): contributory factors include the frequency of use, whether the alloys were similar, how abrasive the associated fabrics were, and whether the
brooches were used in a similar manner. Further problems are discussed in detail in Chapter 6.4. Notwithstanding these questions, it does appear that worn objects, most of which were brooches, were found with adult females over 35 years old at Lechlade, as well as concentrated amongst juveniles. This might suggest that saucer brooches were new when acquired at the threshold of adulthood, and were perhaps been made for the individual. The concentration of wear on objects amongst older females was also the case at Mill Hill, Kent (Parfitt and Brugmann 1997, 48, table 1). At the Anglian site of Empingham II, Leics (Timby 1996, 93), however, all the brooches showed evidence of wear, even with younger adult females. This may suggest that among this community at least, brooches were inherited on reaching adulthood, rather than acquired new.

The ratio of paired to single brooches amongst brooch wearing adult females at Lechlade is 10:1 amongst younger individuals, and falls to only 2:1 amongst older ones. Thus, in a substantial minority of cases, the second brooch of a pair becomes ‘missing’. As saucer brooches are only rarely found with juveniles, the ‘missing’ saucer brooches cannot have been handed down (although this could have been the case with the ‘poorer’ types of brooch). Such brooches may have simply been lost, or even discarded as a deliberate marking of singleness upon widowhood; this seems unlikely, however, as the average age of death amongst males and females was fairly similar (see below).11 Whatever the reason, the concentration of ‘missing’ brooches amongst older females, in conjunction with wear patterns, suggests that brooches belonged for the most part to the individual with whom they were buried, and were normally intended for a lifetime of use. These patterns contradict the argument that brooches need not have played a

---

11 Problems with using the average age of death are discussed in Chapter 6.3.
functional part in female dress (Brush 1994, 139-40), implying that they may not have been part of everyday wear, and were not necessarily the property of the deceased.

Examination of the ratio of paired to single brooches is not as straightforward in the Anglian cemeteries, as whilst the wearing of paired brooches is a 'Saxon' trait, this is in contrast to the more common use of three brooches in Anglian areas (Dickinson 1976, 30; Brush 1994). The data found in Tables 3/2 and 3/4 also, however, point to the very common use of single brooches by adults in at least two Anglian cemeteries that does not appear to be related to older adult females.

The concentration of damage and wear on shields found in adult graves has been alluded to above. This, combined with the fact that shield grips were rarely altered (Härke 1990, 34-5), is interpreted as indicative of a lifetime of use, by the same individual. At Lechlade, repairs were found to the weapons of older individuals, as well as to the seax in Grave 172/1, and the shields in Graves 58/1, 115, 116, and 192 (Härke forthcoming), mostly involving males in their 30s.12

Another possible source of chronological bias might lie in varying levels of artefact acquisition, in turn linked to social status. In low-status graves it would appear that the subjects failed to accumulate artefacts at the same age thresholds as higher status individuals. It might also be the case, given the sharp drop in the ratio of paired to single brooches amongst older females, that some of these females lost the entirety of their assemblages, but since this involves negative evidence, by definition it cannot be proved. A sharp fall in the frequency of brooches amongst older adult females could also be observed in the Saxon cemetery of Alton, Hants, for example (Evison 1988).

12 Grave 192 could not be aged more closely than as an 'adult'.
Finally, it should be stressed that questions of artefact use must also consider the relative importance of the mourners of the deceased, who through manipulation of the burial ritual, may have added to, or subtracted from, the artefacts belonging to the deceased. Although it would appear that at Lechlade at least, most artefacts were intended for a lifetime of use, the possibility remains that some artefacts were sometimes made, or provided, especially for burial. A distinction has often been drawn in early medieval mortuary archaeology between personal possessions (ie costume) and 'offerings to the dead' (Salin 1952, 223-4; Werner 1968; Young 1977, 36), which could include containers as well as sacrifices and food offerings. Containers account for only c 10% of artefacts in Mucking Cemeteries I and II, but they might in theory be more recent than other artefacts in the grave. This has probably not affected the absolute dating of rudimentary wooden bowls, whilst buckets, metal containers and glass vessels are more likely to have been heirlooms, given their intrinsically high status. It is argued here that in view of what appear to be prescribed patterns of artefact acquisition in life according to gender and age, it is correspondingly more likely that any role of the survivors in determining the grave assemblage would similarly have been constrained by rules relating to the gender and age of the deceased, rather than being wholly arbitrary (contra Lucy 1998).

The age of the artefact at the time of burial

The initial assumption underlying any chronological analysis is that each type can be assigned to a definite segment of time. The manufacturing period of artefacts has been assumed to be restricted to the working life of one craftsman, estimated to be around 30 to
40 years by Wilson (1959, 113) and Steuer (1977, 387) but as 50 years by Graslund (1976, 80-1). Where ‘workshops’ have been identified, a longer production timespan is more likely. It has been estimated that an average circulation period would have lasted approximately 30 years longer than the production period (Steuer 1977).

Artefact types have a phase of production, with the pattern of quantities produced resembling a ‘battleship curve’, that is with small initial quantities, reaching a peak of production, and then declining.\(^\text{13}\) An artefact is much more likely to be acquired during the production period of its type, especially at some point between the peak and end of the production curve (Steuer 1977, 389).

The circulation period of certain types as opposed to others will be longer, and may have little to do with the length of their production periods. Certainly it is to be expected that certain artefact types will have had longer circulation periods than 'stylistic' types (Steuer 1977, 387-8, 399). More ‘functional’ items such as knives are more likely to be produced over a longer period than say, a particular type of ornate buckle or brooch.

High-status artefacts could be expected to have long circulation periods, such as glass vessels, because they were so valuable and would have often been heirlooms (Welch 1983, 141).\(^\text{14}\) This appears to have been the case, for example, with the glass in Grave 1782 at Krefeld-Gellep (Pirling 1964). The bequeathing of drinking vessels to heirs

---

\(^\text{13}\) The time period is often assumed to be in the form of a ‘battleship’, unimodal curve, or Gaussian curve, and has been applied particularly to percentage frequencies of pottery sherds in the USA. ‘Each type originates at a given time at a given place, is made in gradually increasing numbers as time goes on, then decreases in popularity until it becomes forgotten, never to recur in an identical form’ (Brainerd 1951, 304), although modifications to this have been tested by Barros (1982, 295-300). Analysis of historically dated artefact types, such as grandfather clocks, does seem to suggest that the unimodal curve is valid (Clarke 1978, 182-6).

\(^\text{14}\) Pépin (1980, 196) has argued that pottery and glass vessels are more likely to be contemporary because of their fragility. It seems, however, more probable that pottery may have been utilitarian and ephemeral.
is also historically documented (Whitelock 1930, 14, 51). Heirlooms can be defined as artefacts that were first acquired at least one generation or several generations previously. Such artefacts present obvious difficulties in terms of chronological analysis via chain-linking of graves. Swords, high-status male objects, also appear frequently to have been inherited (Ellis Davidson 1962, 118). For example, Athelstan’s will of 1015 bequeathed several swords, one of which had allegedly belonged to King Offa and was therefore over 200 years old (Whitelock 1979, 549).

It is clear that some artefact types, however, such as short and medium-sized spearheads and knives, as well as ‘poorer’ types of brooches, need not have had a particularly long production periods, but could have unexpectedly long circulation periods, because they were passed down. It was also possible to assess the age of certain artefacts by considering whether they were worn or broken (see above). If damaged and worn brooches were found with juveniles, this might indicate that they had been handed down. At Lechlade, objects in this condition were indeed often associated with juveniles (as well as with older females, see above). The combination of a decline in the relative percentage of women aged over 35 years wearing a pair of brooches, and the finding of at least some juveniles with worn or damaged brooches suggests that at least some brooch types (the penannular, annular, small-long, applied and disc brooches) may sometimes have been handed down by their original owners, presumably by mothers to their daughters, or by adolescents to younger juveniles. These types may have had comparatively long circulation periods compared to their production periods. As they will at times be found with artefacts that are much younger, their associations could

---

15 This is to be preferred to Rowe’s (1962, 134) definition of an heirloom as an artefact 25 to 75 years old, ‘of moderate age… which could have come into possession of the deceased through being handed down in the
suggest overlapping production periods where in fact none existed, but only overlapping circulation periods. This will particularly affect chain-linking, but even in a seriation, if heirlooms are common, and there are relatively few types within each grave, this might lead to a sequence of graves that does not reflect the order in which they were actually dug.

There is no strictly contemporary Anglo-Saxon documentary evidence to shed light on whether items of dress could be inherited. From the Continent the (albiet heavily Roman-influenced) Burgundian Code, dated to the late fifth and early sixth centuries, stipulates that women could inherit their mother's or sister's clothing and ornaments (Wemple 1981, 28). Certainly later English evidence points to the inheritance of female items of costume. The Continental ninth-century law regarding Heergewäte (a man's clothing and weapons) and Gerade (a women's clothing and jewellery) unfortunately does not have clear implications for the burial of artefacts. When recorded, this law related to family inheritance as opposed to bequeathing to the Church, but it may have enshrined a long-standing custom.

In conclusion, it can be demonstrated that certain types of artefacts can be expected to have been older when buried than others. Obviously high-status artefact
types have long been suspected to have been in circulation or retained for long periods, but the evidence from Lechlade would appear to suggest that the ‘poorer’ types of brooch may have been in circulation for longer than the higher status types of brooches, and that knives and spears are also likely to have been handed down.

The age at death of the individual

The excellent bone evidence at Lechlade meant that older adults could be distinguished from younger ones, making it possible to investigate a meaningful sample of older female adults in comparison with younger adult females. This highlighted significant chronological implications for older female adult burials. Firstly, it could be demonstrated for the first time that older female adults were often buried with single brooches, so that certain brooches appear to have been ‘missing’. If can be extrapolated from this that both brooches might be missing in individual extreme cases, and that key chronological information will be lost. Comparative data from the Anglian cemeteries of Norton-on-Tees, Great Chesterford or Empingham II does not reveal a relative dropping off in the numbers of brooches amongst older females (Tables 3/2, 3/3, 3/4). The data from the Upper Thames cemetery of Berinsfield is also inconclusive, possibly because the dataset is relatively small (Table 3/1).

Secondly, given the absence of major acquisition thresholds later than at c 18 years, the graves of older females might appear, at Lechlade at least, to be chronologically indistinguishable from those of younger adults. If an individual lived for another 25 years or more after the age of 18, this would not normally be reflected in the grave artefacts by continued acquisition throughout a lifetime.
Older adult males could be expected to have possessed a now older shield, but had, at least at times, a new large spearhead and knife. They could acquire certain types of other weapons into their 30s, unlike the adult females. As we have seen, Wilson (1959) and Steuer (1977, 389) used a notional age at death of 50 years in their discussions of the problems of chain-link dating. The validity of such a theoretical figure must be judged not only in the light of the known age of individuals, but also against the average age at death amongst Anglo-Saxon adult males and females. This was only 34.7 and 33.1 years respectively (Brothwell 1972, 83). This suggests that there would rarely have been a significant chronological gap between the acquisition of saucer brooches and shields, and their burial upon death of the owner. It should be cautioned, however, that older adults may have been consistently underaged in skeletal studies (Chapter 6.3).

As the gradations in size of knives and spears according to age groups appears to reflect a continual handing down of spears to the younger generations (in a ‘cascade effect’), younger adult males and male juveniles will, at least at times, probably have obtained a ‘second-hand’ spear and knife. These would often have been medium sized in the case of young and middle-aged adults, and short in the case of juveniles. In the case of young adult males, it is probable that they would have possessed a relatively new shield (acquired at 18) combined with older medium-sized spearheads and knives.

In the case of male juveniles, these individuals rarely possessed artefact types other than spears and knives anyway, so although these would have often been ‘second hand’, they would rarely have been combined with other artefact types that may have been more recently produced. Female juveniles are rarely found with a large number of
different types, so that again, the effect of unpredictably ‘old’ brooches amongst other types will not be a common problem.

Conclusions

Chronological implications of patterns of artefact acquisition and use, age at death of the individual, and age of the artefact have been investigated with the help of the exemplary archaeological and osteological data from Lechlade. In particular, this cemetery has been crucial for identifying the age threshold of $c. 18$ years for the acquisition of saucer brooches. It is noteworthy that this age threshold is much less evident in Anglian areas, which in general, may have been more bound by inheritance customs, subject to fluidity in artefact use. At Lechlade, for the most part, items appear to have been intended for a lifetime of use. This is based on the concentration of wear, and the sharp decrease in the ratio of paired to single brooches, amongst older females. ‘Missing’ brooches were clearly not being replaced.

Some artefact types, however, appear often to have been passed down to the younger generation, and for this reason will have had unusually long circulation periods. ‘Poorer’ types of brooches may have been handed down to juveniles either by other juveniles or by older adult females. With increasing age, spears and knives appear to have been continually passed on to younger individuals, and replaced by other more suitable ones. Very high-status items instead may have been bequeathed over several generations.

At Lechlade, it would appear that juveniles in particular could expect to be buried with artefacts that were already old. The artefact assemblages of older adult females may

---

18 As spearhead lengths were again correlated to the age of their owners, it is probable that there was a handing down of spears to younger individuals when the size of the spearhead was no longer deemed appropriate, a custom observed, for example, amongst the Loikop of east Africa (Larrick 1986).
also make their graves appear to be earlier than they were in reality, due to discontinued
acquisition after the age of 18, and perhaps even loss of artefacts, although, of course, this
can never be verified. On average, however, there does not seem to have been a
significant chronological gap between the acquisition of saucer brooches and their
deposition upon the death of their owner. Adult males appear to have been able to acquire
some types of weapons in their 30s, or even older, in the case of spears, lessening the
potential chronological gap between acquisition and death of the owner.

Distinguishing patterns of artefact acquisition and use can reduce the potential
errors in chain-link dating, by determining the age of the deceased, the point in a lifetime
at which an artefact type was likely to have been acquired, and whether a particular
artefact type was likely to have been in circulation longer than other types. These factors
will influence the contents of a grave, and will therefore affect the dating of the grave
whether using chain-linking or find-combination methods. Nevertheless, the one variable
that cannot be known is at what point in the production and circulation period of a type
that this artefact was acquired and then buried. This will have implications for chain
linking that will not affect the find-combination method. This need not affect the find-
combination method, but will have implications for chain-linking, because simply
transferring an artefact’s absolute date from one grave to another will not take account of
the adjustment required if the artefact in the second grave was acquired at a different point
in the production and circulation curve. For this reason, a method based on artefact type
combinations seems an altogether more reliable approach to the chronological analysis of
an individual cemetery such as Mucking.
3.3 THE USE OF SERIATION

It was decided to test the seriation program ‘Seriate’ (part of the package IASTATS) on Anglo-Saxon cemetery data from Lechlade. This package was devised at the Institute of Archaeology, University College London (for details see Appendix 4).

Seriation has been defined as 'arranging a set of comparable archaeological units...into a meaningful sequence solely on the basis of comparisons and contrasts between them' (Doran and Hodson 1975, 267). In other words, a grave occurs at a point in time, and a type flourishes throughout a period, and the task of seriation is to arrange the graves in a relative order to one another according to the types they contain (Kendall 1969a, 69).

Cemetery applications usually make use of the incidence matrix in which the presence or absence of interments occurring at a single point in time (graves) are recorded in the appropriate row, and where the columns represent types which persist throughout a period of time (Kendall 1969b, 569). Petrie's Concentration Principle states that "if the typology is 'chronologically significant', and when the graves have been correctly ordered (or anti-ordered), then the 'sequence-date' ranges for the individual types will be found to have been individually or in some communal way minimised" (Kendall 1971a, 217). This applies only to presence-absence data ordered in a matrix, so that the sum over all the columns of the range of entries for each column is minimised (Doran and Hodson 1975, 277), or in other words where the 1's in the columns are packed together. If this can be completely carried out, so that graves containing that type will occur together without
gaps, this is known as a Petrie matrix (Kendall 1969a, 70-1), although such a situation
will not occur in real contexts. If *all* the types were too short-lived the graves will hardly
be linked, and if *all* the types are too long-lived, the graves will be linked indifferently
(Kendall 1969a, 70).

What are the benefits of using seriation compared to other, more 'intuitive'
methods of association dating? Firstly, seriation should be more systematic than
association dating by type, as it will use all the artefacts, it will be checked against the
stratigraphy afterwards, rather than the latter being part of the dating process, and it
makes no assumptions about the absolute dating of artefact types.

Traditionally, it has been easier to adopt chronologically diagnostic artefacts
which *distinguish* a phase, so-called 'type fossils', where the whole picture of what
*comprises* a phase may have been omitted (Clarke 1978, 27-8; Doran and Hodson 1975,
161-2). With seriation, however, *all* the objects in a cemetery may be considered (if there
are sufficient examples) and not just those which are believed to be of chronological
significance.

By reserving the stratigraphic evidence until after the seriation, this leaves one
source of independent evidence to check against the relative order. 'If the author is
committed to the earlier interpretation and terminology it will be much more tempting
consciously or unconsciously to confirm rather than to refute. Further, by combining
stratigraphic, typological and association evidence from the start, no independent
evidence is left to check the proposed results' (Hodson 1990, 35).

Seriation does not use absolutely dated types in order to range graves in a
chronological order. The use of such absolute dates can lead to potential problems, either
because of varying distance from place of manufacture, acquisition of a type by the individual at different stages of life, with differing ages at death, or acquisition of a type at different stages in the production or circulation period of a type.

Absolute dates are traditionally assigned to an artefact type by the chain-link principle using other types found within the same grave. As the chain-link principle is used after allocating an *absolute* date-range to a type, such variables as age at death and time of acquisition of a type or types (taken to its most extreme by the burial of heirlooms), can act as a weakness (Wilson 1959; Kidd 1976, 203; Steuer 1977). Seriation can only produce, however, an ordering of graves in a *relative* order, in which the absolute date of each type will not affect that order. Nevertheless, a large amount of data is necessary so that the general trends of association of types become clear.

The program 'Seriate' is based on Correspondence Analysis (CA), which has been selected as the most effective type of multivariate analysis. This is a simultaneous R-mode and Q-mode technique, in that it analyses the interrelationship between variables (types) and units (graves) simultaneously (Madsen 1988b, 14; 1989, 207). The benefits of CA, and a comparison to other types of analyses are discussed in Appendix 5.

The 'Seriate' program uses heuristic stratagems, ie, modifying an initial order given by correspondence analysis (instead of calculating the best concentration of columns from every possible arrangement of graves, a best result is achieved with a more limited amount of computation) (Hodson 1990, 121). The hierarchical structure of the coding for this program means that more emphasis can be placed on certain types than others, so that those believed to be of greater importance, such as ornately decorated
brooches can be emphasised, whilst other types with long circulation periods can be diminished. This will be of great importance in the coding of material.

Factors to consider when undertaking a seriation

The question of gender

Many Anglo-Saxon artefact types reflect gender differences. Thus, the division of graves by sex is necessary to eliminate one obvious source of non-association; the male and female graves must be separated in order to avoid non-chronological 'noise' (Hodson 1990, 44; Kemp 1975, 280; Høilund Nielsen 1997a; 1997b).

The division of graves at Lechlade according to gender was relatively straightforward. It was possible to identify the age of the individual, and the sex of the adults in nearly all cases (discussed in further detail in Chapter 6). The association of these types to osteologically identified individuals of known age and sex was examined, as it was felt that this association had to be explicitly stated in the case of each artefact type in order to systematically identify any inconsistencies between sexing and gender. It was decided therefore to gather information on the association between osteologically identified individuals and particular Anglo-Saxon artefact types at Lechlade, and other Anglo-Saxon cemeteries (Appendix 6). It is important to build up patterns from individual cemeteries and then amalgamate them into a wider picture (James 1977, 164). There do not seem to be regional variations in the use of artefact types along gender lines.
There were inconsistencies between the bone evidence and the gender implied by the artefactual evidence in only four cases. In Grave 95, a spearhead was found in the grave of a sexed female with otherwise female grave goods, but this can be explained by its reuse as a weaving batten (Härke forthcoming). The adult female in Grave 191 was also found with a spearhead, but in this case it appears to have been displaced (Boyle forthcoming, b; Härke forthcoming). In the case of Grave 176, a sexed adult male was associated with female artefacts (a pair of penannular brooches and many beads). Grave 119 contained an adult male and an infant. The two amber beads in this double grave were probably associated with the infant, and had been disturbed. In these cases, either the osteological or cultural evidence had to be followed. An examination of both types of evidence had to be undertaken. Where gender discrepancies are found, this takes two forms: either the artefactual evidence is internally contradictory, or the bone evidence does not match the artefactual evidence.

One approach to the examination of gender patterning of artefacts is to study the association of artefact types with one another. Various clustering techniques have been adopted, including Principle Components Analysis (PCA), used by Shephard (1979, 51-2) on cemeteries in Kent and subsequently, on a single-cemetery level, by Boddington (1990, 182-4). These have pointed to consistent groupings of artefact types. It has been argued by some (Brush 1988, 80; Henderson 1989a; Lucy 1998, 32-50) that stretching of gender roles beyond a bi-polar model was possible, partly because ambiguous combinations of artefacts have sometimes been identified. Unfortunately, they failed to acknowledge that their supporting examples were all from old, unscientific excavations,
that is, from sites where the contextual evidence was likely to have been disturbed \(^{19}\) or where possible double burials were present.\(^{20}\)

A second approach is to compare the gender (artefactual) and sexing (osteological) evidence. This demonstrates that, on the whole, there is great agreement between the two types of evidence. They match in 99% of cases in a survey of over 3000 Anglo-Saxon skeletons (Härke 1997b, 132). Those discrepancies identified by Brush (1988, 80) are confined to cases where the bone evidence is poor, as are those noted at Portway, Sewerby, Beckford, and Buckland, Dover by Henderson (1989a, 77-83).\(^{21}\) This also applies to other examples where inconsistencies between the osteological and cultural evidence can be cited.\(^{22}\) These inconsistencies could be explained by the inexactitudes of osteological evidence. Even when a complete skeleton is available, sexing using osteological techniques compared to the known sex of the individual has been estimated to be only 96-100% accurate (Henderson 1989a). The sexing of individuals matched the documentary evidence in 95% of cases at Spitalfields, London, for example (Molleson and Cox 1993).\(^{23}\) This occasional inaccuracy, combined with the consistent association of artefact types with each other in favourable

\(^{19}\) At Kempston, Beds, in c 1856 (Smith 1904, 179) and at Guston, Kent, before 1864, brooches were recorded with weapons (Meaney 1964, 122-3). At Shalfleet, Isle of Wight, in 1816, weapons were recorded with three beads (Arnold 1982, 78-9).

\(^{20}\) As at Harwell, Oxon (formerly Berks), Grave 1, which contained a weapon as well as brooches (Kirk and Marshall 1956, 25-6). To this example could be added Graves 304, 362 and 370, at Morning Thorpe, Norfolk (Green et al 1987).

\(^{21}\) At Buckland, Dover, Kent (Evison 1987) there was disagreement in 12 out of 42 cases between grave goods and the bone evidence, based on the final bone report and list of sexed adults. In two cases, the grave was disturbed, so that the bone could have been mixed, and there were also three errors in the final bone report.

\(^{22}\) These include Grave 9, Portway, Hants (Cook and Dacre 1985, 67), Graves 19 and 38, Sewerby, Yorks (Hirst 1985, 33-4), Grave 4, Westgarth Gardens, Suffolk (West 1988, 5, 7), and Graves 6, 12 and 39, Alton, Hants (Evison 1988, 29, 32). There are numerous examples at Empingham II, Leics, where 12% of those identified as males were culturally female (Timby 1996, 16), Great Chesterford, Essex (Evison 1994, table 10), Berinsfield, Oxon (Dodd 1995, table 32) and Norton-on-Tees, Cleveland (Sherlock and Welch 1992, 73).
contexts, suggests a good *prima facie* case for not questioning gender. At Lechlade, therefore, where the osteological evidence pointed to males, the female cultural evidence was followed, and these graves were included in the female seriation. Indeed, for the purposes of seriation, any gender anomalous graves would be so rare as to be eliminated by the program, unless they were included with graves of the same gender.

In stark contrast to Lechlade, the osteological evidence at Mucking is extremely poor; in only a very few graves at Mucking could sex be determined using the osteological evidence (Mays forthcoming). In Mucking I, there were no such individuals, and in Mucking II, only 19 individuals identified as male or possibly male, and five females or possible females. This represents only 9% of the total number of individuals from this cemetery, and a mere 7% of both cemeteries.

In circumstances where the bone evidence is poor or absent, it has been recommended that a single link clustering program should be used to distinguish between male and female graves (Hodson 1990, 24-33). This program is part of the UCL IASTATS package (Appendix 4). Instead of using it on the data from Mucking, it was decided to try out the usefulness of this approach by first applying it to the cemetery at Lechlade (Appendix 7). It was thought that this could act as a test of the association of artefact types with each other and with osteologically identified individuals of known age and sex in a cemetery where the osteological evidence is outstandingly good. The survey of Anglo-Saxon cemeteries (Chapter 2) indicates that this cemetery provided the best preserved and largest known dataset of osteologically identified individuals, and thus provided an excellent opportunity to test this cluster analysis.

---

23 The percentage of juveniles who can be sexed drops significantly (see Mays 1998 for further references).
The program linked adult females to beads and brooches, whilst adult males were linked to spears and shields, but also to knives and buckles. Other artefact types, however, were only loosely linked (Fig 3/1). Overall, the program did not link artefact types into two groups that could be interpreted along gender lines that were necessary for seriation. There may also have been an element of chain-linking, leading to overlinking of the variables. Although esteemed theoretically, single link cluster analysis has usually proved disappointing in practice (Hodson and Tyers 1988, 33). In this case, however, the reason for the absence of two clear groups that were hoped for is probably because many artefact types are shared by adult females and juveniles, whilst buckles and knives are worn by adult males and females alike. Given these results, it was decided that it would not clarify the data by using the single link program for the data from Mucking. It seemed more useful to investigate in detail the patterns in artefact use determined at Lechlade (and other Anglo-Saxon cemeteries). It was decided that the individual’s gender identity at Mucking should be determined by the associated artefacts, which would take precedence over osteological sexing if these were in conflict.

Certain artefact types were not found at Lechlade but were present at Mucking, and so their associations are separately addressed here. The question of brooches being worn by males also arose at Mucking. The presence of brooches is normally considered to be

---

24 This is where the elongated growth of clusters can obscure secondary structure, so that the information of intermediate or connecting items is not shown clearly on a dendrogram (Sneath and Sockal 1973, 223).
25 Only four artefact types were not found at Lechlade but were present at Mucking. These include needles, associated with females, but also found with males (Härke 1992b, 92). Bracelets appear to be female, or juvenile in association (Dickinson 1976, 200). The wide ‘official’ belt sets and fittings (in Mucking I in Graves 91 and 117, and in Mucking II in Graves 637, 823, 842, 979, 987 and 989) might be assumed to be male, but as they appear so often to have been passed down, often to females (White 1988, 49-53), they have not been used to assign a gender. Graves 117 and 979 were counted as males, but only that the belt set in Grave 979 was found with weapons, though this was also probably the case in Grave 117. The garnet inlaid buckle plates in Grave 281, Mucking II represent a type usually, but not always, found with males (Welch 1983, 97-8), so this set was not used to allocated gender.
indicative of a female gender, but there are exceptions to this (Ager 1985, 4; Härke 1992b, 92). Penannular brooches worn singly were found in association with weapons, as in Mucking II, Graves 789 and 979, who presumably were therefore males. Where males have been identified from the bone evidence in the Upper Thames region, they were often found with single brooches that are penannulars, but also disc and small-long brooches (Dickinson 1976, 30). Nevertheless, an examination of cemeteries in this area where the bone evidence postdates 1950 (primarily Berinsfield, Lechlade and Watchfield) reveals no individuals identified from the bone evidence as adult males in association with single disc and small-long brooches. It was decided that, given the frequency of brooches worn singly amongst older adult females at Lechlade, it was more probable that the adults found in Mucking II Graves 374 and 579 (with small-long brooches) were females (despite the absence of other ‘female’ artefacts). The single button brooch in Grave 281 was associated with a Style I buckle; this was counted as a female, as again there is no documented tradition of the wearing of this type of brooch amongst males. Graves where brooches were found in bags were also counted as female (eg Grave 100, or in Mucking II, Grave 650).

Discrepancies between the bone evidence and cultural evidence did not arise in Mucking I, as no individuals could be sexed on the basis of the osteological evidence. In Mucking II, however, there were a few discrepancies. Six adults were identified as possible or probable males, but appeared culturally to be females. Graves 322, 552 and 998 contained paired brooches. Grave 568 contained a chatelaine, and 631 several bracelets. Grave 281 contained a single button brooch. This represents roughly one third of all the identified males. For only three of the five adults osteologically
identified as possible or probable females was this corroborated by the cultural
evidence, the weapons in Graves 350 and 978 suggesting that these individuals were
males. As the percentage of gendered adults (ie those with gender specific grave goods)
was 77% in Mucking II, it can be expected that most of the potential discrepancies
between the osteological and cultural evidence will have been found. In Mucking II,
certain graves showed signs of animal disturbance that could potentially have obscured
the gender of the individuals buried in them.\(^{26}\)

Those remaining graves from both cemeteries at Mucking that could not be
allocated a gender were omitted from the seriation process in order to avoid non-
chronological bias. Few of these graves contained artefacts, so the loss of data was
relatively small; 68 graves (20% of the total) were omitted (Table 3/6).

The question of age groups and differential status

The hierarchical nature of coding for the ‘Seriate ‘ program is discussed in Appendix 8.
This is a very useful element of the program as it means that artefacts that have ornate
art styles can be coded up to three times more than plainer artefacts. Typologies of
artefact types are discussed, and particularly problematic ones are examined: they are
spearheads, annular, penannular and small-long brooch typologies. The plethora of
different brooch types presented particular problems for the coding of material for the
female seriation at Mucking. They were grouped primarily by art style, secondarily by

\(^{26}\) The spear in Grave 869 may have originally from the unsexed and otherwise gender neutral Grave 951, but
this could not be ascertained with certainty, so it was counted as belonging to Grave 869. The artefacts found
in Grave 589 appear to have come originally from Grave 585, and so were counted as being from the latter
grave, leaving Grave 589 unsexed and gender neutral. The small-long brooch from Grave 940 (determined to
be male from the osteological evidence) formed a pair with the brooch in Grave 842, and given the
probability of animal disturbance, it was counted as such.
their distribution within Mucking II, and only lastly could the question of differential age and status groups be addressed.

Patterns of acquisition and use of artefacts, which had implications for the coding, have been outlined earlier (Chapter 3.2). It has been established that at Lechlade the gender and age of the individual has a profound influence on their associated grave goods. The very marked dichotomy in grave good use according to gender has long been recognised.

Although males and females were divided for the purposes of seriation, individuals of all ages (and varying status groups) were included, as the exclusion of some would have reduced the dataset to unacceptably small levels, and there does not appear to be such a strong bi-polar pattern as with gender. The potential effect of individuals of different ages was borne in mind during the phasing.

The impact of differential status can be minimised by using occurrence as opposed to frequency seriation (Graslund 1976, 78-9). Occurrence seriation (ie the recording of presence or absence only) is more appropriate for early medieval mortuary data, or indeed mortuary data in general, because individual types are often absent in many graves, and when they do occur, are rarely present in large numbers (with the exception of beads). The incidence of one example of an artefact type within a grave carries the same weight as the occurrence of many such items, the importance of which can be separately considered when assessing status, but which has no bearing on chronology. Occurrence seriation is used as part of the UCL ‘Seriate’ program. Such questions are discussed further by Høilund Nielsen (1997a; 1997b).²⁷

²⁷ Frequency seriation relies on the assumption that object types occur less frequently at the beginning and end of their period of manufacture and use, than during their peak. It is more useful for situations
The impact of differential status, whether age based or not, has also been minimised in the coding for seriation. Firstly, achieving (as far as possible) a mix of graves that appear to have been of differing status, judging by the brooch types, was attempted at Mucking. Thus, disc brooches were grouped with saucer brooches, and small-long brooches with cruciform brooches. Secondly, types of juvenile or low status, such as the quoit and annular brooches were coded, on the whole, at fewer hierarchical levels than other artefact types. In the case of spearhead types, which although they may have chronological significance, are also clearly connected to differential age groups, it was decided to count these only once in the coding. Lastly, there is a correlation between the size of certain artefact types, such as knives, and the age of the individual. This potential problem was avoided by not including the variable of knife size in the seriation data. The problems of analysing wear and breakage on brooches have been pointed out.

For both the Mucking and Lechlade seriations, it was decided not to distinguish between worn and broken brooches until after the seriation had been carried out, as exclusion of any of these types would have made the dataset too small to be useful for seriation.

As we have seen, certain artefact types (knives, spears and the 'poorer' types of brooch), appear to be more often handed down than other artefact types. This also applies to certain very high-status types (such as glass vessels or swords). Glass vessels, found only at Mucking, and in the female graves, were excluded by the program anyway as only one example of each type was found. Swords were not excluded, however, as there were so few artefact types in the male graves that it was felt this might be counterproductive. Wide ‘official’ belt sets, also high status items, were

---

where large numbers of each type are found, such as with sherd assemblages, and has been used on settlement sites in the USA, for example (Rowe 1959, 319). Presence/absence data can avoid the possible
also excluded from the female seriation at Mucking, as in late fourth-century contexts they were clearly designed for use by males, such as the buckle of Type IIA (Hawkes and Dunning 1961) in Grave 989. The D-sectioned tubes which also appear to have been part of similar belt fittings, found in the female Graves 637 and 842, were also not coded. The Type IA buckle in Grave 987 was included, however, as these are consistently found with females in late fourth-century contexts.

Conclusion

The various methods of dating used for Anglo-Saxon cemetery material have been outlined. It was found that seriation is the least susceptible to problems. Nevertheless, the exact methods of classification and coding of artefact types are of critical importance in achieving a chronological seriation as distinct from simple ordination, which would also order other underlying variables, such as social differentiation. The data must be selected with a view to the question at hand, in this case chronological.

Although the potential problems of chain-linking of absolute dates do not apply in a seriation, factors such as the age at which artefact types are acquired, the age of the artefact, age at death, as well as the social status of the individual could still affect the relative ordering of a seriation, or indeed graves might need to be excluded from analysis owing to a lack of linking artefacts. It was possible to be aware of at least some of these potential problems before carrying out the seriation of Lechlade and Mucking, without entering into circular arguments about the relative age of artefact types within a grave that involved the use of absolute dates. In practice, the groupings unrepresentativeness of frequency data that is caused by the sometimes misleading use of percentages.
based on ornate art styles had to remain the prime method of coding data, and especially the presence of particular art styles, which, it is reasonable to assume, will demonstrate at least some sort of contemporaneity of the artefacts on which they are found. It cannot be assumed, however, that negative association in a seriation demonstrates non-contemporaneity.
CHAPTER 4. THE SERIATION OF BUTLER’S FIELD, LECHLADE

4.1 METHOD

It was decided not to seriate the male graves, as a chronological analysis had already been carried out by Härke (forthcoming). In order to seriate, the graves had first to be divided according to sex (see Chapter 3). In total, Lechlade provided a large dataset of females which, when counting juveniles, numbered 83 graves.

A high proportion of graves intercut at Lechlade, with 90 (40%) of the graves having a stratigraphic relationship to one another. In a survey of published Anglo-Saxon cemeteries, such high levels were not found elsewhere. The closest comparable figures were found at Castledyke, Barton-on-Humber, Humbs (Drinkall and Foreman 1998) where 22% of graves appear to have had stratigraphic relationships to one another, although 7% of individuals were reduced to fragments that were only identified in post-excavation work. Other comparable figures are 14% at Apple Down, Sussex (Down and Welch 1990) and 12% at Great Chesterford, Essex (Evison 1994). At Mucking II 19% of graves intercut other graves, while this was the case with only six graves (3%) in Mucking I (Chapter 5).

It was decided to exclude the monochrome beads as they were too few to use if individually grouped according to colour or form, and there were also too few for clustering techniques to be applied. Knives were omitted where the types were not certainly attributed. The seriation program was run a number of times, a procedure necessary in order to exclude types that were very common and which might link graves without necessarily signifying chronological links. It was decided thus to exclude amber beads as they were found in over half of the seriated graves.
4.2 RESULTS

**Relative dating**

Types that occur less than twice and graves with fewer than two cross-associated types were excluded by the program. The types that were excluded by the program in this analysis, as they did not have sufficient counterparts in other graves, were the following: the penannular brooch (Fowler type Cb), wooden boxes, 'scrapers', pierced Type LI pins, and tooth pendants. From an original input of 83 graves, the number of seriated graves was reduced to 57 (Appendix 10).

The importance of examining the shape of the scattergram of the correspondence analysis has been discussed by Høilund Nielsen (1988; 1995; 1997a; 1997b). One drawback of the 'Seriate' program was that obtaining such a printout was not possible. Nevertheless, as the 'Seriate' program automatically omits graves with fewer than two items, this is not necessary (C Orton, pers comm). It was possible, however, to obtain a one-dimensional correspondence analysis, which showed that the graves fell into two main groups, with Grave 144 on the cusp of these groups. In addition, the relatively large amount of stratigraphy, the bimodal orientations, and the absolute date provided by the *sceat* provided independent evidence by which to assess the seriation ordering.

The relative sequence was based on the seriation of female graves (Fig 4/1). As the seriation provides two printouts, in reverse order to each other, the sequence chosen was based on the stratigraphic information. Despite the relatively frequent

---

1 The coding for this illustration should be read vertically. The coding is laid out on the following page.
occurrence of stratigraphy within the cemetery, however, there were only two stratigraphic relationships among the female seriated graves. The probably contemporary Graves 33/2 and 33/3 were ordered next to each other in the seriation, and the relative ordering of Graves 81/1 and 81/4 in the seriation printout corresponded to their stratigraphic sequence.

The horizontal development of the cemetery or 'topochronology' was then examined (Gräslund 1976). The spatial development of a cemetery through time, used for the Merovingian Period cemeteries of Rübenach (Neuffer-Müller and Ament 1973, 1978), Bülach (Werner 1953a) or Schretzheim (Koch 1977), for example, does not appear to be useful for phasing the sequence at Lechlade, as there seems to be no simple linear development here (Fig 4/2, Fig 4/3).

The range of orientations was examined next (Fig 4/1). Two unequivocal trends were identified - that of SW-NE (with slight variations) and NW-SE (with variations).

A few seriated graves did not follow the basic orientation patterns, but showed anomalous orientations. These were Graves 81/3, 123, 86, 76, 36/2 and 197. It was interesting to note, however, that such anomalies may have been due not to chronology, but rather to the age of the inhumed individuals. Thus 36/2 and 81/3 were juveniles, whilst 86 and 76 were elderly; only 123 and 197 were young or middle-aged adults.

On the whole, the seriation, stratigraphy and orientations appear largely to corroborate each other. On the basis of this, and the clearly bimodal orientations, it was decided to divide the remaining unseriated female graves, as well as the
unseriated male and unsexed graves, into two main groups ('early' and 'late'), which were used as the basis for the absolutely dated phases (Table 4/1).

4.3 DISCUSSION

Absolute dates

Phasing

The allocation of precise divisions by phasing is artificial, although such an exercise is necessary to group graves chronologically in order to facilitate social analysis. It was clear that the correspondence analysis revealed two main groups centred around Grave 144, with the later graves displaying less similarity to each other than the earlier group.

Absolute dates were now allocated to the graves. Phase 1 is dated from the late fifth to sixth centuries, and Phase 2 from the seventh to the early eighth centuries. The absolute date of the division between the phases is problematic, as it is part of the wider problem of a hiatus in dating between the Migration Period and the 'Final Phase', usually attributed to the second half of the seventh century (Hyslop 1963, 189-91; Meaney and Hawkes 1970). This problem has been approached in various ways. Hines (1984, 232) argued that the end of the Migration Period (based on the dating of Style I artefacts) was relatively early, in the 560s. This view appears to be tentatively followed by Høiland Nielsen (1997b, fig 28). Hines (1984, 232) also suggested that at least some Final Phase assemblages could be redated to the first half, instead of the second half of the seventh century. Welch (1985c, 138; 1987, 259) on the other hand, has argued for a date of significantly later than c AD 570 for

---

2 The information (but not drawing) of these figures was prepared for the publication of the catalogue of the Lechlade graves (Boyle et al 1998).
the end of the Migration Period. His approach leaves no significant chronological gap between the Migration Period and later material. A useful concept of ‘Conversion Period’ graves has been introduced by Geake (1997), which she dates from c AD 600 (except in Kent, where artefacts similar to Continental coin-dated material permits artefact types to be dated earlier, from c 580) to the early eighth century. This equates with a profound change in female dress style, namely the end of the wearing of paired brooches, and the use of Style II artefacts. This later, rather than earlier, date for the end of Style I has been followed here, based also on the discussion of saucer brooches at Lechlade (Dickinson forthcoming, a).

Nevertheless, there are in general few specific artefact types that can be dated to the late sixth and possibly early seventh century outside Kent, and especially of females, although they can include scutiform pendants, annular brooches of groups f and g, and Kentish disc brooches (Group A, Geake 1997, 123). At Lechlade, too, there was a dearth of such artefacts, although some graves do appear to have been of this date. The dating of the large saucer brooch from Grave 144, for example, is taken to be around AD 600 (Dickinson forthcoming, a). The keystone garnet disc brooch from Grave 17 is dated to the late sixth or early seventh century, and although placed in Phase 1, it could equally have been counted as Phase 2, especially as it was broken, and presumably old, and the grave had a Phase 2 orientation. Both graves were placed near the transition of the phases by the seriation.

Certain beads in Grave 101 (red bicones and short cylinders, Type P5 double crossing waves, tightly crossed, Type P6 blue bead with red spots and Type P8a bead with double crossing waves and dots) and in Grave 25 (Type P6 blue beads with white spots, and Type P8a double crossing waves and dots) appear to be late sixth to
seventh century, and were the latest artefacts in the grave. Both graves were found to be seriated in Phase 1b. These types of beads are discussed in further detail in Chapter 5.

The beads in Grave 130 (Type P5 double crossing waves, tightly crossed) and the fossils and beads in Grave 164 (Type P8b, bead with waves and dots in different colours) also suggested a late sixth- to early seventh-century date, but both were found in Phase 1a, probably due to the presence of brooches which were given greater chronological weight, and which are dated earlier than this. This again may have been the case, as the pairs of saucer brooches in these graves are dated to the late fifth or early to mid sixth centuries. A late sixth- to early seventh-century date could also be suggested for Grave 62 (with a pierced pin type L1), Grave 165 (with fossils), Grave 171 (with a boar tusk), and Grave 112 with a Group 3 shield boss, but none of these graves were seriated.

It is noteworthy that at Lechlade at least, the general Anglo-Saxon trends in the late sixth to early seventh centuries towards to the greater visibility of males as opposed to females outside Kent is not in evidence (Arnold 1997, 210), a situation first identified by Halsall (1992b, 267) in Merovingian Austrasia. This could be due to the preponderance of females at Lechlade, but would still not have been possible without recent analyses of beads (Clark forthcoming, h), primarily that of Guido (1999) and the seriation of a large dataset of Anglo-Saxon beads by Brugmann (forthcoming).³ Rectification of this former gender imbalance has also

³ Such studies have used correspondence analysis, with some horizontal stratification of the Alamannic cemeteries of Eichstetten and Weingarten (Sasse and Theune 1996), Alamannic and Merovingian sites surveyed by Sasse and Theune (1997), as well as analyses of Scandinavian beads (Hoilund-Nielsen 1997c). The deficiency of work on beads from the Elbe-Weser area is also now being rectified, such as that based on Liebenau (Siegmann 1997). A correspondence analysis of
been possible at four Anglo-Saxon cemeteries from East Anglia (Penn forthcoming). The date of graves at Lechlade with such late beads accompanied by paired saucer brooches could perhaps be extended. Thus, the wearing of a *peplos* costume may have continued up to c AD 600, and perhaps into the early seventh century, while in east Kent the wearing of a single Kentish disc brooch points to the adoption of a tunic. These Style I saucer brooches might be added to the very small number of large paired saucer brooches, often with ‘basketwork’ motifs, and with similarities to Kentish disc and composite brooches in the Upper Thames (Hawkes 1986, 92), such as at Lechlade Grave 144. Certainly late sixth and possibly early seventh-century types of brooch, such as florid cruciform brooches (Sherlock and Welch 1992, 37-8) were worn in Anglian areas. As Welch (1987, 257) has pointed out, Style II was mainly used on high-status artefacts, whilst artefacts in Style I may have continued to be worn by lower status individuals even after its introduction.

Phase 1 graves can be divided into those belonging broadly from the late fifth to early or even mid sixth century (Phase 1a), overlapping slightly with those of the second quarter to later sixth century, even into the early seventh century (Phase 1b) (Fig 4/1). These sub-phases are based largely on the saucer brooches, which provided the best dating evidence. An absolute sequence of dating is given by Dickinson (forthcoming, a) to brooches of late Roman design (broadly dated to the late fifth century onwards), Style I brooches (sixth century onwards), and lastly brooches that show similarities to brooches with Kentish design influence (the second quarter of the sixth century onwards), which are also in Style I. It can be

---

beads from the four East Anglian cemeteries of Morning Thorpe, Spong Hill, Bergh Apton and Westgarth Gardens (Bury St Edmunds) has also been undertaken (Penn forthcoming).
seen that although the ‘Kentish’ brooches are found as a distinct later group, and formed the basis of Phase 1b, those with ‘late Roman’ and Style I designs are intermixed, with both being used as the basis of Phase 1a.

Phase 2 (the seventh to early eighth centuries) was divided into two phases: 2 and 2b. The absence of a Phase 2a is due to the overall relative scarcity of diagnostically early seventh-century artefact types, and the tendency to date artefacts to the late seventh century because of the concentration of coins dated to between AD 660 and 710 (Geake 1997, 9). Thus graves dated to Phase 2 could belong to Phase 2b or earlier. Phase 2b graves are those dated largely to the second half of the seventh or early eighth centuries, containing artefact types belonging to Geake’s Period 2 (1997, 124-5, table 6.1). Such graves contain artefacts placed in Group D (eg biconical silver beads, workboxes, linked pins, openwork buckles, and filigree disc pendants) as well as the continuation of the less closely dated Groups B and C artefacts. A coin date is provided by the imitation Vamundus sceat in Grave 179, dated to the last quarter of the seventh century and which corroborates the sequence obtained, although furnishing only a terminus post quem (Fig 4/1).

Having established these phases and sub-phases, it was now decided to seek out any discrepancies between the ordering suggested by the seriation, stratigraphy and orientation, and the ordering provided by the determined absolute dates of the artefacts. The full range of artefact types at Lechlade (excluding the weapons only) has been set out in Table 4/2 in order to compare the date range of a type expected from associations in cemeteries elsewhere, with the phases allocated at Lechlade.

In a very small number of cases, the relative ordering provided by the seriation did not appear to be consistent with the absolute dates. The late sixth-
early seventh-century Graves 130 and 164 have already been discussed. Grave 18 fell into Phase 1a in the seriation (Fig 4/1). The most important chronological information used in the seriation for this grave was the saucer brooch type. When considering absolute dates, however, although this brooch type is dated up to the late sixth century, it should be noted that the latest artefact type in the grave is a beaver tooth pendant, usually dated from the seventh to early eighth centuries. It is possible that this was an uncommonly early example of this type of pendant, or that in absolute terms this grave could be dated to c AD 600. Grave 152 was seriated as a Phase 1b grave, and has a Phase 1 orientation. It contained an early sixth-century applied brooch, but the latest artefact was a possible knife of Böhner’s Type C, conventionally dated from the seventh to eighth centuries (1958). Another possible Type C knife was found in Grave 81/1. This grave would otherwise be dated to the mid sixth century at the latest by the disc brooch. In the seriation, this grave fell into Phase 1a. In both cases, the knives were insecurely identified, so they were not included in the seriation. Knives of Dover Types 3, 4, and 5 (equivalent to Böhner’s Type C) have been more broadly dated at Castledyke, Barton-on-Humber (Drinkall 1998), at Apple Down, Sussex (Down and Welch 1990, 102) and at Norton-on-Tees, Cleveland (Sherlock and Welch 1992) from the early sixth to the early eighth centuries. These earlier dates appear to be corroborated by the dates of associated artefacts in Graves 81/1 and 152. In the case of Grave 81/1 the stratigraphic relationships of this multiple burial would suggest that it should be dated to the mid (?)even possibly the late) sixth century at the latest. On the whole, however, most examples of the Type C knife were placed in a Phase 2 orientation, matched by the seriation, so it would appear that on the whole, this type of knife is dated late. In the
case of Graves 35, 57, 69 and 183, therefore, it was decided that this type of knife could override the dating suggested by Phase 1 orientations, especially as older individuals were found in Graves 69 and 183.

Grave 136 appeared earlier in the seriation than its probable date of the mid to late sixth century. This could be explained by the fact that in the seriation it was linked by the padlock key, Type 2 knife and 'gold-in-glass' beads to other graves, whereas the particular face-mask type of brooch was only found in this one grave, so it could not be used. Grave 42 may have been Phase 2 judging by the presence of a chatelaine, although these are also found in late sixth-century graves. This grave was assigned to Phase 1b in the seriation, and had a Phase 1 orientation.

In one case in Phase 1 and eight cases in Phase 2, there were discrepancies between the absolute dates and those suggested by the orientation trends (ie where the graves could not be seriated, and stratigraphic information was available). This applied to graves where the orientation was unusual, such as those aligned NE-SW or NW-SE in Phase 1 or, in Phase 2, graves aligned SW-NE, S-N and SE-NW. Such graves included Grave 140, with a Phase 1 orientation, but containing a hipped pin, believed to be Phase 2 in date (Ross forthcoming), so that it was allocated to Phase 2. Grave 67, with a Phase 2 orientation, but a possible cosmetic brush (which is more likely to be Phase 1 in date) was allocated to Phase 2. It appears that these anomalies in orientation were often associated with juveniles and older individuals, a trend noticed when examining the seriation sequence. It was decided, therefore, to allow absolute dating to override the relative dating suggested by orientation, as this may at times have been skewed by non-chronological factors (Table 4/1).
In conclusion, it was found that in Phase 1, 74% of graves (38/51) were orientated SW-NE. There are only nine examples of this orientation in seventh- to eighth-century graves (ie 18% of Phase 2 graves). In Phase 2, 44% (12/27) have a NW-SE orientation (with only 4 examples of a NW-SE orientation in Phase 1). The majority of the graves fall within Phase 1, consisting of 138 graves or 62% of the total inhumations (Table 4/3). There were 57 Phase 2 graves (26%), with 28 undated graves (13%).

There are a few points of interest, where a chronological attribution of hitherto largely undated types may be suggested. There is a tendency for silver slip-knot rings to be found in Phase 2, and copper alloy ones in Phase 1; none of the Phase 2 slip-knot rings are larger than 2.5 cm, compared to the large examples in Phase 1 Grave 144. All the pale yellow beads are found in Phase 1a, the spotted beads in Phase 1, while the blue discs or annulars occur in Phase 1a. The silver hollow beads and bright green blue beads are allocated to Phase 2. The 'D'-shaped buckles were found in Phase 1a, and the oval buckles, about which there is little chronological information, occurred throughout Phase 1. The keys have also been seen as lacking dating value, but at Lechlade the slide keys were found only in Phase 2, whereas the padlock keys were found in Phase 1. The occurrence of more than one key in a grave did not appear to be chronologically significant. Nevertheless, nearly all the artefact types are found in the expected phase, and combinations of bead types in bead strings, for example, appeared to show no chronologically significant changes from Phase 1a to 1b. It has been postulated (Cook forthcoming) that the iron bowls may be late seventh-century in date, and this was corroborated by the seriation, where Grave 103 emerges as one of the...
latest graves. Knife Type B (Böhner 1958) has been more broadly re-dated from the mid fifth to sixth centuries, now extending into the seventh centuries (Down and Welch 1990, 102; Sherlock and Welch 1992). At Lechlade, out of the 12 examples of this type of knife, eight appeared to be found in Phase 1 graves according to their orientations, and three according to seriation, and so it appeared to be predominantly an early type. It was decided therefore to allocate Grave 127 to Phase 1.

It is important to note that the geometric (late Roman derived) and zoomorphic (Style I) art styles that feature on the saucer brooches are not consecutive, but overlap greatly, although those with similarities to Kentish garnet inlaid disc brooches, also sometimes displaying the use of Style I, are confined to the end of Phase 1 (Fig 4/1). The parallel developments of what may appear to be identical motifs, such as the leg swastika design have been noted by Dickinson (1993, 23). The cruder ring-and-dot motifs on the disc brooches could also be included as part of the late Roman derived art motifs, although these are very simple motifs that appear to have been even more long-lived than saucer brooches with geometric motifs. Clearly, non-chronological factors apply to the use of art styles, and appear to relate to differential status, which is very largely based on different age groupings.

Possible non-chronological bias

As discussed when coding the data for seriation, the most pressing potential problems appeared to be the interpretation of negative evidence, ie those factors that might cause an absence of association within a seriation. This distortion could be due to
one or more factors, such as the varying age of the artefact, the age at death of the individual, and at what time of life artefacts were acquired. Although the potential problems of chain-linking of absolute dates are not present in a seriation, these factors can still affect the relative ordering, or lead to the exclusion from analysis of certain graves due to a lack of linking artefacts.

It has been demonstrated that most individuals were subject to fairly standard age thresholds at which artefacts were acquired (Chapters 3, and Chapter 6.4). Before phasing, relatively few individuals appeared to have accumulated artefacts later than age 18, but after phasing, it could at least be said that this was confined to Phase 1, as these age thresholds of artefact acquisition do not appear to have applied in Phase 2. In this latter phase, it was possible to accumulate many or all artefacts as a juvenile, eliminating the juvenile/adult differential (Chapter 6.4). Analysis at Lechlade of worn and broken artefacts was problematic (Chapter 6.4), but suggests that they were normally kept for a lifetime’s use. This was clearly the case in Phase 1, but the incidences were very few in Phase 2. Other predictable but less common patterns were also examined, such as the possibility that spears and knives were at least sometimes handed down to younger adults and juveniles. Juveniles were found with spears in Graves 39, 88, 92 and 196 in Phase 1 and Grave 105 in Phase 2. Juveniles with knives were found in Graves 1/1, 88, 92, 164 and 170 in Phase 1, and in Graves 36/2 and 140 in Phase 2. In all these cases, such artefacts may have been handed down, so that the graves may have been dated too early, although the broad dating of knives and spears makes gross chronological

---

4 Worn and broken items in young adult female graves (ie those under 35 years of age) were uncommon at Lechlade. Worn brooches in Phase 1 are examined in Chapter 6, Table 6/9. In Phase 2, only three broken or worn artefacts could be identified. One belonged to a juvenile (see below).
inaccuracy unlikely. In any case, other datable objects were found in all these graves, apart from Graves 39, 105 and 196. These graves are unlikely to have affected the seriation sequence, however, as few graves were seriated, or if seriated, the knife types were uncertain or Type 1 (excluded), with only one Type 2 knife.

It has been established that usually, if an individual lived for another 25 years or more beyond the age of 18 (or earlier in the case of Phase 2 individuals), this would not normally be reflected in the artefacts by continued acquisition throughout a lifetime. Such graves might thus appear to be earlier than they really were. This may have been compounded by other factors, especially amongst older adult females.

At Lechlade the excellent bone evidence meant that a large-scale comparison of older and younger adult females could be carried out. It could be demonstrated for the first time that older female adults appeared to have fewer artefacts on average than younger ones, implying that certain artefacts were occasionally lost, particularly brooches. If such lost artefacts were the latest types to be acquired by the individual, the graves in question again might appear to be earlier than they really were. Graves where both brooches were lost cannot be individually pinpointed, although trends among older females are indicated in Table 6/9. This suggests that the increase in wearing a single brooch as opposed to the standard pair of brooches amongst older females was due to loss or passing them on (although not in the case of saucer brooches). This was the case with females in Graves 25, 47, 59, 101 and 174 (Table 6/9). It is possible that in these

Another belonged to a young adult female, aged 30-35 (the cross in Grave 187), and a third, the worn gold pendant, belonged to an older female aged 35-40 years in Grave 179.
cases a certain amount of chronological information has been lost. It could also be seen, with the benefit of phasing, that Phase 1 older adult females appear to have experienced a decline in the average number of types, due to the loss of brooches and other artefact types, with increasing age (Chapter 6, Table 6/12). Corresponding trends among other Migration Period females are examined in Chapter 6. Nevertheless, the opposite appears to have been true in Phase 2.

It was also possible, with the benefit of phasing, to deduce that a few adult females must have accumulated rather than lost artefacts later in life, judging by the later date of their beads compared to their brooches. This was the case in Graves 25, 101, 130 and 164. With the two individuals aged over 45 years in Graves 25 and 101, the loss of brooches appears to have occurred along with the acquisition of later beads. There are cases where brooches were earlier in date than the beads, which cannot be explained by the accumulation of artefacts at the end of a lifetime, as such individuals died young. Thus, in Grave 130 (aged 20-25) the brooches were mid sixth century at the latest and the beads were primarily late sixth to seventh century, whilst in Grave 164 (aged 15-18) the brooches were early sixth century at the latest, and the beads late sixth to early seventh century. It is possible that such bead types could be dated earlier, but given the confirmation of the absolute dates of artefact types at Lechlade, it is also probable that the saucer brooches were already fairly old when acquired, despite the lack of evidence of any wear.5

The seriation placed these four graves in Phase 1a (with the exception of Grave 101), but absolute dates would put them in Phase 1b/2. On the whole, it
would appear that if an individual died at a relatively old age, that grave might appear to be earlier than it actually was.

The examination of worn and broken artefacts in graves has been discussed in Chapter 3. When such graves are those of juveniles as with Graves 13, 17, 81/3 and 134, this may imply that the artefacts were handed down. In terms of the seriation sequence, these graves are so few, and not found with many other artefacts, so they are unlikely to have affected the sequence unduly by bringing about unusual find combinations. Some artefacts are too old even for ‘hand-me-downs’, and might have been heirlooms. They might be expected to be high-status artefact types, such as glass vessels and swords (see Chapter 3). These were missing at Lechlade, but nevertheless one type, the copper-alloy bound bucket in the child’s Grave 11, did appear to be an heirloom, judging not only by its relatively high status, but also by the number of repairs it underwent (Cook forthcoming). These buckets frequently give the impression of having been treated as heirlooms, as they are often mended.

There is also some evidence for the reuse of objects for another purpose at Lechlade, which did not appear to have any marked chronological implications, but merely reflected the normal adaption of objects during an individual’s lifetime. Although it is difficult to say whether crystal objects were originally designed as spindlewhorls or beads, such artefacts were being used as beads in Graves 17 (aged 4-5), 59 (aged over 45 years) and 159 (aged 25-30). A bird’s head plaque, possibly originally a firesteel mount, had been adapted as a pendant in Grave 123 (aged 20-25). The mount from horse harness in Grave 180 (aged 20-25) was reused as a brooch (Ager forthcoming, d). Some graves had bags containing types which would

---

3 At Lechlade, the loss of a brooch did not lead to replacement by a new brooch, although this was sometimes the case in other cemeteries, eg Mill Hill (Parfitt and Brugmann 1997, 50).
normally have been had an individual functional purpose, such as the adult female Graves 81/1 and 145/2 with pins, beads, and slip-knot rings, and Grave 56 in which the bag contained a disc brooch. Grave 90 (aged 30-35) is remarkable in that all the items of costume, including saucer brooches, beads and pin appear either to have been bundled together, or placed in a bag. 6

It should be borne in mind that another possible source of chronological bias might be inherent in low-status graves. Such individuals with fewer artefacts obviously tended not to accumulate them at the same age thresholds as higher status individuals.

It can be seen then, in conclusion, that the graves of juveniles, older females and low-status individuals are more likely to appear to be earlier than they actually were in absolute dating terms, but are unlikely to have affected the seriation sequence.

Non-chronological bias might also be manifested in graves which appear to be contemporary in the seriation sequence, even though they are not. For example, contemporary but differing fashions could appear in the seriation to be non-contemporary. Nevertheless, only one type of brooch, the Kentish-influenced saucer brooches, were clustered together. In theory these could have been contemporary with other brooch types, but this seems unlikely, given that all the other brooch types were relatively intermixed.

---

6 The presence of various Roman items that predate the fourth century, such as the altar stone in Grave 18, the shale beads of Grave 55, the brooches in Graves 97, 152, 160, 169 and 185, coins reused as pendants (King forthcoming) and the Iron Age terret, reflects the normal degree of reuse of such items in this period (White 1988).
The undated graves

It is clear that too few graves were dated to Phase 2 in general and the sub-phase 2b in particular. This is because, in the seventh century in general, the proportion of unfurnished graves ranged on average from a third to a half (Geake 1992, 84). At Lechlade, in contrast, the proportion of unfurnished graves in Phase 2 was only 19%. In Phase 2b, i.e. the late seventh to eighth centuries, one would expect the percentage of unfurnished graves to approach the average of 42% (Geake 1997, 127). At Lechlade, however, only graves with chronologically distinctive artefact types could be certainly allocated to this sub-phase with confidence, so there are no unfurnished graves.

It is likely therefore that at least some of the undated graves (of which there were 28) belonged to Phase 2. Eight of these were orientated W-E. Of these five were supine, orientated W-E and without grave goods. Such attributes are indeed characteristic of Final Phase graves (whether or not they are interpreted as Christian). If all the W-E graves were Phase 2 in date, they would raise the proportion of unfurnished graves to the expected level; however, they cannot merely be assumed to be of Phase 2.

Lechlade is one of the few Anglo-Saxon cemeteries to straddle the Migration Period and the ‘Final Phase’, i.e. into the second half of the seventh century. Other examples in east Kent have been noted by Welch (1987, 259), such as Buckland I, Dover (Evison 1987), Sarre (Smith 1860; Brent 1863; 1866; 1868; Perkins 1991; 1992), Bekesbourne II (Jenkins 1957), and Finglesham (Chadwick 1958), Broadstairs I (Webster in prep). To these could be added Castledyke, Barton-on-Humber (Drinkall and Foreman 1998), Bidford-upon-Avon, Warks (Humphreys et al 1923;
1924), Prittlewell, Essex (Tyler 1988), Kempston, Beds (Kennett 1973, 99-101; 1983; 1986), and Riseley, Horton Kirby, west Kent (Cumberland 1938; Hilton 1980). Such longevity could in theory cause problems for the interpretation of unfurnished graves at Lechlade, as it has been noted that in cemeteries with late artefacts, unfurnished W-E graves are usually interpreted in terms of conversion, and in Migration Period cemeteries in terms of ‘low status’ (Morris 1983, 54-62). It has repeatedly been asserted that W-E orientation is indicative of the Final Phase (Hyslop 1963; Hawkes 1976), but this orientation was also the prevailing usage of the pagan Migration Period (Hirst 1985, 28). Rahtz (1978, 5-9) therefore concluded that a W-E orientation need not indicate Christianity even if the cemetery was largely without finds, although he conceded that W-E orientation was regularised by its adoption by Christians (Rahtz 1977, 54). Analysis of unfurnished graves in Chapter 6.4 demonstrates the individuals most likely to be buried in such a manner are juveniles or older adults, so there is no need to view these graves in terms of a late date. These graves may also indicate sub-Roman burial treatment (White 1988, 148-66; Härke 1992b, 227; Hamerow 1994). It was felt, therefore, that a W-E orientation in itself is insufficient reason to allocate any grave at Lechlade to Phase 2. On the whole, there is no reason to assume a distinctive ‘Christian’ (and therefore seventh- or eighth-century) type of burial (Geake 1992, 89-93; 1997, 132 and references therein).

7 Nevertheless, though the establishment of new cemeteries appears to have occurred continually throughout the Anglo-Saxon period, incomplete excavation may have truncated their chronological range, a factor that has undermined the ‘twin cemetery’ model, a problem discussed by Boddington (1990).
Conclusions
The application of the 'Seriate' program to the Lechlade material has provided a relative ordering of the graves according to the similarity of artefact types within one grave to the other graves. This seriation appeared to be successful as it was corroborated by the bimodal orientations and by the stratigraphy. One absolute date (although by its nature a terminus post quem) was provided by a coin-dated grave.

The investigation of patterns of artefact acquisition that was possible due to the excellent osteological evidence at Lechlade pointed to the likelihood that Migration Period juveniles, older females and low-status individuals were more likely to appear to be older than they really were. This was as such individuals were more likely to acquire older artefacts, to lose, relinquish, or pass down artefacts towards the ends of their lives, or not to acquire artefacts at the same time of life as other people respectively.

It is also of interest that a number of females with artefacts dated to the late sixth and early seventh centuries could be suggested, due to the presence of bead types that have recently been identified. This rectifies the previous imbalance in favour of males.

It is important to note that the geometric (late Roman derived) and zoomorphic (Style I) art styles that feature on the saucer brooches are not strictly consecutive, but appear to overlap. Clearly, non-chronological factors apply to the use of art styles, and appear to relate to differential status, which is very largely based-on age groupings.
CHAPTER 5. THE SERIATION OF MUCKING I AND II

INTRODUCTION

It was decided to seriate the graves from Mucking I in order to make maximum use of the relatively small amount of chronological information available from this cemetery. The application of the 'Seriate' program to the Lechlade material (Chapter 4) was carried out before the seriation of Mucking in order to investigate its usefulness for the chronological analysis of Anglo-Saxon cemetery material. This program appeared to work successfully; it was corroborated by the bimodal orientations and by the frequent stratigraphic relationships.

Data from the graves from Mucking I were combined with those from Mucking II, as the dataset of Mucking I would have been insufficient had it been analysed on its own. This was feasible as the material culture from both cemeteries was so similar (Chapter 2). An additional benefit was seen in the maximisation of the use of the chronological information from Mucking II.

RESULTS

Relative dating

A total of 104 female graves were coded for seriation and 85 were seriated (Appendix 12). A total of 76 male graves were coded for seriation and 59 were seriated (Appendix 14).

The selection of the two available seriation printouts was undertaken by reference to the stratigraphy. Due to the near uniform orientation of graves at Mucking I, only six (10%) of the graves intercut (Table 5/1). In Mucking II as a
whole, 53 (19%) of the graves had a stratigraphic relationship to other graves (including an unnumbered grave that cut Grave 320) (Table 5/2). Of all these stratigraphic relationships, there were, however, only four pairs of intercutting graves within the seriated female grave sequence. One printout was selected where most of the stratigraphic relationships were satisfied. The selection of one of the two male seriation sequences was also made by examining the stratigraphy. The only stratigraphic relationship between graves within the same seriation consisted of the relationship of Graves 244 and 245 (nos 8 and 32 respectively in the seriation sequence) in Mucking I, with the latter cutting the former.

**Phasing**

*Orientation*

The orientations in Mucking II did not follow a clearcut bimodal pattern of the kind found at Lechlade (Chapter 4), as in Mucking II most graves were orientated to the south, and in Mucking I, nearly all the graves were orientated WSW-ENE. Orientation was thus clearly not of any use in the establishment of phasing. In fact, in Mucking II, whilst most graves were orientated between SE and W, it appeared that more unusual orientations were correlated not to chronological factors, but (at least sometimes) to the graves of older adults and juveniles, as had been the case at Lechlade (Chapter 6.4).

---

1 Grave 621 (no 83 in the seriation sequence) cuts Grave 637 (no 22); Grave 639 (no 68) cuts Graves 649 (no 26); Grave 540 (no 39) cuts Grave 537 (no 24). The stratigraphic relationships of one pair of graves did not agree with the seriation sequence: Grave 609 (no 81) cuts Grave 608 (no 84), but nevertheless, these graves were ordered very close to each other.
Topochronology

The distribution of the commonest and most elaborately ornamented artefact types had been plotted in both cemeteries (Appendix 8). In no case was definite spatial patterning found in Mucking I. In Mucking II, however, the distribution of brooch types corresponded to the three main areas of the site: those found in the area near the medieval windmill, with less distinct divisions between brooches found towards the west side and those towards the north and east sides of the cemetery (Appendix 8). In the ‘windmill’ area, the ‘crossbow’ type brooches and six out of the 11 graves containing brooches with ‘late Roman’ motifs were found, particularly the applied brooches with floriate cross and six-point star designs. Most of the first 11 graves in the female seriation sequence were dug in the windmill area, and this may suggest that these graves are contemporary. Of course, if a grave is not found in this area, this negative evidence cannot be used to suppose a later date for the grave. The distribution of the penannular and applied brooches was towards the east side, partly within the ‘windmill’ area, but extending further west. The other brooch types were, broadly speaking, found in the western and northern areas.

As we have seen (Appendix 8), there was no concentrated distribution of weapons, buckles and knives in either cemetery that was clear enough to provide evidence for phasing of the male seriation.
DISCUSSION

The absolute dating

No coin-dated graves were available to assist in phasing, such as had been present at Lechlade (Chapter 4). In order to aid comparison between this cemetery and Mucking, it was decided to establish similar main phases: Phase 1 (the fifth and sixth centuries) and Phase 2 (the seventh century). Phase 1 was divided into Phases 1a (broadly defined as the fifth century, although extending into the early sixth century) and 1b (the sixth century). As the material at Mucking is far more diverse than at Lechlade, it was decided to subdivide these further.²

The most useful artefacts for dividing Phase 1a from 1b were those decorated in Style I, as this art style is, even if very tenuously, coin-dated on the Continent.³ The problems associated with the dating of Style I are discussed by Welch (1987). The parameters of Continental coin-dated phases, and their application to the dating of Style I brooches have been subject to revision (Brugmann 1997). Nevertheless, it would seem that the first Style I artefacts were introduced into Britain in the late fifth century, on great square-headed brooches (Haseloff 1974, 13-14). In the first two thirds of the sixth century Style I was developed on this type of brooch, as well as on the related small square-headed brooches (Leigh 1980, 474), as well as other types of

² The following terms are used to denote the basis of these subdivisions: 1ai denotes the early to mid fifth century, 1aii the mid to late fifth century, 1aiii the late fifth to early sixth centuries, 1bi, the early to mid sixth century, 1bii the mid to late sixth century, 1biii the late sixth to early seventh centuries, and Phase 2 the seventh century. Note that the term ‘phase’ is used at Mucking, and not ‘sub-phase’, although the latter is a more appropriate description. This was decided upon on the grounds that the terminology would otherwise be too cumbersome.

³ At Lechlade, it was not possible to use Style I motifs to divide Phase 1a and Phase 1b, as it was not possible in the seriation sequence to divide graves with saucer brooches with Style I motifs (that were not similar to Kentish designs) from graves with brooches with ‘late Roman’ motifs. Nevertheless,
metalwork, such as saucer brooches. In the female seriation for Mucking, the appearance of brooches decorated in Style I was used to mark the division between Phase 1a and 1b. In the male seriation, the only artefact decorated in Style I was the shield boss in Grave 600 (dated in conventional terms from the early to mid sixth century). This was used to mark the division of Phase 1a from Phase 1b, although any artefact type that occurs singly can be placed anywhere between the beginning to the end of a putative phase.

Despite this, it is possible to suggest that the definition of Phase 1b as marking purely sixth-century material has some validity, in view of the presence of remotely coin-dated artefacts from the Continent. Although there are no coin-dated contexts at Mucking, it is possible to infer approximate or conjectural absolute dates from similar artefacts found on the Continent which have, even at several removes, been coin-dated. The artefact types at Mucking that appear to be Frankish in origin provided this opportunity. The most promising artefact types for the inferential establishment of phasing appeared to be the heavy D-shaped bevelled buckle loops, often 'shield-on-tongue' types, with shoe-shaped rivets. These were found in both male and female graves at Mucking, and so could provide a basis for comparison of the phases between the male and female seriations. Coin-dating on the Continent, combined with typological development, enables them to be dated primarily to the sixth century, albeit with a wider possible range from the late fifth to the early seventh centuries (Martin 1989). The buckles in female graves at Mucking that had already been placed

---

4 It was decided that the glass artefacts, which appear to have been luxury items from the Continent, might not yield reliable dates, as they might have been kept as heirlooms.
in Phase 1b were dated as follows: the example in Grave 116 (no 82) was dated to the mid sixth century, the example in Grave 778 (no 65) to the sixth century, the buckle in the male Grave 618 (no 44) to the mid to late sixth century, and that in Grave 858 (no 24) to the early sixth century (Chapter 1.2; Hirst and Clark forthcoming, b).

The dating of Phase 1a material to the fifth and into the early sixth centuries appears to be confirmed by a range of Frankish artefact types found within it. An unusual buckle from the female Grave 649 (no 25) appears to be Frankish: this has a bead-and-reel border with dot and circle motifs, and can be dated to the second half of the fifth century (Hirst and Clark forthcoming, b). Frankish stave-built vessels, probably from northern Gaul, were also examined, as they are sometimes found in well-dated contexts there (Evison 1965, 22-3), although as they are relatively high-status items, they may be heirlooms. In the female seriation, a bucket in Grave 998 (no 49) appears to be from northern Gaul and is datable from the late fifth to early sixth centuries, as is the example from Mucking I, in Grave 246 (no 50) (Hirst and Clark forthcoming, b; Chapter 1.2). Frankish glass spindlewhorls with a wiredrawn ‘petal’ effect were found in Mucking II, in Graves 351 (no 35), Grave 924B (no 34) and in Grave 842 (no 33) (although here we may have an example of insular imitation). They can be dated cautiously to the late fifth and early sixth centuries (Hirst and Clark forthcoming, b).

It was now felt possible to establish subdivisions of the main Phases 1a and 1b. Phase 1b was subdivided into 1b1/bii and 1biii. In the male seriation, the beginning of Phase 1biii was determined by the Frankish buckle in Grave 618 (see above). There is a sharp rise in the type scores in the one-dimensional correspondence analysis from
Grave 950 (no 56) onwards. In these graves there were shield bosses of Group 6, Type E2 spearheads, and arrowheads. Given that there is no reason to disagree with the absolute dating of these artefact types to the late sixth and seventh centuries, it was decided to denote the possibly seventh-century dating of some of these graves by naming this phase 'Phase 1biii/2', as Phase 2 at Lechlade was used for purely seventh-century material. Also found in this phase were arrowheads, a weapon type only found with juveniles. Their placing in the sequence here appears to be of more social than chronological, significance.

In the case of the female seriation, several factors were considered when subdividing Phase 1bi/bii from 1biii. The absence of brooches decorated in Style I was used to mark the beginning of Phase 1biii/2. The end-date of Style I is a matter of controversy, which has been discussed in Chapter 4, but it is here taken to be c AD 600, ie the beginning of Phase 2. This absence of Style I brooches coincided with the occurrence of particular bead types that have been dated to the late sixth and early seventh centuries. The beginning of Phase 1biii/2 also coincided with the one-dimensional correspondence analysis data in the female seriation, which revealed a sharp dropping off in type scores, suggesting a change in culture.

The subdivisions of Phase 1a were determined according to analysis of material either originating in, or similar to that from, northern Gaul and the Elbe-Weser area. The phasing (Stufen) of these fifth-century artefact types is based on Böhme’s (1974) combination analysis of artefact types within graves from these areas. The absolute dating of the phases of material from the region between the Elbe and the Loire (Böhme 1974, 151-2) is based on graves from northern Gaul that contained late
fourth- and early fifth-century gold and silver coinage, often in mint condition. His conclusions are supported by typological similarities between brooch types held to be of similar date (although for revisions of his absolute dates, see below).

Certain material occurring in the cemeteries at Mucking was not examined or phased by Böhme, but can be dated to the late fourth century (equivalent to Stufe I): the knives in Graves 975, 976, and the finger ring in Grave 992 (Hirst and Clark forthcoming, b), although in view of the decrease in circulating coinage at this time, it cannot be ruled out that the date range of these types extended into the fifth century. Other artefacts also appear to be of a similar date but may continue into the early fifth century (equivalent to Stufe I/II). Other material could in theory be fourth century or even earlier, but seems more likely to be Migration Period in date. Material that predates AD 410 (the official ending of imperial rule in Britain) has often been described as 'laté Roman', but the term late fourth and/or early fifth century is used here (see introduction).

Mucking has long been recognised as the site with the largest known amount of fifth-century material in Britain (Evison 1968, 236; 1978; 1981, 138-40, figs 4-7). There are, however, various problems in the absolute dating of this material which

---

5 There are marked typological correspondences between fourth-century material and material in Böhme's Stufen. For example Armbrustfibeln, supporting-arm brooches with trapezoid feet, and Glaston-Mucking type brooches bear a strong resemblance to crossbow brooches of the fourth century (Böhme 1977, 17-18; Hills 1994, 20). In particular, supporting-arm brooches (Stutzarmfibeln) show great formal similarity to the 'onion-headed' crossbow brooch type (Zwiebelknopfibeln) (Böhme 1977, 17-18).

6 The knives in Graves 979 and 989 could be late fourth century in date, but given the inlay and details of form that distinguish them from other late fourth-century knives, they could quite conceivably also be attributed to the early fifth century (Hirst and Clark forthcoming, b).

7 Other late fourth- or early fifth-century material might include certain types of beads, such as green and blue drawn cylinders (with cut ends), beads in pale translucent colours, particularly disc, annular and melons, small segmented blue beads, and blue discs or annulars (Guido 1978, 92-6). Faience and jet beads were also worn in the later fourth century and earlier, but at Mucking there is no conclusive evidence that these beads are this early (Hirst and Clark forthcoming, b).
require detailed consideration. Firstly, there have been several revisions of the absolute datings allocated to these fifth-century *Stufen*. Artefact types found at Mucking (and elsewhere in Britain) that belong to these *Stufen* were discussed by Böhme in his study of 1986, which revised previously assigned dates, and since then he has made further chronological revisions (Böhme 1989). Although the full details of his revisions have not yet been published, it is clear that *Stufe* I material should now be dated to the late fourth century, *Stufe* II to the first third of the fifth century, and *Stufe* III to the middle third of the fifth century. Although some material from Mucking was included in Böhme's 1986 study, it had not been in his original *Stufen* of Continental material (Böhme 1974). Artefacts that Böhme dated to the first half of the fifth century in his 1986 paper appear to belong to his *Stufe* II (1974), and material from the mid to second half of the fifth century to his *Stufe* III, so that his latest dating can be inferred and is shown in Table 5/3. Artefacts that have no Continental parallels but were studied by Böhme (1986), such as Quoit Brooch Style material are not included in this table, as the application of his phasing system seems inappropriate in these cases.

Secondly, it would appear that the production of late fourth and/or fifth-century artefacts, as well as material of *Stufen* II and III, may have spanned a longer period than previously thought. In both Britain and northern Gaul, coin circulation had ceased by c AD 420, so that there are no coin-dated artefacts from *Stufe* III. This especially affects the dating of female artefacts (Böhme 1977, 24).8 There is a

---

8 Brooch types of *Stufen* II and III tend not to be found in northern Gaul, where coins circulated. Broadly speaking, brooch types phased to *Stufe* I tend to be concentrated from the Elbe to the Loire, whilst material of *Stufen* II and III tends to be found in the Elbe-Weser area of Lower Saxony, and in Britain, mostly in *Stufe* III (Böhme 1977, 26; 1986, Abb 54, 69, 72). In the case of 'official' belt sets,
tendency for coin-linked artefacts to have a ‘magnetic’ effect on dating, so that all
types might have continued to be produced for some time after coins were available
(Going 1992; Whyman 1993). Going (1992) has argued that artefact types, including
coins, were subject to economic cycles of boom and decline. At times of decreasing
production of coins, other artefact types could well have had longer periods of
circulation than the surviving evidence shows, and their ‘conventional’ dating should
be calibrated in order to take this possibility into account: thus material conventionally
dated to c AD 350-400 might be calibrated to c AD 350-500. Continuance of the
manufacture of ‘official’ belt pieces, for example, into Stufe III, ie the mid fifth
century, cannot be ruled out. The latest changes in absolute dating proposed by
Böhme (1989) have had the effect of making the phases later (at least in the case of
Stufen II and III), which would appear to address this problem, at least partly.

Thirdly, some of the types found at Mucking appear to be typological
developments from, or at least variations on, material included in Böhme’s Stufen.
However, Böhme (1986) does not seem to have distinguished these from other
artefacts in terms of date, whether these examples were placed in Stufen II or III. The
artefacts at Mucking that may be insular variants are identified in Table 5/3, and could
be supposed to be of later date, but this may not always have been the case. Even if it
was, what the time gap would have been cannot be speculated upon without looking at
other factors. Worn or broken items are also noted in this table, but it cannot be safely
assumed that such items were ‘old’ when buried. The examination of overall trends of

there is a widespread distribution from the Elbe to the Loire, as well as in Britain in Stufen I, II and III
(Böhme 1986, Abb 3, 22; 1974, Karte 16).
worn or broken items in relation to age groups is a more profitable line of enquiry, which is pursued at Lechlade (Chapter 6.4), and at Mucking (Chapter 7.4).

The last potential problem is that material of Stufe I-II and Stufe II is known to have been buried together with material of Stufe III. The high-status nature of some of this material, such as the 'official' or semi-official type of belt buckles (cingula), means that it could be expected that they would become heirlooms, and indeed this does seem to be the case at least at times. Although they were designed to be worn by males, in cemeteries that subsequently develop an 'Anglo-Saxon' character, these belt buckles are usually found with females. An example is the Type IIA dolphin-headed buckle, which at Mucking II was found in a female grave (989); this might point to the passing on of such items, and suggest that they had been in use for some time before burial. It seems reasonable to suppose, therefore, that there would have been a similar bequeathing of other high-status material of Stufen II and III.

There are problems and uncertainties even in the use of coin-linked artefacts to establish phasing. The examination of contexts is crucial (Hines 1990). In the present discussion it is advisable to avoid entering into arguments about the absolute date of artefacts (such as whether the date range of material of Böhme's Stufen continues beyond the end-dates that he sets, or whether the date range of 'later' material should be extended), because this would involve the use of chain-linked absolute dates, as well as the concept of 'core dates' (Chapter 3). Before 'core dating' can be

---

9 It has been argued that many graves at Mucking have been dated too early by Evison (1968, 236; 1978; 1981, 132), on the grounds that she consistently placed too much emphasis on these 'early' artefacts, instead of the latest ones (Welch 1982). In other words, Evison did not follow the rules of 'core dating'.
undertaken, it is necessary to confirm that the seriation sequence of graves is chronologically accurate, and this can be approached in two ways.

Firstly, as we have seen, the stratigraphic relationships provide some corroboration. Secondly, it is necessary to investigate whether material of the relevant Stufen occurs in graves that are grouped together in the sequence, or whether they are dispersed. If they are grouped, this may correspond to chronological affinity. The material of Böhme’s Stufen was not coded together in one group, and indeed, in the case of the belt buckles in the female graves, was not coded at all, since it was evidently re-used ‘official’ material originally worn by males (Appendix 8). Nevertheless, of the female graves at Mucking, the first 11 graves at the early end of the sequence nearly all contained ‘crossbow’ brooches (which broadly correspond to Stufe II) and brooches with ‘late Roman’ motifs (of Stufe III). The second grave of the male seriation also contains material that is transitional between Böhme’s Stufen II and III (Grave 979). On the other hand, the coding has placed the greatest emphasis on the more elaborately decorated brooches and buckles compared to other artefact types (Appendix 8). It could be argued that the coding will have the effect of placing graves with the same brooch and buckle types close to each other in the seriation regardless of the presence of other artefact types. In fact, however, the seriation has not always had this effect. Some graves that were coded as containing brooches with ‘later Roman’ motifs have been placed late in the seriation sequence. For example, Grave 249 contained a brooch of Spong Hill type, which was seriated to no. 18 in the sequence; Grave 548 contained a penannular brooch decorated in Quoit Brooch Style
seriated to no. 59; and Grave 90 contained a Stufe II Sahlenburg type equal-arm brooch seriated to no. 69 in the sequence.

On the whole, it would appear that graves that were seriated sequentially, and together at the beginning of the sequence, are of a similar date, and that the date range of Stufen II and III is reasonably accurate. Closer examination using ‘core dates’ can now be undertaken, and the subdivisions of Phase 1 determined. Graves that contain early artefacts, but which do not occur at the beginning of the sequence, may indicate either that production of these types continued for longer than was previously thought, or that these items were heirlooms, or both.

No evidence emerged that the earliest graves at Mucking could be dated any earlier than Stufen II-III (the first to mid third of the fifth century).

**Phase 1ai/aii (the fifth century)**

*The males*

Three graves, Graves 117, 979 and 789, were placed in this phase. Grave 117, in Mucking I, contained a Quoit Brooch Style wide belt set. This was a badly damaged grave without other certain associations, but it is possible that unstratified and undated sword fragments originally belonged to it. It is uncertain whether the buckle had been repaired. The typological and ornamental links of this belt set to coin-dated belt sets, in particular from the Elbe-Loire area, indicate a date of the first to mid third of the fifth century, or later (Böhme 1986, 523, Abb 45).

The belt set from Grave 117 demonstrates the close affinities of Quoit Brooch Style to late Roman art styles. On these grounds alone, it led to an overturning by
Evison (1968) of the much later date range originally assigned to Quoit Brooch Style. It has also facilitated dating of this art style as it demonstrated the important similarities between other buckles in Quoit Brooch Style and wide ‘official’ belt sets, as coin-dated by Böhme (1974, 82-3). The five-piece belt set from Grave 117 is reminiscent of Böhme’s Type A belt sets, but it is unusual in its execution, being cast in one piece, unlike other belt sets of similar form belonging to Stufe I (Böhme 1974, 55-7; White 1990, note 63). It appears to be an insular derivative example. Certain Quoit Brooch Style buckles from other cemeteries are clearly reminiscent of the wide, multi-piece elaborate relief cast belt sets that were most common in Stufe I. The same could be said of the ‘narrow’ Quoit Brooch Style belt fittings, in an early form of this art style (Welch 1993, 273), with fixed-plate buckles (and decorated, sometimes openwork, plates), because, as Evison (1968, 238) has argued, the fixed plates were brittle and may have needed reinforcement by widening the strap. Whether this was the case or not, the fixed plates of these buckles resemble, at least in this respect, the forms of buckles that were common in Stufe III. (Further aspects of the importance of the belt set in Grave 117 to the dating of Quoit Brooch Style are discussed in Appendix 16.)

With the exception of Mucking, very few of the excavations in Britain which have produced Quoit Brooch Style objects were carried out under modern controlled conditions. Of the 55 or so known Quoit Brooch Style artefacts, roughly a third are unstratified, and nearly all other known examples are from contexts that are late fifth

---

10 Hawkes (1961) had correctly observed that the contexts of such finds, where a date could be assigned, belonged to the late fifth or sixth centuries. As Dickinson (1976, 414) has pointed out, this earlier dating has undermined Evison’s own earlier date range of the second half of the fifth century.
century in date or later.\textsuperscript{11} There are more Quoit Brooch Style artefacts from Mucking recorded in context than from any other site,\textsuperscript{12} but disappointingly, corroboration of the proposed dating for this art style cannot be obtained from the seriated or unseriated graves from either cemetery.\textsuperscript{13}

The end of Quoit Brooch Style is not clearly defined, but it appears to have merged into Style I, and was eventually superseded by it.\textsuperscript{14} As we have seen, the emergence of Style I can be dated to about AD 475 at the earliest, which overlaps with Böhme’s \textit{Stufe III}.

Grave 979 (Mucking II) contained a ‘Simple’ belt fitting with a fixed-plate buckle of Haillot Type, corresponding to Hawkes and Dunning Type IIIB (1961). Fixed-plate buckles are most commonly found in \textit{Stufe III}, as are tubular sided endplates (Böhme 1974, 83, Texttaf B; 1989; Table 5/3). The slightly damaged buckle in Grave 979, is the only known example cast in one piece with a tubular endplate, an idiosyncratic feature suggesting insular manufacture (Evison 1981, 139-40). (This suggestion seems plausible, considering that there would have been a need to replace the lost ‘Simple’ belt sets, as well as the rosettes and Type IIA buckle, that have been found in the settlement at Mucking [Hamerow 1993, 63]). Böhme placed

\textsuperscript{11} Indeed, the only known grave containing Quoit Brooch Style artefacts possibly in association with a contemporary object was at Pont-de-Buis (Finistère, France) where a buckle plate was buried with a late fourth or early fifth-century glass bowl (Isings 1957, 143; Böhme 1986, 525, fig 438, fn 123); however, it should be remembered that glass vessels were often heirlooms.

\textsuperscript{12} The number of artefacts was greater at Howletts, Kent, but the contexts there are uncertain (Smith 1917-18).

\textsuperscript{13} The remaining artefacts appeared to be buried in graves that were not seriated early in the sequence: Graves 637 (no 22) and 842 (no 33) and 548 (no 59). The D-sectioned tubes in Graves 842 and 637 are broken and in the case of 637, possibly placed in a bag. These high status artefacts could be heirlooms.

\textsuperscript{14} Hawkes argued for links between this style (her Jutish Style A) and Style I (her Jutish Style B) (1961, 69-71). An intermediate type of artefact might be the buckle from Grave 157, Great Chesterford, Essex (Evison 1996, fig 57).
this buckle in the first half of the fifth century (1986, 495), ie Stufe II, as its design includes features associated with earlier ‘Simple’ belt buckles, such as those from Dorchester-on-Thames and Milton-next-Sittingbourne. A date that is transitional between Stufen II and III phasing seems appropriate (Welch 1993, 271). Grave 979, in the windmill area, also contained a spearhead of Stufen II or III (Table 5/3) and a knife resembling late fourth-century knives, but not closely, which may be fifth-century (Hirst and Clark forthcoming, b). It also contained other artefacts that are not closely datable, including a pair of ‘Roman’ (ie decorated) copper alloy tweezers, a pursemount, a penannular brooch (Type Cb), and an iron link possibly from a snaffle bit (Hirst and Clark forthcoming, b). The placing of this grave at no. 2 in the male seriation sequence would suggest that these artefacts need be no later in date than the buckle.

The artefacts in Graves 117 and 979 appear to date from around the 420s or 430s. Of course the acquisition patterns of the artefacts found in these graves and the age of death of the individuals are highly relevant considerations in allocating an absolute date to these graves. If either of the individuals was elderly at the time of death, the date of the grave might be considerably later than the date of the artefacts. The same applies to the earliest female graves where the poverty of the osteological evidence makes it difficult to ascertain ages of death. This question will be re-examined in Chapter 7, and discussed further in Chapter 8.3.

Grave 789 (no. 3 in the sequence) was included in this phase as it contained fifth-century material (a penannular brooch of Type Cb, a Type 1 knife, a Type B1
spearhead, and an inlaid buckle). There is no material, however, either to support or refute a dating of this grave from the early to mid fifth-century.16

The females

Material attributable to the later fourth century, as well as the early to mid fifth century, most of which has been placed in Stufen II or III, was found in graves that ran sequentially in the female seriation from nos 1-11 (in Mucking I, Grave 100, and in Mucking II, Graves 585, 875, 884, 925, 970, 975, 985, 987, 989 and 992). Only Grave 875 (no. 10) lacked material belonging to Böhme’s Stufen. There is a gap in the sequence of this material until Grave 249 (no 18), and later. As we have seen, most of the first 11 graves are grouped in the ‘windmill’ area.

Many of the graves contain material of Stufe III, and so clearly cannot predate the mid fifth century. Nevertheless, given the lack of closely coin-dated parallels to many artefact types in other graves, it is possible that they could be earlier than this. Grave 100 (in Mucking I), and Graves 987 and 989 (in Mucking II) contain material of Böhme’s Stufe II, but none of Stufe III, and while it is entirely possible that these graves could be of the mid fifth century or even later, they could also be earlier. Seriation cannot resolve such questions as whether these graves are early to mid fifth-century or later in date. A very large dataset of purely fifth-century material would

---

15 The 117 belt set has been grouped as contemporary with ‘Simple’ belt sets from Dorchester and Sittingbourne, and the 979 belt set was seen as slightly later by Hawkes (1989, 87), but there is no compelling reason to follow this.
16 Evison (1965, 20) dated inlaid buckles primarily to the second half of the fifth century, as she assumed both that these buckles were Frankish, and that there was a mid-fifth century invasion of Franks to Britain, but as neither assumption appears to be true, these buckles could be earlier. The technique of inlay was being used by Quoit Brooch Style craftsmen, who could certainly have produced these buckles (Welch 1983, 97).
need to be seriated for this to be possible. Some graves are discussed in detail in order to demonstrate what the effect of coding has on the sequence obtained.

The only Mucking I grave seriated to this phase, Grave 100, contained an unusual Armbrustfibel, which was found in a bag, and appears to have been broken at the time of burial. Armbrustfibeln belonging to Stufen I and II are commonly found on the Continent, but they are rare in Britain; none are cited by Böhme (1986). A Stufe I date for such an artefact in Britain would be entirely exceptional, and indeed it cannot be assigned with any confidence; this brooch could be as late as the early sixth century (Chapter 1.2). It was buried with a Type I knife, a D-shaped buckle, a turned wooden bowl and bag, none of which are considered to be closely datable. At least one of the three other known Armbrustfibeln found in Britain appears to have been buried with much later artefacts. The coding (at three levels) of the Mucking Armbrustfibel as part of the ‘crossbow’ group provides a strong link in the seriation to the supporting-arm and Glaston-Mucking brooches of Graves 987 and 989.

In Mucking II, Grave 987 contained a Type IB buckle (see below), and a supporting-arm brooch (Stutzarmfibeln) of Stufe II, probably a Mahndorf Type. It may possibly, but far from certainly, have been an insular product. This grave was cross-coded to take into account the similarity of supporting-arm brooches to equal-arm brooches, which were coded as part of the brooch group with ‘late Roman’ motifs (Appendix 8). The trefoil-headed small-long brooch has been dated to the late fifth century.

---

17 A ‘simple’ Armbrustfibel was found in Grave 74, Orpington, Kent (Palmer 1984, fig 7), which should be placed in Stufe I (Böhme 1974), although it was found with blue glass beads and a knife, suggesting a later context. The Armbrustfibel with a trapezoid foot from St Albans (Böhme 1986, 490, Abb 15.3), a possibly Gothic type of the late fourth century, is similar to the example from Mucking, but lacks the upturned foot. Evison (1981, 131) lists another example with a trapezoid foot from Cirencester, Gloucs without further details.
century (Welch 1982; Hines 1984, 13; Welch 1993, 273) or even to the early sixth century (J Hines, pers comm; Hirst and Clark forthcoming, b). Despite its unique character, this small-long brooch was coded with other small-long brooches without lappets, and this may have given this grave a position later in the sequence than it would otherwise have had. However, the coding of material in this grave depended more importantly on the supporting-arm brooch, which was counted at three levels as part of the ‘crossbow’ brooch group. This grave also contained an unclassifiable fragmentary knife.

Grave 986 could not be seriated as it was damaged and unfurnished, but it was cut by Grave 987, and so can be assigned to this phase.

Grave 989 contained a Type IIA dolphin-headed buckle of Stufen I/II (Table 5/3). This was combined with an unusual, perhaps insular, bow brooch 989/3, which belongs to Stufe II. The Glaston-Mucking brooch in this grave may be an unusual example of its type (although given the small numbers of this type, this is uncertain). Although Hills et al (1994) dated this type of brooch to the early to mid fifth century for production, deposition may have continued into the mid fifth century. In view of the other artefacts in this particular grave at Mucking, Böhme (1986, 522) argued that this type of brooch could be dated as early as Stufe II, although he believed other Glaston-Mucking brooches were largely Stufe III in date. Much of the coding information of this grave is based on this brooch, which, like all the ‘crossbow’ brooches, was coded at three levels. It is of interest to note that this grave also contains many examples of beads that have fifth-century parallels. These were placed in the

18 Further unusual, and perhaps insular, supporting-arm brooches found in Britain are from Henham, Springfield and Barling, in Essex, discovered since Böhme’s survey of 1986 (Tyler 1990; Tyler 1995b).
‘mixed polychrome and monochrome’ bead strings, of which the only other example was in Grave 924B (Appendix 8). This relatively crude grouping fails to take into account the unique nature of the beads string in Grave 989. Nevertheless, even when the bead group was omitted, it has very little effect on the seriation sequence. Also buried in this grave are artefacts that have been assigned absolute dates, as follows: a faceted carinated bowl (of the fifth to sixth centuries, but more probably the former), and a pin of Type Vi.ii, ie a pierced spatulate type (late fifth to sixth century); neither of these was counted in the seriation as both these types were unique in the female data set. Also found in this grave were an inlaid late fourth or fifth-century knife, and a copper alloy expanding finger ring (fifth or sixth century in date), which were coded at one and two levels respectively. The buckle was not coded as it is a cingulum, presumably designed to be worn by males.

Grave 875 contained a bracelet that could be late fifth to mid sixth century in date (Hirst and Clark forthcoming, b). The position of this grave in the seriation sequence suggests that the bracelet is not as late as the sixth century, but this is due to a coding which emphasises (and perhaps overemphasises) the late Roman character of the ornament on it. The grave also contained a Type Cb penannular brooch and a finger ring that is believed to be late fourth or early fifth century in date (Hirst and Clark forthcoming, b).

The following graves contain material that has definitely been assigned to Böhme’s Stufe III. Graves 884, 985 and 992, in Mucking II, contained floriate cross applied brooches, of Great Chesterford Type (Böhme 1986, 545), which belong to Stufe III (Table 5/3). Although floriate cross (Ankerkreuz) brooches of the
Westerwanna Type are found in Stufen II and III on the Continent (Böhme 1974, 25-7; Welch 1975, 89, fn 4), the examples from Mucking, albeit fragmentary, show the distinctive milled border that may indicate insular manufacture, perhaps in Sussex or Surrey (Welch 1975; 1983, 40). These brooches were found with artefacts that may have been earlier, contemporary or later. These include a girdlehanger in Grave 884, datable to Stufe III (Table 5/3), alongside other artefacts that are not held to be closely datable. The brooch in Grave 992 was buried with a kidney-shaped buckle of a type that is conventionally dated to the second half of the fifth century or possibly the sixth century. It also contained a late fourth-century finger ring, a penannular brooch of Type G1.6, an early fifth-century glass cone beaker, a knife of Type 1, and a toilet set (Hirst and Clark forthcoming, b).

Applied brooches with a six-point star motif (Sternmotiv) were found in Graves 925, 970 and 975. This brooch type has been placed by Böhme in Stufe III (Table 5/3), but may be later, since applied brooches with six-point star motifs are not known on the Continent (Dickinson 1976, 106), suggesting that they were manufactured in Britain. They are believed to have developed from the six-point floriate-cross/star motif of the type found on a brooch from Grave 123, Guildown, Surrey (Welch 1975, 91, pl XX.3; 1976, 208), and could be dated as late as the end of the fifth century (Hirst and Clark forthcoming, b). In the case of Grave 975, a pair of these brooches were found with artefacts that are believed to be earlier (such as the late fourth-century knife) or later (such as the pin, usually dated between the second half of the fifth and the sixth centuries), or with other artefact types that are not closely datable (Hirst and Clark forthcoming, b).
To conclude the discussion of material of the later fourth and/or fifth centuries, as well as that of Stufen I-II, II and III, it would appear that material of Stufen I-II and II was often buried with material of Stufe III or later. How long such material continued to be produced or circulated cannot be known (see above). For example, the ornate ‘official’ belt buckles found in graves placed in this phase may be heirlooms, or they may represent the continued production of the type into the mid fifth century or later. In Anglo-Saxon contexts, buckles of Type IIA (such as that in Grave 989) have usually been found in female graves dated to the late fifth century (White 1988, 49-52), raising the possibility that these buckles were normally collected out of curiosity value. Type I buckles (such as that in Grave 987) usually also occur in Anglo-Saxon burials of the late fifth and even early sixth centuries (Welch 1983, 89).19 Grave 2, at Dorchester I, Oxon, may be a little earlier, dated to the transition of Stufen II and III on the basis of accompanying brooches (Kirk and Leeds 1953, 72; Hawkes and Dunning 1961, 47, fig 1.14-16; Hawkes 1974, 393). This suggests that production of this type may have continued beyond the late fourth century (Hawkes 1974, 387), and perhaps into Stufe III, that is, somewhat later than the first decade of the fifth century, as envisaged by Böhme (1986, 507). Indeed, certain Type IA dolphin-headed buckles have long been regarded as crude, and perhaps later, versions of the Type IB horse-headed buckles (Dickinson 1976, 246).

19 A handful of examples in Anglo-Saxon graves are listed by Böhme (1986, Liste 2) and White (1988, 49-53), to which could be added the example from a cremation at North Shoebury, Essex (Tyler 1995a).
The female Phase Ia(iii) (late fifth to early sixth century)

In the female seriation, there is one radiocarbon date from Grave 871, Mucking II (no 54) (Clark 1993, 36). The calibrated date, to one sigma range (68% confidence limits) was AD 600-675, and to two sigma range (95% confidence limits) AD 530-780. This range was too broad to be of significant help in establishing the absolute date of the grave.

A certain number of graves with brooches that were coded as ‘late Roman’ were placed in this phase by the seriation. In Mucking I, Grave 249 was placed at no 18 in the sequence, although it contained a brooch that was coded as ‘late Roman’. This was a Type Spong Hill applied brooch, an insular variant which is dated to Stufe III, although Evison had already dated this grave to the early fifth century on the basis of these brooches (1978, 266-9, 276, fig 2.k).

In Mucking II, Grave 355 was seriated to no. 19 in the sequence, despite containing a brooch with ‘late Roman’ motifs. It is an applied brooch with running spirals that also appears to be an insular variant.

White (1988, 23) has argued that most penannular brooches of Types A-F were buried in graves of the second half of the fifth to the mid sixth centuries, while Dickinson (1982, 53-4) observed that the Class G1 brooches do not appear to have been buried before the sixth century. All the examples at Mucking could be earlier than this, and could all have been buried between the mid and late fifth century (Table 5/4).

Small-long brooches were also largely restricted to this phase. This brooch class presents typological difficulties (Appendix 8), but certain observations may be
made. The Borgstedt-Rothwell, Bordesholm-Haslingfield and Liebenau-West Stow Types are found in this phase, in Grave 93 (no. 20 in the seriation sequence) in Mucking I, and in Graves 397 (no. 28), 584A (no. 29) and 634 (no. 21) in Mucking II. These have all been placed by Böhme in Stufe III (Table 5/3). It is possible that these brooches were buried with later artefacts (as was the case in Grave 584A, where a \textit{?}later small-long brooch was found), or, as seems more probable, that the date range of the brooches themselves should be extended later, into the early sixth century. This would accord with the view held by John Hines (Hirst and Clark forthcoming, b).

Most of the disc brooches were found in this phase. There is some disagreement over the end of the date range for this type. Welch (1983, 57) has argued that it can extend to the end of the sixth century (\textit{contra} Dickinson 1979, 42), but a narrower range seemed to apply at Mucking, and also at Lechlade (Chapter 4).

The atypical equal-arm brooches in Graves 637 and 983 in Mucking II were also placed in this phase. Despite the coding of these brooches as ‘late Roman in motif’, these graves are positioned in the sequence at no. 22 and no. 23. Grave 983 was situated in the ‘windmill’ area, which might suggest an early date. If these brooches were heirlooms, they could be classified as \textit{Vorform} Seraing (ie non-relief cast brooches that are transitional between supporting-arm brooches with trapezoid feet and equal-arm brooches), but even if this was so, they would be unusually early, originally placed between \textit{Stufen} I and II (Böhme 1974, 19).\textsuperscript{20} Non-relief cast equal-arm brooches appear to date from \textit{Stufe} II\textsuperscript{21} and \textit{Stufe} III.\textsuperscript{22} Further examples have been

\textsuperscript{20} \textit{Vorform} Seraing comprises three stray finds from Aalden, Drenthe, Holland (Böhme 1974, fig 58.4), Mecklenburg (Böhme 1974, 15), and Seraing, northern France (Böhme 1974, 529, Taf 101.19).

\textsuperscript{21} A stray find of this date comes from Westerwanna, Lower Saxony (Böhme 1986, Abb 50.3).
found, for which the phasing is uncertain.\textsuperscript{23} From the phasing of Graves 637 and 983 at Mucking, it might appear that the austerity of design of these equal-arm brooches represented the latest stage in their typological development, as Evison has argued (1977, 134-5). If the Mucking examples postdate the relief cast equal-arm brooches of \textit{Stufe} III, they should be dated to the later fifth century.\textsuperscript{24}

Grave 341, in Mucking II, was seriated to the end of Phase 1aiii. This grave contained a Krefeld type purse-mount, normally dated to the second half of the fifth century (Hirst and Clark forthcoming, b), and a spangle which may have been, and was coded as, a re-used disc brooch. It also contained an inlaid buckle which was part of the purse-mount. The position of the grave in the sequence may be due to the linking of purse-mounts (countable only at this general level) that were found in graves seriated to Phase 1bi/bii. The positioning of the late-seriated Graves 99 and 843 was largely dependent upon their Style I brooches. It is possible, therefore, that Grave 341 may be mis-positioned in the sequence, something that is liable to occur when only very small numbers of a particular type are included in a seriation dataset.

\textit{The male Phase 1aii/1aiii (mid fifth to early sixth centuries)}

This phase was created of necessity, after all the other phases had been established, for graves later than those in Phase 1ai/aii and earlier than graves with material in Style I.

\textsuperscript{22} One known example is from Grave 8, Berinsfield, Oxon (Böhme 1986, 543, Abb 60.6; Boyle \textit{et al} 1995, 81-2).

\textsuperscript{23} Additional examples found in Britain include an unstratified equal-arm brooch from Hod Hill, Dorset (Eagles and Mortimer 1993), and an unstratified hybridisation of a supporting-arm brooch and an equal-arm brooch from Keymer, Sussex (Welch 1987).
In the male seriation, no distinction was made between Phase laii and laiii, as there were so few graves between Phases lai/aii and lbi/bii that there did not seem sufficient justification to divide them into two phases.

In Mucking I, graves placed in this phase include Graves 272 and 244. The weapon Grave 272 requires comment. It was seriated relatively early in the sequence (no. 7). Evison (1981, 140, fig 7) dated it to the early fifth century, based on the Rhenen-Vermand type shield boss (of the late fourth to early fifth centuries), the inlaid, kidney-shaped buckle, and the K1 Type spearhead. Nevertheless, this spearhead type is now dated to the mid fifth century (Chapter 1.2), inlaid buckles are only broadly datable to the fifth century, and their burial may occur as late as the sixth century (Welch 1983, 97). In view of this, and the fact that the shield in Grave 272 had been mended, it appears that Evison’s date is too early.

Phase lbi/bii (the sixth century)

One of the most common types in this phase appears to be silver expanding finger rings, which seems to support the view that silver rings are later than copper alloy examples (Chapter 1.2). With regard to brooches, Style I decoration predominates. It is of interest that the three saucer brooches are placed in this phase, despite the grouping of the saucer brooches with ‘late Roman’ motifs together with disc brooches during the coding stage, given that disc brooches predominated in the earlier phase. Various graves in phase lbi/bii deserve comment. In Mucking I, various heirlooms could be identified. Grave 90 contains an equal-arm brooch of Sahlenburg type.

24 There is also an unstratified and cremated fragment of an equal-arm brooch in Mucking II which appears to resemble the bow of the unusual equal-arm brooch from Grave 983; it might therefore be
placed in *Stufe* II, which is clearly very worn (Welch 1975, 89; 1985a, 144). The glass bowl in Grave 99 may be an heirloom, but this is not certain as such artefacts are often dated from the late fifth to the sixth century. On the other hand, the shears in the female Grave 99 belong to a type much later than the apparent date of the grave. Shears are primarily dated from the second half of the seventh to the early eighth centuries, as part of Geake’s Group C (1997), so it would appear that the shears at Mucking represent an unusually early example. In Mucking II, the claw beaker in the female Grave 843 is dated to the early fifth century (Hirst and Clark forthcoming, b), but the grave is placed in Phase 1bi/bii. It also contains a Portchester type pursenmount that is usually dated to the second half of the fifth century (Hirst and Clark forthcoming, b).

The Group 1.1 and Group 3 shields were confined to Phase 1bi/bii. The seriation appears broadly to confirm their dating of the mid fifth to late sixth, and mid sixth to early seventh centuries respectively.

**Phase 1biii/2 (late sixth to seventh centuries)**

In the male seriation, many of the swords (only stratified in Mucking II) were dated tentatively to the late sixth or early seventh centuries by their plain iron pommels, either domed or flat, despite the absence of the silver inlaid decoration found on most of Menghin’s Type 4a iron pommels of this date (1983, 77-8, 321; Hirst and Clark forthcoming, b). All five examples were seriated to Phase 1biii/2. One would

---

25 The Class Di button brooches in Grave 90 were dated by Evison to the second half of the fifth century (Evison 1977, 134; Avent and Evison 1982, fig 13), at least partly on the grounds of its association with the equal-arm brooch of *Stufe* II. Given the worn state of the equal-arm brooch, Welch (1983, 53) has
normally expect swords to be heirlooms, and, given their unpredictable associated artefacts, to affect the ordering of a seriation sequence. This may not have been the case at Mucking, as they made little difference to the ordering of graves whether or not they were included in the seriation, but given the small dataset, further speculation would be unwise.

Other weapon types confined to this phase are the Group 6 shields (only found in Mucking II), and the Type C1 and E2 spearheads, all types believed to date from the late sixth to seventh centuries (Hirst and Clark forthcoming, b; Chapter 1.2).

In the female seriation, only one female grave from Mucking I, Grave 116, was placed in Phase 1biii/2. Examination of the beads in its bead string shows that this is not a classically 'late' string, although it contains many late bead types, and could be categorised as a 'red' string (Penn forthcoming).

Opaque bead strings from both cemeteries that were predominantly red, white and yellow in colour were only found in this phase. These include polychrome beads that are believed to be usually late sixth to early seventh century in date. These types include beads with the small or medium barrel-shaped narrow or 'high crossing' waves in the same colours, especially red with yellow or white (B Brugmann, pers comm; Penn forthcoming; Hirst and Clark forthcoming, b). These beads (Type P9) are only found in Phase 1biii/2 graves at Mucking (Table 5/4).

The seriation at Lechlade appears to confirm this; red beads with white crossing waves of this type (P5) were found in Phases 1b and 2, although Phase 1b is datable only from the early

---

correctly pointed out that the button brooches should date the burial of the equal-arm brooch and not vice-versa.

201
to the mid sixth century or later (Clark forthcoming, h). It would seem that although beads with narrow crossing waves (P09) have been dated as a group as late as c AD 600 or even later at Schretzheim, further subdivisions are needed, in terms of colour, shape and size.

A variant type of bead with high and narrow crossing waves also have spots (P23a). Examples of these in Mucking I are found only in Grave 116 (1m, o, p) in red, with both white and yellow waves and spots, and in Mucking II, in Grave 608 (1k). At Lechlade, similar red beads with crossing waves and spots (P8a) were only found in graves seriated to Phase 1b (Clark forthcoming, h).

Large beads, often with waves, waves and spots, and spots (usually in white with blue and red), that form part of the ‘Wedgewood’ group are another late type (Penn forthcoming). Again, these are only found in Phase 1biii/2 graves, and in Mucking I only in Grave 116 (1i) where there was a large yellow bicone with red waves and in the same grave (1n) a large red barrel with white crossing waves and spots. In Mucking II, in Grave 846 (1h, i, j, k), there were several large opaque white beads with blue waves and red spots (Types P22, P23b, P24a, b).

Opaque beads in bright green, turquoise, red, yellow and white, often bicones, barrels and cylinders, are usually seen as primarily late sixth to seventh century in date, although no bright green or turquoise examples were found at Mucking as there were at Lechlade (Clark forthcoming, h). Plain ‘Wedgewood’ blue beads, apparently late (Penn forthcoming), were found in Grave 846. Examples of these bright and

---

26 The dates of the various types of spearheads are taken primarily from Dickinson (1976, 298-304) and Welch (1983, 127-34) as these studies have been undertaken in Saxon areas. These may be more accurate than the dates given in Swanton (1973, 1974) and even Härke (1992b, 86, fn 100).
27 In Mucking I they were found in Grave 116 (1h, j), and in Mucking II, in Graves 608 and 621.
'Wedgewood' blue colours were found in Phase 1biii/2 in both cemeteries, but with a narrower range in Mucking I (where there were no 'Wedgewood' blue beads). In both cemeteries these beads were also found in earlier phases (Table 5/4). Some of these types were found in Phases 1b and 2 at Lechlade (Chapter 4).

Graves 608 and 621, both in Mucking II, were seriated to Phase 1biii/2; both appear to be seventh century in date, due to the presence of opaque bright orange beads (Hirst and Clark forthcoming, b). The only other artefact datable to the seventh (or early eighth century), and which is part of Geake's Group C (1997, 82, table 6.1) is the wooden box (casket) in Grave 621, a type usually dated from the mid seventh to the early eighth centuries.

Grave 609 can also be placed in the seventh century, even though it was seriated to Phase 1bi/bii, and contains artefact types that are not believed to be seventh century in date (a silver expanding finger ring, a cosmetic brush, keys and knife), as it cuts Grave 608.

One male grave in Mucking I, and three male graves in Mucking II, can tentatively be placed in the seventh century, but without any certainty. In Mucking I, Grave 276 was seriated to Phase 1biii/2, and contained a spearhead of Type C1, which

---

28 In Mucking I in Grave 116 there were opaque yellow cylinders, dated to Phase 1biii/2, and various bright and 'Wedgewood' blue bead types were found in this phase in Mucking II, in Graves 608, 621 and 846. Similar beads were, however, also seriated to early phases: Phase 1ai/aii (in Mucking II only, in Grave 989, which contained opaque yellow and red cylinders), to Phase 1aiii (in Mucking I in Grave 123B, with an opaque red cylinder and in Mucking II in Graves 334, which contained opaque white cylinders), and to Phase 1bi/bii (in Mucking I, in Grave 99 with a bright yellow cylinder). All these cylinders are thick walled, which can be late, but not as often as thin-walled cylinders (Hirst and Clark forthcoming, b).

29 The examples of small wooden boxes identified by Geake (1997) which are found in late sixth-century contexts could also be turned wooden vessels (Down and Welch 1990, 105), so there is no conclusive reason to extend this type back into the Migration Period.

30 This highlights the possibility that a grave could contain a misleadingly 'old' assemblage but still cut another grave that looks more recent, especially if the former is an elderly individual, and the latter is not, or if the former is a juvenile who inherited an old brooch.
is usually dated to the seventh century. In Mucking II, Grave 841, also seriated to Phase 1biii/2, contains a similar Type C1 spearhead. No artefact types from Geake’s (1997, table 6.1) Group D, ie the second half of the seventh to eighth centuries, were identified at Mucking, so there is no positive evidence that either cemetery continued into the second half of the seventh century.

The phasing, and some of the most important leading types, are shown on Fig 5/1 and Fig 5/2.

**Further comments on the dating of artefact types**

The dating of artefacts does appear to need adjustment in some cases. Given the lack of material that can be dated precisely to the second half of the seventh and the eighth centuries, the traditional date range given to knives of Böhner’s Type C (1958, Tafel 60) appears to be too long for the material at Mucking. Even the earlier dating of Type C knives still gives a proposed date range of the early sixth to eighth centuries (Chapter 1.2). Whilst it is clear that Dover Types 3 and 4 extend into Phase 2 at Lechlade (Chapter 4), it would seem reasonable to curtail the latest dates for Types 3, 4 and 5 at Mucking to the early seventh century (Table 5/4). It is worth noting here that, although long knives were not coded for seriation, they occurred in graves that were placed late in Phase 1biii/2. These knives are usually dated from the sixth to the early eighth centuries (Härke 1989a). The new Mucking knife Types 7 and 8 can tentatively be dated. Although there are few examples, with only one Type 7 example in Mucking I, in Grave 250, and only two in Mucking II, it would appear that this type

---

This type has a straight cutting edge and is equivalent to Dover Types 2, 3 and 4 (Evison 1987, 113-5).
can be placed from the late fifth to sixth centuries, although there were too few seriated examples for this to be more than a speculation. Type 8 appeared to date from the late fifth to the early seventh centuries, but again there were too few examples for this date range to be regarded as definite.

The phasing of the graves at Mucking using seriation has provided an opportunity to compare the traditional dating of certain artefact types, and therefore graves, with the seriation sequence. In the case of the male seriation, if there was a discrepancy between the traditional datings, the absolute dates were accepted, as the dataset for the seriation was not large enough to use as a means of re-dating graves (C Orton, pers comm). Graves 877 and 952 (both fifth to sixth centuries) and Grave 764 (dated to the first half of the sixth century as it was cut by Cremation 727, whose fabric is believed to be datable to between the mid fifth and mid sixth centuries), were placed in Phase 1biii/2, on the linking of the oval buckles. This linking appears to be misleading, as oval buckles do not appear to be closely datable (judging by the female seriations at Mucking and Lechlade, which have a larger dataset). Grave 978 was also placed in the same phase, on the basis of the link of the arrows in this grave to those in Grave 777. Arrows are believed to be a long-lived type. Given the small dataset, there is not enough evidence to sustain a re-dating of arrows or oval buckles, and the traditional absolute dates for these artefacts have been followed. The re-dating of these graves can be seen in Table 5/7.

Adjustments to the traditional date range of certain artefact types are proposed where those adjustments are supported by at least 8 to 10 seriated examples, or where, if artefact types are not coded for seriation, they occur in graves seriated on the basis
of other artefact types, from Lechlade and Mucking. Artefact types that have been seriated at Mucking are ranged in Table 5/4, and the phases of seriated material have also been incorporated for the purposes of comparison.

Pins with rounded heads were seriated in Mucking I in Graves 99 and 102, and in Mucking II in five seriated graves, all female (Table 5/4). They most closely resemble the ball-headed Type LXX.ii (Ross 1992, 295-305), of the seventh to eighth centuries. At Mucking they were found to be earlier, belonging in Phases 1a iii-1b ii/bii. It seems either that this type should be re-dated, or that the Mucking examples belong to a type that does not fall into any of the categories of pin defined by Ross (1992), since they are far longer than any of his type. In any case, this type of pin appears to date from the late fifth to the mid sixth centuries.

Type C2 spearheads are dated to the seventh century (Swanton 1974, 10; Dickinson 1976, 197-8), but from the 11 examples of this spearhead type (five within Mucking I) seriated to Phases 1b i/bii and 1b iii, it would appear that a broader sixth to seventh-century dating may be more appropriate at Mucking.

In some cases it is possible to suggest dates for artefact types that have not previously been seen as datable. Padlock keys tended to be seriated in graves that are earlier than those with slide keys (Table 5/4). This tendency was also observed at Lechlade (Chapter 4). It could be suggested that padlock keys tend to be fifth and sixth century in date, with slide keys datable to the same period, but extending into the Conversion Period.

Some interesting chronological trends amongst the beads were observed. Although slip-knot rings have been dated primarily to the seventh and early eighth
centuries (Geake 1997, 12, 48, table 6.1), Migration Period examples have been distinguished from later ones by their having looser knots (Hawkes 1973, 192).

Although at Lechlade the slip-knot rings were coded for seriation according to this feature (Chapter 4), a tendency was noted that pointed to a perhaps more useful distinction. Slip-knot rings can be divided into those that are large (ie over 2.5 cm in diameter), and which tend to be copper alloy and iron, compared to smaller ones, usually in silver. These distinctions were coded at Mucking; and the chronological trends were confirmed.

The proportion of opaque as opposed to translucent beads increases from the earlier phases to Phase 1biili/2, when bright red, white and yellow bead strings appear. All the translucent bead strings appear to be primarily datable to the late fifth to mid sixth centuries (Siegmann 1997). As we have seen (Chapters 2 and 3), Mucking is a site with a relatively low incidence of amber. Thus the absence of large assemblages of amber beads at Mucking, taken as being over 40 beads in any grave (Dickinson 1976, 203), does not appear to have chronological implications. It has often been suggested that there were greater numbers of amber beads (although concentrated in fewer graves) in the second half of the sixth century than in the first half (Lethbridge 1931, 75; Meaney 1981, 67; Huggett 1988, 64), and this was confirmed at Lechlade

---

32 Fifth- and sixth-century examples of copper alloy slip-knot rings can be seen in Graves 64 and 70 at Morning Thorpe, Norfolk (Green et al 1987, fig 316.64, fig 318. 70), whilst large rings (iron with silver binding strips) were found in Cremation 2376 (Hills et al 1987, fig 66, and 92) with a fifth-century equal-arm brooch of Stufe III. It should be noted, however, that a large example in Grave 121, Burwell, Cambs (Lethbridge 1931, fig 36) appears to be Conversion Period in date.

33 The slip-knot rings (found only in Mucking II), in Graves 334, 548 and 633 were primarily copper alloy when in Phase 1aiii graves, whilst the examples in Phase 1biili/2 (in Graves 608, 621 and 846) were all silver, and smaller in size.

34 At Lechlade, 8 out of the 34 amber strings (23%) were large strings. At Mucking II, only two of the 35 amber strings (6%), and in Mucking I, only one out of nine strings (11%) were large (Table Appendix 8/1).
(Chapter 4; Clark forthcoming, h). Given the general lack of amber beads at Mucking, however, the same could not be confirmed here by the seriation, but the amber bead strings did appear to be most common in graves of the early sixth century. Hirst (1985, 75) found at Sewerby that blue beads appeared to overlap in time with amber strings, although the amber strings continued to be buried for a longer period. This also appeared to be the case at Mucking, where they were found in Phases 1aiii and 1bi/bii.

Non-seriated graves and cremations

Using the sometimes altered absolute datings for artefact types in order to date the unseriated graves at Mucking, employing 'core dates', lists of absolutely dated graves in Mucking I (Tables 5/5 and 5/6) and in Mucking II (Tables 5/7 and 5/8) have been compiled. In assessing the absolute date of non-seriated graves, 'core dating' was undertaken which placed an emphasis of the dating of shields and brooches, as these are the artefact types that are least likely to be passed down, apart from 'poorer' brooch types amongst juveniles (Chapter 3). This will be re-assessed in Chapter 7, after the ages of individuals have been ascertained as far as possible.

The unseriated graves were placed in phases that were the closest equivalent to the seriation phases, but given that there is much overlap between the seriation phases, and the often much broader range of dates for non-seriated graves, this phasing can only remain fairly crude. Although Phases ai/aii and bi/bii have the same absolute date range, non-seriated graves in Phase 1aiii are more broadly dated, from the fifth to the sixth centuries, as compared to seriated graves which are more precisely dated to
the late fifth to the early sixth centuries. In Phase 1biii/2, seriated graves were dated to the late sixth and early seventh centuries, whilst the absolutely dated graves encompassed a broader span, from the sixth to seventh centuries.

Stratigraphic relationships between inhumations and cremations and with cemetery features, such as palisade ditches, were identified in many cases in Mucking II. The more complex (ie three or more interconnections) are illustrated in Fig 5/3. The dates of non-seriated graves did not contradict the phasing given to seriated graves. In most cases the fabrics of the urns, and/or their associated artefacts, were the basis of dating cremations (Table 5/9). It can be seen that the phasing of seriated graves that have a stratigraphic relationship to cremations (indicated by highlighting) was not contradicted by the absolute dates given to the cremations. (Modifications of dates of either cremations or graves, whether seriated or not, and based on stratigraphic relationships, are indicated by an asterisk.)

In broad terms, there are trends towards the use of the west side of Mucking II in later phases. This applied to both inhumations and cremations. Nevertheless, the distribution pattern of seriated graves was not sufficiently regular to allow the date of non-seriated graves to be adduced from their spatial position within either Mucking I (Figs 5/4, 5/5, 5/6) or Mucking II (Figs 5/7, 5/8, 5/9 and 5/10).

Conclusions

Two main phases were defined at Mucking. They were Phase 1a, dated as the early/mid fifth century to the early sixth century, and Phase 1b from the early/mid
sixth century to the late sixth or early seventh centuries, supplemented by a very small number of seventh-century graves, belonging to Phase 2. For the convenience of comparison these phases are broadly equivalent to the phases used at Lechlade (Chapter 4). Although the subdivisions of phases at Mucking are finer than at Lechlade, the absolute dates assigned to these subdivisions are allowed to overlap, in order to avoid spurious precision. These fine subdivisions were nevertheless felt to be appropriate and useful, given the greater variety of material than at Lechlade.

The earliest graves (Grave 117 in Mucking I, and Grave 979 in Mucking II) appear to be transitional between Stufen II and III, ie the first third to the middle third of the fifth century. Certain bead types in Grave 116 provide the latest known artefact types in Mucking I, giving an end dating of the late sixth century to early seventh century. Mucking II can be dated more securely into the early seventh century, on the presence of a wooden box, and bright orange beads in Graves 608 and 621, but given the incomplete nature of Mucking I, it seems likely that both cemeteries came to an end at the same time. The differences in the absolute dating ascribed to the latest artefacts of the Migration Period have been discussed, but the end-date is here taken to be c AD 600 (Chapter 4).

As has been outlined in Chapter 3, the final analysis of the seriation at Mucking must await the allocation of ageing, as this will have implications for the circulation period of certain types of artefacts, in particular the knives, spearheads and poorer types of brooch. This needs to follow the social analysis of Lechlade (Chapter 6), and the analysis of the impact of social factors on the interpretation of the seriation data (Chapter 7).
CHAPTER 6. THE PALAEODEMOGRAPHIC STRUCTURE AND CULTURAL AGE PATTERNS AT LECHLADE AS A BACKGROUND TO AGE PATTERNS AT MUCKING

6.1 INTRODUCTION

The condition of the bone in Mucking I was very poor (see Chapter 1.4). Because of this, only 11% (7/63) of individuals could be aged, and no juveniles were identified. This is a very high percentage of unaged individuals compared with all other published Anglo-Saxon cemeteries. It is closer, however, to certain other gravel sites with slightly acid soils: for example only 51% of inhumed individuals at Spong Hill (McKinley 1994) could be aged, and a mere 27% at Morning Thorpe (Green et al 1987), both in Norfolk.

6.2 THE METHODOLOGY OF PALAEODEMOGRAPHIC INVESTIGATION

In view of the very poor nature of the bone evidence in Mucking I, hindering palaeodemographical and social analysis, and particularly the recognition of age patterns, a way had to be found of maximising the age data. It was decided to achieve this by using a combined osteological and cultural approach. Firstly, the range of body lengths for each age group would be compiled using contemporary skeletal data from elsewhere. This would be used in conjunction with coffin and grave lengths, and the presence of age-diagnostic artefact types to infer age where silhouettes were missing or incomplete. The excavators did not believe that silhouettes could provide reliable skeletal measurements (Jones and Jones 1975, 175). It is suggested here, however, that, with due care, ageing can successfully be
carried out on this basis. Having established a palaeodemographic profile of Mucking I, it would then be possible to undertake a social analysis of this site.

A number of surveys of palaeodemographic data from Anglo-Saxon cemeteries have already been undertaken, but are now superceded by data from new publications, or consist of fairly small datasets. They also lack a distinction between those cemeteries that were well-preserved and those that are not, and also need regional differentiation. These surveys do not include the detailed information on the palaeodemographic questions posed, relating to the percentages of juveniles, including infants, and of older adults, and how such percentages should be interpreted. The ratio of male to female adults could also be investigated. In order to look at such questions, it was decided to investigate one cemetery thoroughly. The ideal comparative dataset should provide, firstly, the largest and best preserved osteological sample from known fifth- to eighth-century cemeteries. This would give a large palaeodemographic dataset, including a large amount of data on stature. A large quantity of aged skeletons is also needed for the study of acquisition of artefact types in relation to the age of the individual, in order to provide age-diagnostic types. Secondly, it should belong to a related area of commonality (Chapter 2), so that both the osteological and cultural data are comparable. Lastly, it must be more or less representative of the palaeodemography of other well-preserved Anglo-Saxon cemeteries, and therefore presumably of that of the original palaeodemographic profile of Mucking I at Mucking.

In order to compile the best osteological evidence for comparison with Mucking, osteological data from the sample of Anglo-Saxon cemeteries that were Migration Period (sometimes extending into the Conversion Period), were selected.
Purely Conversion Period sites were also included in the sample, in order to examine whether palaeodemographic trends varied with time. Cemeteries were selected from this sample on various grounds. Firstly, the number of skeletons or grave cuts had to be greater than 50 (considered a minimum for statistical analysis), and with a minimum of 10 skeletons. This quantitative criterion ensured that sites with very poor bone evidence would be included, instead of skewing the data towards the better preserved sites. Only sites where the osteological analysis postdated 1950 were included, as it was felt that results that predated this would be unreliable, and in order to be more closely comparable to Härke’s analysis (1992b). The resulting dataset consisted of 3324 skeletons from 29 different sites.1

A comparable survey by Härke (1992b, 184, Tab 28; 1997b) covers 47 cemeteries, and consists of about 3000 skeletons, but the two surveys overlap in content by only a third of their graves. Similar comparisons between nine early Anglo-Saxon sites (1092 skeletons) were carried out by Molleson (1991),2 and of 13 sites (1005 aged skeletons) by Crawford (1991a), both of whom analysed skeletal evidence up to the age of 20. In order to facilitate comparison with other cemeteries, and therefore all subsequent analysis, it was necessary to establish standardised age groups. The age groups used in the Mucking study had to correspond to significant structural (i.e., culturally well defined) age groups within

---

1 Four unpublished sites where there are more than 50 skeletons have been excluded due to inaccessibility of data: these are Eccles, Kent with 176 individuals (Anderson and Andrews 1997), Pewsey, Blackpatch, Wils with 105 individuals (Annable forthcoming), Bishopstone, Sussex, with 118 grave cuts (Stoodley forthcoming), and Wasperton, Warwicks, with c 140 grave cuts (Carver forthcoming).

2 This survey also covered 11 Roman sites, 11 sub-Roman, middle or late Saxon sites, and two post-Conquest sites.
Anglo-Saxon cemeteries, and at the same time to the best judged osteological ageing categories. The latter were contingent upon two main factors:

i) They had to be consistent with the osteological groupings and terminology used by Mays (forthcoming) for Mucking.

ii) In so far as was possible, the osteological groupings had to be coincide with categories used elsewhere, particularly in other Anglo-Saxon cemetery reports. Unfortunately, the various age groupings used in these osteological reports display little consistency. This appears to be due in part to the methods of ageing employed, but age bands are sometimes ill defined, and rarely justified. Inconsistent terminology is also a problem, and has been discussed by Crawford (1991a). The Continental system advocated by Ferembach et al (1980) and those in Continental cemetery analyses is similar, but not identical, to that adopted here.3

The most crucial question concerns the cut-off point used to distinguish adults from juveniles (ie individuals younger than adults).4

The categories finally chosen for use in the present study were as follows:

a) Infants (aged 0-2 years). Infants are, however, often classified as individuals aged up to one year, eg Cox (forthcoming).5

b) Younger children (aged 2-7 years),

c) Older children (aged 7-12 years),

---

3 In the Continental system, ‘neonates’ are counted as under one year old, ‘children’ as 1-c 14 years, ‘youths’ as c 14-c 18, ‘adults’ at c 18-20, with ‘adultus’ from 20-40, ‘maturus’ from 40-60 and ‘senilis’ from 60 or over.). The categories used by Ferembach et al (1980) are: 2-3 (infant), 3-6 (juvenile 1), 7-12 (juvenile 2), and 13-19 (adolescent).

4 Note that the most common confusion is between ‘subadults’ (ie juveniles), and ‘juveniles’ (ie adolescents).

5 The terms used by Molleson (1993) are followed. These include foetal or premature births, up to 28 weeks. Perinatal births include stillbirths (from 28-37 weeks) and full-term births (from 38-43 weeks), and include infants up to one week old. The term neonate is often used to group together babies from 0-6 weeks, but here was used loosely to denote newborn size.
d) Adolescents (aged 12-18 years). Adolescents and younger individuals are collectively referred to as juveniles. In the case of Mucking II, ageing in these groups was possible only in five cases, using the teeth.

e) Adults (aged 18 years or older). The teeth at Mucking had been aged according to wear by Rosemary Powers, using the age categories established by Brothwell (1981, 71-2). His four groups were consolidated into the three age divisions ‘young’(18-35), ‘middle’ (35-50) and ‘old’ (50+) by Mays (forthcoming), who grouped Brothwell’s young and middle adults together as ‘young adults’. Although a common presentation of adult ages in Anglo-Saxon cemetery reports has been in ten-year groups, the broader groups of ‘young’, ‘middle’ and ‘old’ appear to be most useful for the purposes of social analysis, with the caveat that ‘old’ individuals have usually been classified in Anglo-Saxon cemetery reports, including Lechlade, as those over 45 years of age, and not 50+. It was felt, however, that this slight discrepancy would not affect the analysis of older individuals at Mucking unduly.

The age groups used in various cemetery reports had sometimes of necessity to be adjusted, and the numbers of individuals in the new age groups recounted. When an individual fell between the two age categories, the average of an age allocated to an individual was taken, and it was placed in the older category for the sake of consistency. This was an arbitrary decision that may, however, help rectify the persistent under ageing of adults (see Chapter 6.3 below). It also

6 These are 17-25 (young adult, wear stages 1-3), 25-35 (middle adult, wear stages c 4-5), c 35-45 (mature adult, wear stage 5+) and 45 or older (old adult, wear stages c 6-7).
7 These new groups are abbreviated as AD1, AD2 and AD3 respectively.
8 Examples include the ageing at Lechlade (Harman 1998), Berinsfield and Abingdon, Oxon (Harman 1995), and Apple Down, Sussex (Harman 1992).
lessened the impact of adjusting the age of adults from 20, as used in the previously study by Härke (1992b, 184), to 18 years.

Consistently grouping juveniles was especially problematic. Those counted as juveniles have ranged from as young as 15, for example at Polhill, Kent (Hawkes 1973), up to the age of 20 at Cannington (Brothwell and Powers forthcoming) and urban Poundbury (Molleson 1993). Some of these juvenile age groups were adjusted, but occasionally this was not possible, as at the sites of Abingdon, Oxon (Harman 1995), Great Chesterford, Essex (Waldron 1994b), Morning Thorpe, Norfolk (Green and Rogerson 1978), West Heslerton, Yorks (Cox forthcoming) or Broadstairs I, Kent (Powers in prep). The standardised cut-off point sometimes made a large difference in numbers of juveniles. At Mill Hill, Deal, Kent, for example, the percentage of juveniles is no longer as high when the new categories are applied (Anderson and Andrews 1997).

Despite the problems encountered in reconciling age groupings, it was possible to draw up a comparative table of data (Table 6/1). Once the age groups had been established, the best sites in terms of bone preservation were singled out, as it was clear that this had a very significant effect on the palaeodemographic profile of the cemeteries. Bone preservation was crudely classified according to the overall subjective assessment of the macroscopic condition and completeness of the bone by each site's osteological expert. In order to avoid circularity in the correlation to juvenile percentages, a

---

9 Only the data from the sites of Polhill, Kent (Hawkes 1973, 169) and Abingdon, Oxon (Harman 1995) featured a cut-off at the age of 50. The same age division was used by Brothwell (1972, table 26).

10 Such adjustments were carried out in the cases of Westgarth Gardens, Broughton Lodge, Mill Hill, Polhill, Berinsfield, and Portway.
low percentage of juveniles was not considered in itself as indicating overall poor
bone condition, without corroborating evidence (Table 6/1).

When the state of preservation is examined, however, it is clear that many
Anglo-Saxon cemeteries (c 70% of the sample) have suffered from variable, poor
or very poor bone preservation (Table 6/1). It is even possible that Anglo-Saxon
cemeteries may have suffered unduly from poor bone preservation compared with
late Roman and medieval cemeteries, because of an apparent preference for
settlement and burial on lighter, often slightly acidic gravel soils (see Chapter
8.2).12 The new sample does not contain a significantly higher percentage of better
preserved sites than previous surveys, but does clearly differentiate between well-
preserved and poorly preserved sites. Also, the total of well-preserved individuals
is now also larger, so that the percentages should be more reliable. The selection
of only well-preserved sites reduces the number of sites from 29 to only seven
(Lechlade, Great Chesterford, Apple Down, Abingdon, Polhill, Barrington A, and
Mill Hill), but still rendering a total of 977 skeletons.13

Distinguishing the condition of the bone clearly affects the
palaeodemographic profile. The percentage of individuals who cannot be aged at
all is 3% in cemeteries with good preservation compared to 8% in cemeteries with
poor preservation. When only well-preserved sites are examined, the percentage of

11 Note that ND indicates that no data were available. The juvenile percentages include the infants,
unlike those calculated by Molleson (1991, table 1). Juvenile and infant percentages are calculated
as a percentage of aged individuals, following Molleson (1991) and Crawford (1991a).
12 Although quarrying and aerial photography have inevitably led to the more frequent discovery of
sites on light gravel soils than on other soils, fieldwalking and limited environmental evidence also
point to location on such light soils in the early Saxon period (Appendix 17). As we have seen,
roughly a fifth of the collected sites are on slightly acid sand and gravel (Table 6/1). Roman sites
appear to have been located on more varied soils, and may have been on the whole better preserved,
and after the middle Saxon period soil erosion and exhaustion may have encouraged a move to more
loamy sites.
juveniles is 38%, and when poorly preserved sites are considered, the percentage is only 24%. Earlier studies, with mixed bone evidence, predictably showed figures between this range. In Crawford's study the average percentage (of those under 20) was 31.5% (Crawford 1991a, table 3). Similarly, in the study by Molleson (1991), the average for juveniles at nine early Anglo-Saxon sites was 29% (a figure that still applies with adjustment for a cut-off point of 18 years).\(^{14}\)

In the present study, when only well-preserved sites are examined, the percentage of infants is 10%, and when poorly preserved sites are considered, the percentage is less than 1%. The higher figure is far greater than that given by Härke (1997b, 127) of 2.3% (up to 18 months of age).

Again, the average for older individuals (over 35 years) is 47% with good preservation, compared with only 36% in less well-preserved conditions (Table 6/1). Again this is far higher than previous postulated figures (Boylston et al 1998).

**The investigation of possible bias in osteological material**

Factors that may have influenced preservation at Lechlade, and other well-preserved sites, must be investigated first before cultural reasons for the palaeodemographic profile can be considered, in order to assess possible sources of bias that may have skewed the palaeodemographic profile of Lechlade, and more conspicuously, Mucking. Such studies have not generally been carried out in

---

\(^{13}\) This compares with the smaller numbers of well-preserved individuals of 292 (Molleson 1991) or 237 (Crawford 1991b) or \(c\) 800 (Härke 1992b), which were not distinguished by the authors from poorly preserved data.

\(^{14}\) These sites are: Ipswich, Broadstairs, Empingham II, Great Chesterford, Kingsworthy, Worthy Park, and West Heslerton. The sites of Buckland (Dover), Polhill, and Portway were also examined by Crawford (1991b).
Anglo-Saxon cemetery reports, although there are exceptions, such as Sewerby (Hirst 1985, 33) or Mucking itself (Biek forthcoming, a).

Various intrinsic and extrinsic factors operate between living and dead populations, and can introduce bias by altering the completeness and preservation of the osteological data (Boddington 1987b; Waldron 1994a, 10-27; Henderson 1987; Mays 1998, 20-1), and affecting in particular the percentage of juveniles (Brothwell 1987).

Intrinsic factors (those inherent in the original living population) comprise differential rates of decay according to the chemistry of the bone, and its shape, size and density, which can vary depending upon the age of the individual, for example (Henderson 1987). The most important intrinsic factor in the rate of bone decay appears to be the age of the individual, with juvenile bone being more likely to be in poor condition than that of adults. This was certainly the case at Lechlade (Table 6/2).15 Interestingly, at Poundbury, and in Romano-British sites in general infants were less well preserved than neonates, perhaps because infants who had died would have been in a poor state of health (Molleson 1993, 175; Mays 1993). This was also the case at Lechlade, where 62% (10/16) of infants compared to 100% (5/5) neonates were in good or fair condition. Thus it is insufficient to state that infants suffer more from poorer preservation than older juveniles or adults (Henderson 1987; Gordon and Buikstra 1981; Mays 1998, 21-5), without distinguishing neonates from infants. However, it can be said that overall in acid soils, juveniles are relatively more poorly preserved compared with adults than in

---

15 The same relationship between bone preservation and the representation of juveniles applies to Romano-British sites as well: the bone at Poundbury is well preserved (Molleson 1992), and these sites show a juvenile percentage of 35-61% (Molleson 1991, table 1). The late Saxon site of Raunds, Northants also has good bone preservation, with a juvenile percentage of 44% (Boddington 1996).
more neutral sites, and there was a complete absence of infants on acid sites (Table 6/1), with a possible total annihilation of juvenile bone traces. Where there is very poor bone evidence, the percentage of juvenile burials can be nonexistent (as in Mucking I). In order to assess what the original juvenile percentage of the living community may have been, close examination of the length of the body, coffin and/or grave cuts can be undertaken. Dramatic alterations in the percentage of juveniles were made when this kind of analysis was applied at Mucking (see Chapter 7.3). Even on better preserved sites, such as Castledyke, Barton-on-Humber, Humbs, additional juveniles may be detected by the presence of small unaccompanied grave cuts, although the results may not be as spectacular. It should also be remembered, however, that not all infant graves will have been recorded, as they are usually shallower (see below), so that even identifying of all possible juveniles from unaccompanied graves will still not automatically represent the number of juveniles originally buried on the site. There was only one recorded small unaccompanied grave at Lechlade, so consideration of this aspect will not alter its juvenile percentage.

In terms of extrinsic factors, Biek (forthcoming, a) has stressed the unique microclimate of a grave, in which a number of factors interact to affect the degree of bone preservation. Among these, he stresses the hydrological and microbiological factors as being the most important.

Geological and geographical factors, such as differing soil types, soil pH, and the action of water, temperature and air, play an important part. Bone preservation is at least partially dependent on the soil pH, for example (Mays 1998, 17; Gordon and Buikstra 1981). Soil pH will vary greatly in the presence of sands, 16

16 Here only three more juvenile graves could be identified using this method.
gravel, and clay subsoils (Brothwell 1981, 7-8), although not in the case of chalk. Neutral or slightly alkaline pH is generally believed to be more conducive to good bone preservation than acidic conditions (Keeley et al 1977). However, the effect of pH on the preservation of bone from Anglo-Saxon sites has not hitherto been systematically examined.

Variations within the same site between sand and gravel affected the preservation of grave furniture at Sewerby for example, with sand being linked to poor preservation and gravel to the best preservation (Hirst 1985, 33). This also appeared to be the case in Mucking I, where the soil varied between sand and gravel, and combinations of both. In graves dug in predominantly sand, 50% contained bone, and in graves dug in gravel, 66% contained bone. As at Sewerby, the shallower burials tended to be less well preserved. Thus, for example, those graves without bone or staining were on average 0.19m deep, those with stains but no bone were 0.31m deep, and those with preserved bone were 0.37m deep.

The data on pH of soils at the various sites was compiled using the Soil Survey of England and Wales (Ragg et al 1984; Jarvis et al 1984; Hodge et al 1984), as such information was rarely available in any excavation report. Ideally, of course, the pH measurements of soils should be carried out on site. The secondary compilation of such data is, therefore, necessarily crude, with classification according to the Soil Survey guidelines (Ragg et al 1984, 395). Even when tests are undertaken, pH can be measured in various ways, either in water, or in a CaCl₂ solution. It should also be noted that the pH can be lowered by the decay of the body and the effect of leaching, which can then have an effect

---

17 It has been presumed in the present study that the soils of all chalk sites were alkaline.
18 Thus slightly acid is grouped as pH of 5.6-6.5, neutral from 6.6-7.5 and alkaline as above 7.5.
on other bodies in the vicinity, especially those downslope. Also shrouds, pillows and coffin wood are acidic items (T Molleson, pers comm).

There appears to be a fairly consistent, but far from absolute, correlation of pH with bone preservation. The bone preservation on alkaline chalk sites is varied, ranging from very good, for instance at Apple Down, to poor, as at St Peter’s Tip or Finglesham, probably owing to the differential permeation of water (see below). The best preservation tended to be in neutral/alkaline gravel and sandy sites, such as Lechlade and Great Chesterford. Some gravel sites were alkaline, such as Berinsfield and Abingdon (Ragg et al 1984, 302). Lechlade, Abingdon and Berinsfield are all located on oolitic limestone gravels, often partially cemented by secondary calcium carbonate (Jarvis 1973, 7-14, 24), and all three sites have yielded good bone evidence.

Nevertheless, preservation can also be very poor even on such sites, as was the case at Beckford B. It is interesting to note that preservation at the nearby site of Beckford A is excellent, despite similar subsoils (Wells 1996). The worst preserved sites are slightly acid/neutral gravel ones, such as both the Mucking cemeteries, where the pH is 6.6-6.8 (Biek forthcoming, a). Nevertheless, at Mucking the present pH may not be the same as in Anglo-Saxon times, as liming has been carried out (Keeley 1974). The very acidic pH at Snape and Sutton Hoo, for example, may once have been more neutral (Filmer-Sankey and Pestell forthcoming). The effect of acid soils on infant preservation has already been noted.

19 pH was measured as both 1:2.5 suspension of soil in water and as 0.01 M CaCl$_2$ solution (Ragg et al 1984; Jarvis et al 1984; Hodge et al 1984).
20 Other sites include West Heslerton (MacPhail 1986), Morning Thorpe (Green et al 1987, 1), Sewerby, Humbs (Hirst 1985, 33), Bergh Apton (Hodge et al 1984, 136) and Spong Hill (Hodge et al 1984, 132-3).
The presence of water, including the level of the water table, and permeability, is also believed to be an important factor in bone preservation (Brothwell 1981, 7-8). The variability of preservation on chalk sites may relate to whether the chalk is broken or sound, whereby the former will facilitate the passage of water, and preservation will be poorer (C Duhig, pers comm). Mays (1998, 21) has postulated that very free-draining subsoils lacking a fine particle fraction will allow for the free passage of water to leach out bone, leading to deterioration. Thus, for example, although the pH at Sutton Hoo is more acidic than at Mucking, ranging from 3.8 to 4.9 (Barker et al 1975), preservation of bone at both sites is roughly similar, explicable by the greater permeability of predominantly gravels at Mucking, as opposed to predominantly sand at Sutton Hoo. Where graves were dug into earlier ditches with more humic fills in Mucking II, bone preservation appears to have been rather better (Jones and Jones 1975, 175), presumably as permeability was reduced, but such ditches were absent in Mucking I. On the other hand, poor drainage can itself lead to bone deterioration. At Sewerby, for example poorer preservation of bone was found in graves dug in sandy subsoils compared with the better preservation of those in gravel soils, and this was argued to be due to the more prolonged contact of bone with acidic soil solutions in sand resulting from poorer permeability (Hirst 1985, 33).

The effects of temperature and air on bone preservation (Mays 1998, 21) cannot be gauged for individual sites. The effects of air may be related to the depth of the grave, as well as the presence or absence of waterlogging.

---

21 The data from Sutton Hoo has not been included in the survey as the number of skeletons and grave cuts is less than 50 (Carver 1992b).
Biological factors, such as the action of roots or animal disturbance, also play an important role (Henderson 1987; Mays 1998, 20). Most significant, however, is the localised action of microbiological organisms (Biek forthcoming, a). No animal disturbance was noted at Lechlade, but it was recorded in either cemetery at Mucking, where, however, the evidence of animal disturbance does not seem to be correlated to bone preservation.

The effects of human behaviour and actions on burial involve many factors, arising from when, how, and where individuals were buried, and indeed who they were. They include the factors applying at the time of burial, such as the shallowness or the percentage of multiple graves, spatial segregation or separation of groups of individuals, or the proportion of dead buried at the site, and whether this includes certain age groups, but not others, as well as the presence of coffins. Post-depositional factors also play a role, including the proportion of burials lost due to post-depositional disturbance, excavation and/or post-excavation loss, and the proportion of burials discovered.

Factors that applied at the time of burial include the proportion of dead buried at the site, and whether this includes certain age groups but not others. This can only be known by comparison with non-archaeologically recorded Preindustrial populations, and is discussed in detail below (Chapter 6.3).

Another factor is that spatial segregation/separation will affect bone recovery. It is unlikely that only the cemeteries with low juvenile percentages will have suffered unduly from non-retrieval of juvenile graves in unexcavated areas. Juveniles are not usually clustered, but were presumably buried with their families. This is not always the case, however, as distinct groups of juveniles have
sometimes been noted in antiquarian excavations, such as at Kingston, Kent (Meaney 1964, 125) or more recently at Lakenheath, Suffolk (Caruth 1998).

It is possible that the proportion of juveniles buried in adult graves will have had an effect on their recorded numbers. At Lechlade and other cemeteries, there is relationship between a higher percentage of juveniles and a higher percentage of juveniles in shared adult graves (Table 6/4). Separate juvenile, and especially infant graves, are generally believed to have been shallower than cases of double burials with adults, but data on this has rarely been compiled, with the exception of Berinsfield (Boyle et al 1995, 120) and Castledyke, Barton-on-Humber (Drinkall and Foreman 1998, 120). This indeed proved to be the case when data from the sites of Lechlade, Berinsfield, Buckland, Dover, Castledyke, Barton-on-Humber, and Polhill, Kent were collated (Table 6/4). The presence of shallow graves at Lechlade suggests a lack of damage, while the absence of shallow graves in the Mucking cemeteries points to the opposite (discussed further in Chapter 7). The complete absence of infants, low percentage of juveniles, and lack of shallow juvenile graves at Buckland, Dover suggest that some juvenile burials may have been destroyed, for example by ploughing or mechanical topsoil clearance. Such losses cannot be quantified, but the combination of any mechanical damage, and poorer bone preservation will surely have had a greater effect on juvenile than on adult bone survival.

Grave depths will have an effect on bone preservation. Shallower graves may sometimes be linked to poorer soft tissue and bone preservation, presumably due to the greater exposure to animal disturbance, fluctuations of temperature and water, and air circulation (Hirst 1985, 33; Mant 1987, 68). A tentative correlation between grave depth and preservation can be pointed to at Lechlade (Table 6/2)
and at Mucking I (Table 6/3). Previous studies of grave depths in Anglo-Saxon cemeteries have for the most part only examined the links to status.\footnote{Status has been measured by variables such as age and sex of the individual, the number of artefact types present, and, in the case of Norton, Cleveland, the body position, usually with inconclusive results (eg Hirst 1985, fig 10; Evison 1987, 150-2; Sherlock and Welch 1992, figs 9 and 10). The underlying assumption has been that the depth of a grave could vary according to the expenditure of effect deemed appropriate to the status of the deceased or their family.}

The presence of coffins is believed to be associated with poorer bone preservation (Cook and Dacre 1985, 55). The poorer preservation of soft tissues at least may be due to the air pockets created (Mant 1987, 68). On the whole, there is little evidence for coffins in most Anglo-Saxon cemeteries, so the data from Mucking provided an unparalleled opportunity to test this theory. The evidence from Mucking I does not, however, indicate a correlation between the presence of coffins and poor bone preservation (Table 6/3), but there are clear trends in Mucking II. Here 50% of graves where no bone was found contained coffins, compared to only 28% where teeth and bone were found. It should be remembered, however, that the preservation of wood can itself be very variable (see Chapter 1.3), and the apparent absence of a coffin does not necessarily mean that none was originally present.

Only two probable coffins were found at Lechlade (Graves 18 and 92), and as these contained the highest status individuals of the whole cemetery, this cannot be mere coincidence. Both of these graves were 0.54m deep, below the average of 0.37m for adult graves, but not the deepest, which was 0.96m (Table 6/4). There is a tendency for coffins to appear only in slightly acid gravel sites such as Mucking, so their absence at Lechlade may be misleading.

The presence of vegetation can be linked to the poorer preservation of bone, as this encourages greater microbiological activity. Biek (forthcoming, a) sees as
one of the most important factors in bone preservation, as it renders the soil more acidic, and root enzymes erode bone cortices (C Duhig, pers comm). Where mineralised traces of vegetation in Mucking I were recorded, this did seem to be correlated to poorer bone preservation (Table 6/3). Very little vegetation at Lechlade is recorded as surviving, but as analysis of this aspect was lacking, it is not at all clear that this absence is real.

Post-depositional disturbance can include the superimposition of late Saxon, medieval and modern features, or the effects of ploughing. Relatively few Anglo-Saxon cemeteries have been found in urban areas, and indeed would be less likely to remain at all intact in these conditions. The scattering of later agricultural ditches found on many sites is likely to have caused some destruction in particular of juvenile, and especially infant graves. In order to investigate this, differences in average grave depths between sites, and the percentage of multiple burials with adults need to be considered.

Excavation and post-excavation loss will play a part in bone recovery. Most of the sites in the sample were the subject of rescue excavations, the exceptions being Apple Down, Sussex (Down and Welch 1990), Spong Hill, Norfolk (Hills 1977b, 32) and Norton, Cleveland (Sherlock and Welch 1992). Under rescue conditions, there is a far higher probability that smaller and presumably shallower graves would not be found within the excavated areas. Those cemeteries where appalling conditions prevailed at the time of excavation tend to be older projects, carried out before professional excavation units were developed. Such sites include Mucking II, but especially Mucking I. Nevertheless, in Mucking I, the tightly packed rows do not hint at any missing graves, and in
Mucking II it is estimated that areas of under-investigation, or ‘overscraping’ of
topsoil only represent a loss of 5-10% of graves (see Hirst and Clark forthcoming,
b). Post-excavation losses were minimised in the sample sites, as no antiquarian
excavations were included.

Nearly all the cemeteries in the survey were incompletely retrieved
spatially, and some more so than others. It is estimated that Lechlade is only 50-
75% complete (Boyle forthcoming, b). Only five other cemeteries apart from
Mucking II appear to have been almost completely recorded (Chapter 2). The most
seriously incomplete cemetery of the sample might be thought to be Mucking I
itself, but in fact it is estimated that half to two thirds was retrieved (see Chapter
1.1). Nevertheless, incomplete excavation is unlikely to have affected one section
of the population more than another, for as has been pointed out, all ages normally
appear to have been buried together in family groups.

It might be expected that the older the age of the grave, the worse decay
would be, but no such correlations were found at Mucking I or at Lechlade (Table
6/2).

It would seem, therefore, that factors applying at the time of burial, and
post-depositional factors can operate together in various combinations. For
example, spatial segregation will only be a factor if it is combined with incomplete
excavation, and shallow burials will only be affected by deep ploughing.

Conclusions

It would appear that Lechlade was the best preserved and largest dataset available
for the investigation of palaeodemographic questions, as well as deriving from the

---

23 One example has been found at Buttermarket, Ipswich, Suffolk (Scull and Bayliss 1999).
same area of commonality as Mucking. For the most part extrinsic factors do not seem to have led to bias in the surviving evidence for the population of Lechlade when compared with many other sites. The soil pH and the generally relatively shallow burials suggest an absence of bias. The poorer preservation of graves belonging to infants and children may perhaps suggest the loss of some juveniles, but the rarity of graves without any bone evidence argues against this. At Mucking the lower pH, high permeability, the widespread presence of coffins and generally deeper graves would largely account for the much poorer quality of the palaeodemographic data. There appears to have been a proportionally greater loss of juveniles than adults, particularly affecting infants.

6.3 THE PALAEODEMOGRAPHIC STRUCTURE OF LECHLADE

It is clear that Lechlade provides the best preserved and largest osteological dataset, that has not obviously been distorted by extrinsic factors, but does the palaeodemographic profile at Lechlade resemble that of other well-preserved Anglo-Saxon cemeteries? Secondly, does it resemble other Preindustrial populations? The two more important aspects of palaeodemographic studies are the percentage of neonates and infants, as well as older adults, and the sex ratio of adults. Such aspects will therefore be examined in relation to the data from Lechlade.

Juveniles

As a rule, Romano-British and sub-Roman cemeteries have a far higher percentage of infants than ‘Anglo-Saxon’ cemeteries. In the case of Romano-British sites, the
extremely high proportions of infants has been explained as due either to infanticide, and burial within the cemetery (Molleson 1991).

By the fourth century and into the fifth century, it has been argued that there was discouragement of infanticide by the church, with encouragement in favour of the burial of infants within the cemetery (Watts 1989). These later known, and radiocarbon dated, sub-Roman cemeteries have lower infant percentages (i.e., those up to 2 years of age) than earlier Roman cemeteries. At Cannington, Somerset (Brothwell and Powers forthcoming), and Poundbury, Dorset (Molleson 1993), for example, the percentage of infants was 19%, although this was lower at Queensford Mill, Oxon, at 10% (Molleson 1991, table 1). At Poundbury, the ratio of c. 1:1 of infants to older juveniles might also suggest that infanticide was not carried out (see below). It could of course be argued that this lower percentage merely reflected the burial elsewhere of a high proportion of infants (contra Watts 1989); it is clear that only some of the expected numbers of infants in such cemeteries, such as urban Poundbury (Molleson 1993, 212) or Queensford Mill (Chambers 1987) were actually buried in the cemeteries.

Great Chesterford, Essex (Waldron 1994b) has the largest percentage of juveniles in a known ‘Anglo-Saxon’ cemetery, with a remarkable 50% or more of infants.

---

24 At some sites, such as Durotrigian Poundbury, or Owlesbury, the percentage of infants (at 60% and 50% respectively) is so much greater than the percentage of older juveniles (at 2% and 8% respectively) that it suggests infanticide and burial within the cemetery (Molleson 1991). Infanticide can also be suspected archaeologically from the proportion of premature deaths to deaths in the immediate post-natal period. This approach was used to analyse Romano-British contexts by comparing them to twentieth-century records (Mays 1993). Perinatal deaths would have been naturally occurring, and the deceased can be expected to have been buried within cemeteries, whilst immediately postnatal deaths may be either natural or due to infanticide (since infanticide, if it occurred, would have happened shortly after birth). It can prove difficult, however, to distinguish whether neonate deaths (i.e., those of newborn size) were perinatal (i.e., up to 43 weeks of gestation, or up to one week old) or immediately postnatal (Molleson 1993, 171-3). One might also expect the number of perinatal infants (premature babies and those up to one week old) to exceed the number of infants.
deaths before adulthood.\textsuperscript{25} More astoundingly, the percentage of infants is 33\% of the population (Table 6/1). Such a high percentage is reminiscent of the profiles of at least some Romano-British cemeteries. At Great Chesterford, however, it has been suggested that the high percentage of infants is a reflection of the poor nursery practice and domestic attitudes to children in an agrarian economy (Molleson 1991, table 1, 116), in conjunction with burial within the cemetery, perhaps a 'sub-Roman' trait. There are other possible indications of the acculturated character of this cemetery, none of which are conclusive, but merely suggestive of a substantial sub-Roman presence.\textsuperscript{26}

In contrast, Lechlade, as well as all 'Anglo-Saxon' cemeteries displays a near absence of infants (Table 6/1). At Berinsfield, another Saxon site, infants account for a meagre 6\% of the population.

If Great Chesterford is judged to be untypical of Anglo-Saxon sites, this leaves Lechlade with the highest known juvenile percentage. Infants and young children accounted for 20\% of the cemetery (44 individuals), with the figure rising to 39\% (87 individuals) if adolescents are counted. 19\% (42 individuals) of the population had died by the age of five, and 55\% (73 individuals) by the age of 15.

If the exceptional site of Great Chesterford is excluded, the average juvenile percentage amongst well-preserved sites becomes 35\% (from an otherwise 38\% if included), with an infant percentage of 5\% (from an otherwise 10\%). If Lechlade is excluded, the juvenile percentage becomes 33\%, with 2\% of infants. The

\textsuperscript{25} Here the juvenile total is potentially lower than it might be, as it is calculated only up to the age of 15, and could not be adjusted.

\textsuperscript{26} Some graves contained artefacts that led to the identification of possible fifth-century sub-Roman males (Evison 1994, 49-50). Despite the presence of a predominantly Anglo-Saxon sixth-century cemetery, Great Chesterford may have been a key defensive settlement in blocking access along the Icknield Way and therefore to the presumed British power base defined by London, Colchester and Verulamium even into the sixth century (Going 1996, 105).
juvenile percentage at Lechlade is matched by very few other Anglo-Saxon cemeteries, although a similar frequency is found at the smaller cemetery of Abingdon I, also in the Upper Thames Valley, for example (Harman 1995). Such figures are high, but not anomalous. It can also be seen that, at 9%, the percentage of infants at Lechlade is also higher than at other Anglo-Saxon sites, and was perhaps unusually high.

If only well-preserved sites are taken to be more representative of juvenile mortality than more poorly preserved sites, do such sites bear any resemblance to known Preindustrial populations? Given the unknown (indeed unknowable) nature of archaeological populations, the best approach to ascertaining the relationship between a palaeodemographic profile and its living population is seeing whether the proportions of age groups are similar to those in historically documented Preindustrial populations. In particular, there are figures recorded from recent and modern populations, of the seventeenth to eighteenth centuries in Europe, as well as South American and Indian nineteenth- and twentieth-century documentary evidence (Bocquet-Appel and Masset 1977). This appears to be preferable to using contemporary Third World figures, which have often been employed for the purposes of comparison, but can be very variable. On this basis, 'normal' juvenile percentages can no longer be expected, as has often been the case, to be c 40-50% based on Third World data (eg, Waldron 1994a, fig 2.4), and it cannot be assumed that the new overall juvenile percentage within well-preserved Anglo-Saxon cemeteries (at 35%) is too low. High levels of stress, such as in circumstances of famine, war, and/or high density-dependent infections appear to be linked to the highest overall juvenile percentages. The last factor, at least, is a problem unlikely to have affected Anglo-Saxon rural communities (Putnam 1978).
The proportions of juveniles to adults can also be examined (Bocquet-Appel and Masset 1977) by dividing the number of 5-14 year olds by the number of 20-W (ie individuals older than 20). At Lechlade, this comes out at is 2.38, which is suggestive of a Preindustrial population. Other formulae that apply to historically documented populations include that whereby the numbers of 5-9 year-olds divided by 10-14 year-olds would be expected to be greater than 2 (Bocquet-Appel and Masset 1977). At Lechlade, this figure is 1.38, indicating a higher proportion of juveniles, which is representative of a developed population. The study of proportions of age groups, in particular that of juveniles in relation to adults, as well as the proportion of children to adolescents to each other, does not suggest that the percentage of juveniles at Lechlade is unduly low.

The numbers of infants (defined as up to two years of age, and including neonates) compared with older juveniles (up to 20 years) should be roughly in proportion (in practice displaying a ratio of no less than c:2) (Molleson 1991). At Lechlade, the proportion is 1:4 in Phase 1 and 1:5 in Phase 2, and overall is 1:5. Thus, there is clearly still a discrepancy, even on well-preserved sites, between the recorded number of neonates, and the number that would be expected.

It is clear from the study of well-preserved sites in comparison with those with poor preservation, that infants and children were more frequently buried within the cemetery than previously thought, and that their numbers were

---

27 A few other sites were examined, but the figures are low: at Mill Hill it is 0.8, at Apple Down 1.5, at Berinsfield 1.62, and at Abingdon 3.
28 Also based on unspecified 'modern' populations, a comparable ratio of infants (under one year) to those under 20 years has also been postulated as a good predictor of bias, as this would be expected to be c:4 (Brothwell 1971). At Lechlade, overall this ratio is only 1:8 (and as low as 1:20 in Phase 1). Brothwell (1987) also suggested that a similar mortality rate of those under c 12 years compared with other juveniles under 15 found in many archaeological samples might bear some resemblance to the living population.
29 No infants were recorded at Polhill, Mill Hill and Abingdon, but at Apple Down there is a ratio of 1:10 of infants to older juveniles.
previously under represented due to poor survival. If the number of known infants and children is greater than previously supposed, this means that the neonate and juvenile mortality rates are higher, and family size larger, than used to be thought the case, as both are assessed on the known sample of juveniles.\textsuperscript{30}

Most Anglo-Saxon sites with poor or ‘varied’ bone preservation have a non-existent to low neonate mortality rate (0-5%), and an average to low juvenile mortality rate (0.5-2%) (Molleson 1991, fig 1). The well-preserved sites showed an average to high juvenile mortality rate, and neonate mortality rates that varied from nil (in the case of Polhill and Mill Hill) to low (at Apple Down), but with an average neonate mortality rate at Lechlade.

The larger family sizes may be a reflection of a younger female age of marriage than that postulated by Molleson (1991) as over 25 years. There is no concrete evidence, however, for age at marriage in the Anglo-Saxon period. Documentary evidence from Merovingian Gaul suggests that it may have been earlier, starting at around the early teens, and ranging up to about 18 years in the sixth century, with the youngest marriage age perhaps rising to the mid teens in the seventh century (see below, Chapter 6.4). The youngest individuals buried with children in Anglo-Saxon cemeteries are aged about 14-15 years, as in Grave 1 at Lechlade (below, Chapter 6.4) or Grave 93 at Abingdon (Crawford 1991b, 130-3, 150), and although a mother-child relationship is not certain, it must remain a distinct possibility. On the other hand, adult females in multiple burials (possibly, but not necessarily, the mother of the child) are often in their 20s.

\textsuperscript{30} The neonate and juvenile mortality rate again can only take into account known individuals, and not those individuals disposed of outside the cemetery, for whatever reason. The numbers of children born is not the same as family size, this being the estimated average number of children per female of childbearing age at any one time. As this is estimated from the neonate and juvenile mortality rates (Molleson 1991), it cannot take into account ‘invisible’ deaths.
Secondly, it remains the case that most neonates and infants were not buried within the cemetery; when infants were buried in a cemetery, this was clearly unusual (Crawford 1991b, 239, 1993). This shortfall has been noted in earlier studies (Evison 1987, 146; Brothwell 1987; Molleson 1991; Crawford 1993), and persists even in well-preserved cemeteries, although to a lesser extent. This discrepancy is less marked at Lechlade than in other well-preserved sites, but still occurs.

How can this shortfall of neonates and infants best be explained? It cannot be entirely due to problems of the surviving evidence, although this has probably played some role even in well-preserved cemeteries. Three types of treatment in death appear to have been accorded to infants: there were those buried within cemeteries, often with adults, those treated in an unusual way within cemeteries (such as burial in a prone position, and often buried in a single grave), and those invisible and missing infants who do not seem to have been buried within the cemeteries at all. It could be expected that those buried within the cemetery had died of natural causes. This assumption is based on later Scandinavian accounts of exposure (Clover 1990), with a lack of burial, in isolated and inhospitable locations, although this stands in clear contrast to the apparent early Romano-British practice of burial within cemeteries of infants that had been subjected to infanticide (judging from their great frequency). Missing Anglo-Saxon infants could be accounted for in several ways: by beliefs that infants did not have separate identities of their own, so that formal burial in a cemetery was deemed unnecessary, a fear of ghosts precluding their burial within cemeteries, the possible

---

31 The better preservation of neonates compared with infants at Lechlade and other cemeteries has already been noticed.
exclusion of the infants of low-status individuals from burial in the cemetery, the
growth of a monastic and celibate lifestyle, or the practice of infanticide.

There is no reason to believe that infants would have been desirable for the
purposes of slavery. By the seventh century, the practice of giving up boys to the
church as oblates might have affected their representation within Anglo-Saxon
secular cemeteries, but this normally occurred as late as c 7-8 years (Kuefler 1991,
824-5). This would not explain the lack of neonates, and in any case was probably
confined to the upper strata of society. It is possible that infants were buried within
settlements, as seems to have been the case at West Heslerton (Härke 1997b, 164)
but the numbers are too small to account for an absence of infants in the cemetery.
In addition, there are no such burials in the settlements at Mucking (Hamerow
1993a) or West Stow (West 1985), although the soil conditions at both sites would
be unlikely to encourage preservation.

It is possible that infants were not considered to have had separate identities
from their mothers until they were weaned (Turner 1979; Crawford 1991b), so that
for this reason unweaned babies might not have received formal burial in
cemeteries. This may be supported by the rarity of artefacts buried with infants at
Lechlade (Chapter 6.4) and elsewhere, but if weaning ceased at anything from six
months to four years, it would not explain why infants and children older than this
were not always buried within cemeteries. It could also be argued that most infants
were not buried in the cemetery because of a fear of ghosts, a fear particularly
associated with the sudden deaths of newborns and infants (Crawford 1993). It is
entirely possible, however, that such feared infants were those afforded ‘unusual’
treatment in death within the cemetery. It would seem at least possible, although unprovable, that low-status adults were not allowed the privilege of the burial of their infants within the cemetery. Missing neonates might also be accounted for by the practice of infanticide. Unfortunately, an examination of the relative proportions of largely premature babies compared to postnatal babies cannot be undertaken, due to lack of data.  

There is ample Christian documentary evidence, albeit largely Merovingian, condemning abortion and infanticide at this time (Herlihy 1985, 53-4). Both practices were deplored in the English *Penitentials*, dating from the sixth to twelfth centuries, such as the mid eighth-century *Penitential of Ecgbert* (Thorpe 1840, 362-94; Cayton 1980). The sixth-century Bishop Caesarius of Arles (c 470-543), for example, railed against the use of herbs as abortifacients, and the killing of infants (Dukes 1996, 238). Infanticide may have been achieved by subjecting the new born baby to exposure, or ‘testing’ in cold water in the early medieval city of Zurich (Etter and Schneider 1982, and Arnold 1980 quoted in Molleson 1991). Those who did not survive (or who were not rescued, if abandoned) are unlikely to have been formally buried within a cemetery, which is the interpretation placed upon the archaeological evidence of seventh- to eighth-century cemeteries in Zurich, in comparison with that of a succeeding Carolingian church-associated cemetery (Burnell 1988, 457). How successful attempts at abortion were cannot be known, but the use of herbs can at best have had the mixed results achieved by

---

32 Children appear to have been more in demand for such purposes. In the Roman period, children of about 7-8 years were preferred (T Molleson, pers comm) and children are known to have been sold into slavery in the Anglo-Saxon period (Pelteret 1981).

33 At Lechlade, there are only five newborns and a total of six infants (up to one year) or 16 infants (up to two years). Of the newborns, two were dated to Phase 2, and three were undated.
herbal practitioners or homeopaths today.\textsuperscript{34} Other suggested Anglo-Saxon abortifacients cannot possibly have worked.\textsuperscript{35}

However, two factors tend to contradict this interpretation. Firstly, there is no shortfall of adult females compared with males in Anglo-Saxon cemeteries overall (Table 6/1), that might suggest the killing of infant girls in particular, as was often the case in the long history of infanticide (Clover 1990; Mays 1993). For example, in the Merovingian cemeteries of Metz (Halsall 1995, 83, 141), and in seventh- to eighth-century Zurich (Etter and Schneider 1982), adult females were under represented.\textsuperscript{36}

Secondly, if infanticide was discouraged by the church, one might expect to see a rise in the number of infants buried in later, possibly Christian cemeteries, as suggested by Crawford (1993). The presence of infant burials in later Merovingian churches in southern Germany and Switzerland compared with earlier and even contemporary row-grave cemeteries may imply that here Christianisation was a factor in discouraging infanticide (Burnell 1988, 457). The problems of identifying Christianity in Anglo-Saxon burial practice are discussed in Chapter 4. Much of Crawford’s Anglo-Saxon evidence for a decline in infanticide was derived from the data at Lechlade, but unfortunately under the misapprehension that this site was solely a late sixth- to seventh-century cemetery. Instead of an increase, there was, as we have seen, a drop in the ratio of infant to older juvenile burials in Phase 2 at Lechlade (dropping to 1:7 from 1:4 in Phase 1). The percentage of juveniles also

\textsuperscript{34} Such herbs may have included the use of ‘wherwet’ as recorded in the \textit{Herbarium, cxv, 3} (Cockayne 1864-6, 47).

\textsuperscript{35} Ineffective remedies are documented in the \textit{Leechbook} (III, xxxvii; Rubin 1974, 122-3), which although tenth-century in date appears to record earlier practices, and in the eleventh-century \textit{Medicina de Quadrupedibus} iv, 4: ix, 7 (Cockayne 1864-6, 343).
fell from 41% in Phase 1 to 29% in Phase 2 (Table 6/5). It should be noted, however, that many juveniles could not be phased, and this could affect such percentages greatly, especially as the overall numbers are small (see Chapter 4). At present, a rise in infant burial cannot be demonstrated, at least not within Conversion Period Anglo-Saxon cemeteries, and the dataset remains small (Table 6/6). A concurrent trend reflecting efforts to ward off malign spirits within the cemetery was also postulated by Crawford (1993), who argued that infant burials were often afforded special and peculiar treatment (such as prone burial, decapitation or the deposition of large stones), as a preventative measure. Unfortunately, Crawford’s evidence for this trend was again largely based on the discoveries at Lechlade, but is not conclusive. It should also be noted that set against a possible drop in infanticide in the seventh and eighth centuries was a probably increasing number of non-reproducing individuals. The celibate lifestyle of those in monasteries may have led to a reduction in population growth, but the individuals concerned were probably restricted to the upper echelons of society, compared to the sizeable ancillary lay populations also within monasteries.

With regard to Lechlade in particular, it is possible that the unusually frequent burial of infants (even though they are still not fully represented) was a local or regional peculiarity. Combined with the high juvenile frequencies at Berinsfield, this might suggest that this was a ‘Saxon’ trait.

---

36 This is the case in several Continental cemeteries, such as Ennery and Lavoye, near Metz (Halsall 1995, 78, 141). In addition, in the Pactus Legis Salicae (PLS 24; 41.xvii), male children were valued at a higher wergild than female children (Halsall 1995, 72).

37 It should be noted that this dataset includes only dated and aged individuals, with the exclusion of individuals dated to the late sixth or early seventh centuries, in order to facilitate comparison with Mucking. In some cemeteries, such as Castledyke, Barton-on-Humber, there were many undated individuals, and in Buckland, Dover, there were many individuals who were not closely aged. The cemeteries range from poor to good bone preservation. All these factors could have affected the results.
In conclusion, it would seem that the exclusion of most infants from Anglo-Saxon cemeteries was a widespread phenomenon that is not totally explicable by a lack of preservation, but must owe much to cultural factors, probably infanticide, possibly combined with a fear of ghosts, or even the barring of burial of the deceased infants of low-status individuals which led to disposal of foetuses and infants elsewhere. At Lechlade, more infants than usual, but presumably fewer than were born, were buried in the cemetery. This may be one more variation found in Anglo-Saxon cemeteries, but one possibility is that it may also be a 'Saxon' trait.

Older people

At Lechlade, there was a large number of 'middle-aged' individuals over 35 years (54 individuals), comprising 43% of the aged adult population. There are fluctuations by phase, reaching 50% in Phase 2, but the smaller absolute numbers in this phase means that little comment can be made (Table 6/5).

As with juvenile percentages, there has been little examination of the effects of bone preservation on the percentages of older individuals. It would appear that, as with the juveniles, preservation of bone, and the size of the sample are critical. It is clear that overall there is readier destruction of bone of older compared with younger adults where preservation is generally poor (White 1988,

---

38 Three of the six 'unusual' burials at Lechlade remain undated. In addition, although five were juveniles, one grave was that of an older adult female (Grave 15).
39 The rate of natural infant death cannot be known, as even assuming that those who suffered infanticide were all excluded from the cemetery, it is not clear whether the number of individuals within the cemetery includes all of those who died from natural causes, or whether some of these too were excluded (due to fear of ghosts, for example). If the latter was the case, the neonate mortality rate will be lower than it should be.
The average of older individuals amongst other well-preserved Anglo-Saxon cemeteries is 46%. These include Apple Down, Sussex (Down and Welch 1990) at 60% (52 individuals). This can be compared with an average of only 35% in less well-preserved sites (Table 6/1). Nevertheless, very high percentages were found on less well-preserved sites, such as Castledyke, Barton-on-Humber, Humbs (Boylston et al. 1998, 225), at 54% (61 individuals), or Buckland, Dover, Kent at 58% (42 individuals) for example. An astonishing 81% of individuals at Westgarth Gardens, Suffolk were aged over 35 years, but such data may be misleading as this sample consisted of only 13 individuals. The level at Lechlade is thus relatively high, but not the highest found among Anglo-Saxon sites.

Cayton (1980) estimated that c 10% of late Anglo-Saxons (albeit only the recorded elite) survived into their 70s and 80s. The thirteenth- and fourteenth-century documentary evidence from England examined by Russell (1937; 1948; 1966) suggested that around 50% of adults died aged 50 or older, although there are difficulties in the approach used, ie primarily that those who predeceased their fathers were not counted, and reference was only made to wealthy landowners (Boddington 1987b; Mays 1998, 71-3; Brothwell and Powers forthcoming), which may have led to the overestimation of older individuals. Nevertheless, there is an average of only 26% of those aged 45 or older even in well-preserved Anglo-Saxon cemeteries (Table 6/1).

It would seem that there may have been a persistent underaging of individuals in Anglo-Saxon cemeteries by traditional ageing techniques, especially

\[40\text{ When divided by phase, it can be seen that there are more adults aged over 35 years in Phase 2, when the percentage rises from 37% to 50%, but the percentage of those over 45 rises from 16% to just 21%.} \]
affecting older adults (Hassan 1981, 113; Henderson 1987; Boddington 1987b; Brothwell and Powers forthcoming). This was confirmed by the comparison of ageing from osteological techniques to individuals of known documented age at eighteenth-century Spitalfields, London (Molleson and Cox 1993). It is clear that all ageing methods are affected by factors such as disease, stress, climate, or diet, but most quantifiably by the reference collection used (Masset 1973). Owing to the generally poor state of bone preservation in most Anglo-Saxon cemeteries, osteological reports appear to have concentrated primarily on the use of tooth attrition (and to a lesser extent the pubic symphysis) to estimate the age of adults. The greater accuracy of the dental attrition system devised by Brothwell (1981) compared to those techniques used at Spitalfields has been confirmed by the comparison with rates of wear amongst juvenile teeth, where age can confidently be gauged by tooth eruption (Mays et al 1995). Nevertheless, individuals with a complete absence of teeth are often excluded from the demographic profile, giving an erroneous impression that few survived past middle age (Mays et al 1995). At Lechlade, dental attrition alone was used to age adults (Harman 1998), so the ageing of individuals may be more accurate than other Anglo-Saxon cemeteries, but the oldest age category is still only 55+. It could be concluded that there may be fewer older individuals in Anglo-Saxon cemeteries in general, and possibly even at Lechlade, than expected, as a consequence of underageing.

41 Such levels are also similar to those in later Saxon cemeteries such as Monkwearmouth and Jarrow, or medieval cemeteries such as St Helen-on-the-Walls, York, for example (Boylston et al 1998).

42 It has been suggested that Brothwell’s ageing categories should be revised to fewer groups: those aged 17-35 (young adults) and 35-55 (mature adults), with another category of 55+ where more than c 50% of teeth had been lost ante-mortem.
**Imbalance of the sex ratio**

In Phase 1, there is a marked imbalance between adult males and females according to the osteological evidence: 56 (69%) were female, counting Grave 80/1, which contained brooches but no bone evidence, and 25 (31%) were males. Incomplete excavation could have led to a misrepresentation of the ratio of sexed adults, as it is estimated that only 50-75% of the cemetery has been excavated (Boyle forthcoming, b). An examination of the distribution of sexed males and females does not, however, suggest a concentration of either sex in different parts of the cemetery, although it remains possible that clusters of age or sex groups existed in the unexcavated parts.

The sexes in nearly all the Anglo-Saxon cemeteries surveyed are roughly in balance; this is even the case at Lechlade in Phase 2.

**Conclusions**

The palaeodemographic profiles of Anglo-Saxon cemeteries are greatly affected by the state of preservation of bone. The sites with better preservation have higher percentages of infants, juveniles and older people in particular than has been realised in the past. It is clear that Lechlade is one of the best preserved Anglo-Saxon cemeteries, and also provides the largest known dataset. Lechlade has one of the highest juvenile and infant percentages. Nevertheless, compared with Preindustrial populations, the infant percentage is still very low and this suggests some exclusion of infants from the burial ground for cultural reasons, although not to the same extent as in other cemeteries. It also appears that some older individuals may have been underaged as a consequence of the methodology
employed to determine their age at death. There is an unusual imbalance in the frequency of adult males compared to adult females.

6.4 EXAMINATION OF THE AGE RELATED CULTURAL PATTERNS AT LECHLADEx

Introduction

Very few analyses have treated age as well as gender as the primary cultural structuring principles, these being the studies by Pader (1982) and Huggett (1995; 1996), who analysed Anglo-Saxon cemeteries, and Halsall (1995), working on the data from the region around Merovingian Metz. Unfortunately, these Anglo-Saxon studies in particular have suffered from an absence or paucity of bone evidence, and/or small datasets.

It is essential that the dataset is finely phased, with the distinction of Migration Period from Conversion Period graves. Other sites, for example Apple Down, Buckland, Dover, and Castledyke, Barton-on-Humber, have comparable numbers of older individuals to Lechlade, but such sites have many unphased individuals, a drawback exacerbated by the long-lived nature of these cemeteries into the Conversion Period. To avoid blurring the chronological distinctions, the datasets of the present study were restricted to phased individuals, reducing the dataset considerably.

---

43 At Castledyke, Barton-on-Humber, Humbs the social status analysis may have been affected by the long-lived nature of the cemetery (Brenan 1998).

44 Huggett's sample (1996) is largely Migration Period, but the sites at Horndean, Snell's Corner (Knocker 1957), and Winnall, Hants (Meaney and Hawkes 1970), are Conversion Period in date.
The study, primarily of juveniles and adult males, undertaken by Härke (1997b), could only point to general trends, and lacked a detailed examination of adult females, in particular of the differences between older and younger adult females. In the studies by Pader (1982) the use of multivariate analyses is over sophisticated for the poor quality and size of the datasets, and made many assumptions about the material that may not be justified (Brenan 1984-5). Huggett’s studies (1995; 1996) also suffered from small data samples. Of critical importance is also the fact that Lechlade lies within the ‘area of commonality’ of Mucking, so that cultural patterns identified in a cemetery with excellent bone evidence can be applied to a cemetery where osteological evidence is poor or missing.

A unique opportunity to examine age-related trends, that could be used to maximise age data at Mucking, was presented by the large and well-preserved osteological sample from Lechlade. With only one out of 222 individuals unaged, the dataset of aged individuals is virtually complete. This dataset rendered possible the analysis of the largest number of Migration Period Anglo-Saxon individuals of known age and sex from one cemetery, in relation to cultural variables.

---

45 Pader (1982) examined, using principal coordinates analysis, artefact types and their position on the body, body position, as well as age and sex data. She investigated Holywell Row, Suffolk (where the bone evidence predates the 1950s), together with Bergh Apton, Norfolk, where no adults could be identified. Her conclusions rested therefore upon the 19 cultural adult females from the Saxon cemetery of Droxford, Hants (Table Appendix 3/1) and the 20 from the Anglian cemetery of Westgarth Gardens, Suffolk (Table Appendix 3/2).

46 Cluster analysis (complete linkage method) was used to examine the relation of age and sex to burials grouped in terms of similar grave goods and body position. Factor analysis best demonstrated the inter-relationships between the artefact types. The data of the numbers of individuals were not given, but range from a maximum of 194 at Long Wittenham I, Oxon, 128 at Abingdon I, Oxon, 71 at Petersfinger, Wilts, 65 at Brighthampton, Oxon, 46 at Chalton Plantation, 39 at Droxford, Hants, and 33 at Collingbourne Ducis. The numbers of aged individuals will be smaller, however. The bone data predates 1950 at Hamham Hill, Wilts and Nassington, Northants.

47 Huggett (1996) studied 12 cemeteries largely from Saxon areas, but also the Anglian cemetery of Nassington, and although the effect of such locational differences were noted, the data remains poor.
Lechlade furnished almost the largest known number of Migration Period adult females (56 in number, out of an adult female total of 86), which could be compared with material of comparable date at Mucking. This equals the number of Migration Period adult females at Norton, Cleveland, where there were also 56 (Sherlock and Welch 1992). (For comparative figures in other cemeteries see Tables 3/1, 3/2, 3/3 and Appendix 3). On the other hand, there were only 29 weapon-bearing males at Lechlade. In Härke’s sample of 53 sites, greater numbers of Migration Period (some continuing into the Conversion Period) weapon-bearing males were found at Bidford-upon-Avon (32), Empingham II (34), Dover B (34), Alfriston (35), Long Wittenham I (51), Mucking II (58), Morning Thorpe (66) and Sarre (70) (Härke 1992b, Tab 6). Nevertheless, the detailed study of weapon burials by Härke (1992b) can compensate for the relatively small size of the furnished male sample compared with females at Lechlade.

The large dataset, high proportion of juveniles, and the excellent bone evidence enabling sexing of nearly all the adults to be carried out, affords a hitherto almost unparalleled opportunity to study age and gender groups within one cemetery. Lechlade provides one of the largest bone series analysed using modern techniques. Even given such an excellent dataset, however, the numbers in some of these groups are relatively small after phasing, but this division is necessary as the patterns in the two phases are different. The detailed patterns of the relationships of particular artefact types to age and sex at Lechlade as well as other cemeteries are examined in Appendix 6.

The extensive use of EXCEL, a spreadsheet program that can analyse quantitative and qualitative variables, permits the analysis of any variable in relation to any other variable or variables.
A distinction can be made between biological and chronological age, but a further one - that of structural age - must be made (Bernardi 1986), an approach that has only recently been applied to the early medieval period (Crawford 1991a, 1991b; Halsall 1995). This is the definition of age according to cultural factors, in which the continuous sequence of births are divided up into age groups each with their own particular status, rites, roles, modes of dress and burial. There is a danger of circularity in forming the age groups as these divisions are artificial, but at Lechlade the divisions into infants (0-2), younger children (2-7), older children (7-12) and adolescents (12-18) appears to be meaningful. These structural age groups are based on documentary and archaeological evidence, discussed below. In particular the types of artefacts were investigated (Table 6/7). These and other main trends in the treatment of juveniles and adults, including such factors as numbers of artefact types, body position, grave length and depth for example, are ranged in Table 6/8. The gender links of artefacts were also investigated.

---

48 A few individuals were overlapping such groups, and were always placed in the higher age group for the sake of consistency.
49 When counting numbers of artefacts, slip-knot rings, beads and keys were counted as being single items. Ferrules were counted with spears, and miscellaneous items, or artefacts in the fill were discounted. When counting artefact types, it was decided to follow Hirst’s method (1985, 96, table XIV), and not Arnold’s (1980), as used by Boyle et al (1995, 127-8) and Timby (1996, 86, 92), as this places an emphasis on function. Pendants and slip-knot rings were counted as separate types. Brooches used as a pair on the shoulders (holding a peplos) were counted as one type, even if they were different, as with a combination of button and disc brooches. Brooches in other positions (which occurred only in the case of Grave 18 probably holding a cloak in place), were counted as another type. Beads were divided between those around the neck, and those in a loop at the waist. Items in bags, such as rings, Romano-British brooches, or beads etc were not counted, as their function could not be discerned. Other functional items, such as the chisel, were counted. The latest use only of an artefact was counted, eg a finger ring was counted as a pendant if it was found to be part of a neck string. Second knives, spears and buckles were scored separately, as they may have had a different function. If the position of an artefact was not recorded, it was counted if its function seemed clear, such as a knife, key or pin, but if this was a bead or brooch, it was not counted. Items recorded in the grave fill were not counted, including all flints, pot sherds, and animal bones. The drawback of such a method is that the quality and workmanship of artefacts is not considered.
50 Note that only closely aged individuals are included. As there seemed to be no correlation of age to arm, head or leg position, or to the grave shape, these figures are not included.
Phase 1

Juveniles

An unusually large number of juveniles compared with other published Anglo-Saxon cemeteries is found at Lechlade, but given the quality of the data, this appears to be less influenced by extrinsic factors and post-depositional disturbance than other sites. The infant percentage is still low, however (Chapter 6.3).

The examination of gender visibility amongst juveniles (ie, those under 18 years) is problematic compared with adults, as it is rarely possible to sex juveniles using bone evidence. As one is reliant on type associations alone for postulating gender, such an approach can obviously be circular. Across both phases, the numbers of what appear to be 'female' juveniles (ie those who appear from the grave goods to be female), are far greater than those of ‘male’ juveniles (Table 6/8). If male and female juveniles had been buried in a balanced ratio, it appears possible that some male infants had been dressed as ‘females’, ie the gender patterning amongst juveniles differs from that of adults. Alternatively it is possible that the ratio of actual male to female juvenile burials at Lechlade was not balanced. It is necessary therefore to investigate the use of artefacts, especially gender-linked artefacts amongst juveniles.

Infants

It has been established that many infants were not buried in the cemetery or were not recovered, but there were at least 12 Phase 1 infants buried in the cemetery overall. An infant was most likely of all the age groups to be buried without any possessions.

51 Note that single beads, Romano-British coins, and bags are not counted as being gender diagnostic.
Six graves, or 50% of the graves contained grave goods (consisting primarily of beads, pendants, and bags). None had any male-linked artefacts or amulets.

Younger Children

There were 14 younger children. The increasing acquisition of artefacts, particularly beads, after the age of two to three years appears to fit the sporadic documentary evidence that suggests that individuals were regarded as developing independent personalities from this age onwards (Crawford 1991b, 238-40). In Phase 1, young children were more likely to possess a greater variety of artefact types, primarily beads and pins, than infants (Table 6/7). There was a high percentage of ‘female’ graves, a level only reached again in adulthood, and perhaps a pattern skewed by small numbers. Brooches were found in three graves: a worn and broken disc brooch in Grave 13, two penannular brooches in Grave 81/3, and a single Kentish disc brooch in Grave 17, in what appears to have been a case of ‘conspicuous excess’.

Older Children

The lower age limit of seven years for children was chosen as a structural age group because various saints’ Lives indicate that this was regarded as a threshold, when, for example, boys such as Bede were sent to monasteries (Bede, Hist Ecc, v, 24), although this example dates from the second half of the seventh century.

There were nine older children overall. In Phase 1, there may have been a decline in ‘female’ graves and the occurrence of grave goods, but the small dataset means these results may not be reliable. The incidence of graves with brooches is still small. The brooches in Grave 128 are simpler types (two penannulars), although the first definite case of a Kentish saucer brooch (here a pair) was associated with a child
in Grave 11 (Dickinson forthcoming, a; 1993). This appears to have been a high status burial, as it contained many beads; a bucket, a pin, and a Perlrandbecken, more typical of rich female graves in Kent or East Anglia.

Adolescents

The threshold of acquiring more adult responsibilities appeared to be about the age of 10-12, according to 25 law codes dating from the late sixth century to the Norman Conquest (Kuefler 1991; Crawford 1991b, 241-5). It is interesting to note that Merovingian sixth-century law, the Pactus Legis Salicae (PLS 24), states that both male and female children came of age at the age of 12 (Halsall 1995, 72), which appears to mark a time when gender specific objects began to be acquired. It should be noted, however, that caution is in order when using documentary evidence from other societies. About 11 years of age marks the onset of sexual puberty for both sexes in contemporary Western society, although there is evidence that this varies widely with diet and status and need not coincide with social puberty, that is when one is no longer considered a 'child' (Van Gennep 1960, 66). Perhaps surprisingly, there is little archaeological evidence to mark this age threshold.

Of the 21 adolescents in Phase 1, 67% were accompanied by grave goods, of which the majority were female linked, as in the previous age groups (Table 6/8).

Female adolescents consistently appear to have acquired brooches from the age of about 14 onwards. Such brooch types appear to have been Romano-British

---

52 The exception to this is the age of 15 years, referred to in King Athelstan's early tenth-century Ordinance of the Bishops and Reeves of the London District, in relation to theft. In the same ordinance, however, a thief could be put to death if he was over 12 years old (VI, 1.1, 37/12.1, in Whitelock 1979, 423, 427).

53 Puberty may have been later, judging by the data from Preindustrial Europe (Hassan 1981, 126).

54 The data from other cemeteries regarding the age of acquisition of brooches is far inferior to that at Lechlade (see Chapter 3).
or simpler and/or cheaper Anglo-Saxon ones: disc and penannular brooches (Ager forthcoming, c, g), and applied brooches (Tables 3/2, 3/3, 3/4, 3/5). Only one grave (Grave 164) contained a pair of saucer brooches with an individual aged 15-18 who may have been perceived as an adult (Table 6/9). There now appears to have been no great disparity between the range of types found with female adolescents and female adults, with, however, the notable rarity of keys, weaving tools, toilet sets, and buckles.

Males are now more visible, but less so than amongst adults. Spears were present in four cases, but were of a smaller length than those of adult males (Table 6/10). This fits a general pattern identified by Härke (1992a, 158; 1992b, Abb 38). It appears that in general about 11-12 years was the lower age limit for boys to acquire spears, usually a single spear (Härke forthcoming), which matches the archaeological evidence at Lechlade. Single spears were found in Graves 88 (aged 11-12), 196 (14-15) and 39 (16-18). Only one grave (Grave 92), contained a shield (and amongst other types two spears), but this individual may have been viewed as an 'adult', as he was aged 16-18; he also appears to have been high status, with a Gotlandkessel and bucket (Cook forthcoming; Rutter forthcoming, b), as well as one of only two coffins in the cemetery, a reed mat and a stone lining to his grave (Boyle forthcoming, j). In general, shields appear to have been adult markers (see adult males).

---

55 At the Saxon sites of Berinsfield, Oxon, where the juvenile brooches were plain (Boyle et al 1995, 96, 131), and at Watchfield, Oxon, there was a predominance of disc brooches amongst 'subadults' and young adults compared to saucer brooches amongst young or older adults (Scull 1992, 255). Differences can also be seen in Anglian sites. At Sewerby, Humbs, brooches were in iron and smaller in size than amongst the adults (Hirst 1985, 101). At Empingham II, Norton-on-Tees, Castledyke, Barton-on-Humber and Great Chesterford, the range of brooches worn by adults was far broader than those worn by juveniles, with a predominance of annular brooches amongst juveniles, despite the differing range of brooches in each cemetery. In these four cemeteries, however, the broadly defined age groups have made analysis problematic (see Chapter 3).
Juvenile trends

Amongst the juveniles in Phase, 1 certain trends are apparent. There was an increase in the frequency of supine burial, and a decrease in more unusual body positions with increasing age (Table 6/8). This matches the findings in other Migration Period cemeteries, where unusual or ‘deviant’ body positions appear to be associated with the burials of those who were not of fully fledged status, ie the young, as well as the old (see below), and perhaps the sick, disabled, and other possibly marginalised individuals without fully acknowledged status. There was also a slight tendency amongst the juveniles towards unusual orientation. There was, however, no difference in grave shape at Lechlade according to age, although juvenile graves tended to be oval in shape, as at Westgarth Gardens, Suffolk (Pader 1982, 141-3).

Infants and children were the most likely of all the age groups to be buried with adults (and sometimes adolescents), often with adult females, perhaps their mothers, but also with males. The frequency of double burials (10 in Phase 1) decreased with increasing age. It is possible, therefore, that juveniles were being buried with any recently deceased individual, and not necessarily a close relative. Nevertheless, the Graves 56/66 and 81 may have served almost as family ‘vaults’

---

56 At Saxon sites, juveniles may have been buried on their sides. At Alton, Hants (Evison 1988), juveniles in Graves 27 and 41 were semi-sitting and on the right side, while at Purwell Farm, Oxon, the adults were supine, and the sole child lay on its side (Leeds and Riley 1942). At Anglian sites, juveniles may have been more often buried crouched or flexed. At The Paddocks, Swaffham, Norfolk (Hills and Wade-Martins 1976), juveniles were crouched, whilst adults were extended. At Westgarth Gardens, Suffolk (Pader 1982, 95), there was a tendency for children to be buried in a flexed position. Juveniles were more likely to be crouched in cemeteries at East Yorkshire (Lucy 1998, 55). At Sleaford, Lincs, the usual burial position was crouched, whilst those who were not in this position were usually children (Thomas 1887). More extensive research is needed to corroborate such tentative trends.

57 The orientation of juvenile burials can often be unusual, as noted by Härke (1997b), but regional tendencies should be examined. Anomalous orientation can be seen at Anglian Great Chesterford, Essex (Evison 1994, 43) or the Saxon sites of Long Wittenham, Oxon (Meaney 1964, 54), and Alton, Hants (Evison 1988, 41) for example.

58 Infants and children may have been buried with adults who were not their mothers (or indeed fathers) for ‘company’, presumably to calm the distress of the child’s spirit, and prevent it from wandering (Duhig 1998).
In two cases (Graves 38 and 58) juvenile graves were dug on top of male adult graves, and in one case it was below an adult (Grave 80). In general, superimposed burials are the case in c 25% of Anglo-Saxon multiple burials (Wilson 1992, 71), and can sometimes have sinister implications (Hirst 1985, 40-3); however, the absence of prone burial suggests that this was not the case at Lechlade, but merely that such graves indicate a family relationship.

The (later) semantic evidence does not appear to differentiate in terms of sex or gender between *bearn* or *cild*, probably referring to those younger than 11-12 (Fell 1984, 77). Indeed in both phases, ‘males’ below the age of 11-12 are entirely invisible in terms of grave goods. The psychological bond between mothers and their offspring might have meant that some juveniles appear to be ‘female’ merely because their artefacts were possessions belonging to the mother. Indeed, the preponderance of single and worn brooches in juvenile graves (Table 6/9), such as the disc brooch in Grave 13, or the Kentish disc brooch in Grave 17, suggests that these objects were not worn by these juveniles in life. Infants may have been regarded as mere extensions of their mothers (Meaney 1981, 245). With increasing age, however, the identity of the offspring will become separate. In psychological terms, Object Relations Theory would argue that there is a transition amongst boys to developing a separate, masculine identity, necessitating the process of dis-identification from the mother, and counter-identification with the father (Greenson 1968). This process might be traced in Anglo-Saxon cemeteries by the marked change from wearing or being buried with predominantly ‘female’ artefacts, as infants and children, to the association with ‘male’ artefacts by the time of adolescence. Such an understanding would invalidate the inference that the status of women is inferior, based on the greater similarity of female adults to
juveniles than to male adults in terms of body position and artefacts at the Anglian
cemetery of Holywell Row, or more general similarities in unusual head and body
position (contra Pader 1982, 101-3, 129, 173; Härke 1997b, 133). It could just as
easily be stated that such juveniles were given preferential and ‘adult’ status
compared to other juveniles. Nevertheless, it is important to make the observation
(for which data has been unavailable previously) that the similarity in unusual body
positions is one that relates to older adult females. As it appears that the number of
artefacts may have fallen amongst such adults, this suggests a lower social standing
of both juveniles and older females. Adult males also tend to have fewer artefacts
in general, but the link to juveniles is weaker as older adult males do not seem to
be buried in unusual body positions (see below).

Perhaps surprisingly, some typical indicators of juvenile status were not
found at Lechlade. Three graves contained miniature beads, but of these only one
grave, 190, was that of a child; Graves 18 and 163 were both adult graves.
Nevertheless, as has been pointed out, the smallest spears were consistently found
with juveniles (Table 6/10). The single occurrence of a set of keys with an individual
aged below 16-18, in Grave 33/3, was in miniature form; normally these are seen as
adult markers (see below).

Only one artefact was found more often with juveniles than with adults -
the bone pin. This suggests that juvenile dress consisted of a non-peplos type of
costume (see adult females discussion), perhaps the simple tunics as at Mucking,
Essex (Edwards forthcoming, a). There was a clear correlation of smaller knife
sizes to juveniles (Härke forthcoming; Härke 1989a).

The percentage of juvenile graves with grave goods tended to rise with
increasing age. Analysis of other cemeteries confirms that this is a widespread
juvenile trait. For example, all the juveniles were buried with small, mostly amber bead strings of less than 20 beads, but the average number of beads increased with age (Clark forthcoming, h; Table 6/11).

'Male' ie weapon graves start to appear consistently from about the age of 14 onwards. Documentary evidence from various (later) saints’ Lives in particular shows that at age 14-15 male juveniles often joined warrior bands (Crawford 1991b, 223-33). In parallel, the 'females' lacked a full adult costume, ie saucer brooches, despite possessing most of the types found with adult females, until the age of about 14. The acquisition by such female juveniles of these brooches, and a peplos mode of dress may be equated with the reaching of marriageable age. This age is not recorded for Anglo-Saxon England, although evidence from Merovingian Francia suggests that in the sixth century high-status males and females may have been married from around the age of 12 when they came of age.60

'Male' graves were always less common than 'female' graves amongst juveniles, but the relative percentage rose with age. Given that juvenile gender visibility differs from that of adults, this would suggest that juveniles were buried in equal numbers of osteologically defined males and females, and the imbalance towards 'females' is illusory.

There were occasional cases of high-status juveniles, displaying 'conspicuous excess'. It has been suggested that this could reflect inheritance from pre-deceased

---

59 Härke's far wider survey has shown that full female dress appears occasionally between seven and eight, and quite regularly from 12 to 14 onwards. There is also a sudden increase in the average number of finds from 2.85 (age one to seven) to 5.36 (aged eight to 14), and 6.20 (age 15 to 20) (H Härke, pers comm). Such trends have been noticed at the Anglian sites of Westgarth Gardens, Holywell Row (Pader 1982, 97, 102, 150) and Empingham II, Leics (Timby 1996, 93) for example.

60 In Merovingian Francia, it appears that women were betrothed at about the age of 12 (PLS 67 in Halsall 1995, 72; Verdon 1990, 243).
parents (Crawford 1991b, 70). Overall, however, most juvenile graves were treated fairly uniformly, a situation that was not found in Phase 2 (see below).

Adults

The large sample of Phase 1 individuals, particularly females, has also been noted, as has the marked imbalance between adult males and females in this phase. This is highly unusual compared with other contemporary Anglo-Saxon cemeteries (Chapter 6.3). It has been argued that this imbalance may be more apparent than real, and could be due to incomplete excavation. Some, but not all non weapon-bearing adult males could be accounted for by the cremations.

Adult females (18 years or older)

It was possible at Lechlade to demonstrate for the first time that the distinguishing feature of at least some adults from juveniles appears to have been the acquisition of saucer brooches, which in general appear to have been given at about the age of 18, corroborated by examining the evidence from Berinsfield (Table 3/1) and Portway, Andover (Cook and Dacre 1985). It is plausible, but purely conjectural, that this may mark the birth of the first child, thus proving the fertility of the woman, although Dickinson (1993, 39) suggests that they could symbolise betrothal or marriage. Certain individuals acquired these brooches at a younger age than 18 years: the child in Grave 11 and the adolescent in Grave 164 (Dickinson forthcoming, a).

---

61 In the region of Merovingian Metz, for example, when of child-bearing age, a freewoman’s wergild was increased from a level equivalent to a freeman’s to three times a freeman’s, and the same as a free count’s (PLS 24.viii, 41.xvi, 54.i in Halsall 1995, 63).
Two thirds of the female adults appear to have acquired a standard 'Saxon' type of costume, namely the *peplos* costume of a pair of brooches at the shoulders, the 'richer' ones with cast saucer brooches, and the 'poorer' ones with applied, disc or small-long brooches. Headdresses and cloaks were also worn (Weightman forthcoming; Vierck 1978). This was supplemented by additional items, such as knives, bags, finger rings, keys, pins, or toilet sets. Further items may also have been personal possessions, since they were grave goods, such as weaving tools or combs. In the late sixth to early seventh century, this style of dress may have been replaced by a V-neck tunic (Avent 1975, 2; Hawkes 1973, 190) secured by a single brooch; as this was usually a Kentish jewelled disc brooch, the new style is evidenced mainly in Kent. Only one such example was found at Lechlade, in the child’s Grave 17, so it is possible that a *peplos* costume continued to be worn at this time (see Chapter 4).

We have already seen that brooches become more elaborate, and beads more numerous with increasing age (Table 6/11). As in the Metz region (Halsall 1995), it is interesting to note that the most 'richly' dressed females in Phase 1 were in their late teens or 20s, and that females in this age range were the least likely to be buried without any possessions. Young women were most likely of all the age groups to be buried supine (Table 6/8), a position ideally suited to the display of grave goods during burial (Hirst 1985, 37-8; Evison 1987, 133). Heads that appear to have been propped up, suggesting the original presence of a pillow, since decayed (Boyle forthcoming, j), are also common amongst young adult females. It should be noted that saucer brooches are worn by only roughly a third of the young adult females found at Lechlade (or half of the brooch-wearing adult females), and this appears to have indicated higher status than that of the other young brooch-wearing women (Dickinson 1993, 39). There was an average of 6.3 types in saucer-brooch graves,

257
and 5.7 in graves with other types of brooch. The graves of saucer-brooch wearing individuals were longer than the other brooch-wearing females.

Of all the young women’s graves, the most outstanding example was Grave 18, with its large number of artefacts, as well as the stone lining of the grave, which also contained the second of the two coffins in the cemetery (Boyle forthcoming, j). It is also exceptional for being one of the very few graves in the Upper Thames Valley region to contain a great square-headed brooch (Dodd 1995, 76). Such brooches may have represented ‘attempts of higher-status groups to signal descent from affiliation with particular [Scandinavian] continental elites’ (Scull 1995, 78).

The percentage of females with brooches, and the average number of types decreased with women in their 30s and 40s. This does not always match the trends at other sites (Table 6/12), particularly in Anglian as opposed to Saxon sites, but the numbers elsewhere are far smaller. Unfortunately individuals over 40 years of age may at times be underaged (Chapter 6.2). It should be noted, however, that the percentage of older females (of adult females as a whole) was only 34% in Phase 1, compared with 50% in Phase 2. The fall in average numbers of artefacts matches a general decline found in at least some parts of Merovingian Francia (Halsall 1995, 72), that may reflect a woman’s decreasing wergild past the age of menopause. The average number of beads amongst older women also declined (Table 6/11). At Lechlade, despite this trend, there are cases where beads were acquired at a later stage.

62 Only a ‘hint’ of a correlation between females aged 25-35 with greater wealth than older females was suggested at the Anglian cemetery of Barrington A, Cambridge (Malim and Hines 1998, 302), although the grouping of individuals from 12-25 appears far too crude to be useful. Again, the ‘richest’ females at West Heslerton appear to have been aged 25-35 (Lucy 1998, 41) but the sample was very small, with only 24 adult females identified osteologically.

63 There was only one individual who was identified as being aged over 50, in Grave 86.

64 Extrapolation from table 20 (Timby 1996) has indicated that a decline in the number of beads could also be identified at the Anglian sites of Empingham II, Leics, and Great Chesterford (Evision 1994) at Mill Hill, east Kent (Parfitt and Brugmann 1997), and in Orpington, west Kent (Tester 1968; 1969).
of life than the brooches, as in Grave 101 for example, where an older female acquired beads dating to the later sixth, or even early seventh century, when already in possession of her applied brooch.

At Lechlade, there does not seem to have been a decline in the wearing of brooches amongst older females, with 62% and 64% amongst young and older adult females respectively. It could be argued, however, that although there appears to be no increase in unusual orientation amongst older females, this may be misleading given the high proportions of undated unfurnished graves that are older female adults (Chapter 4). If these individuals were Phase 1 in date, then there would be a fall in the percentage of older adult females (as a percentage of all adult females) wearing brooches (from 60% to 48%). There does seem to have been a drop in the frequency of brooch graves with age at Berinsfield (Table 3/1), and at Alton, Hants (Evison 1988, 38), but this decline in the wearing of brooches is not clearly found in Anglian cemeteries, except possibly Great Chesterford (Tables 3/2, 3/3, 3/4, 3/5).

There appears to have been a decline in the frequency of paired brooches in Phase 1 graves amongst ‘older’ women, ie those over 40 (Table 6/9), from a ratio of 10:1 to 2:1. In Table 6/13, only brooches that were part of the costume and where fine ageing distinctions could be made, were analysed. This decline was not always clearly the case in other, Anglian, cemeteries (Chapter 3, Tables 3/3, 3/4, 3/5). Overall, however, more paired brooches were found with adults, but

---

65 This table does not include Graves 13, 90 and 185, where the brooches appear to have been kept in bags, or Grave 80/1 where no age could be determined from the osteological evidence.
66 This is not clearly corroborated at Anglian sites. The examination of data from Castledyke, Barton-on-Humber does show an increase in the number of single brooches worn by older females (Drinkall and Foreman 1998), but such trends are not so clear at Empingham II, Norton-on-Tees and Great Chesterford, but the numbers are far smaller. The data was extrapolated from Timby (1996), Sherlock and Welch (1992) and Evison (1994).
both paired and single brooches were found in all of the age categories, and so, in the absence of bone data, cannot be used to determine age. The loss of paired brooches, and the decline in wearing brooches at all appears to have affected saucer and non-saucer brooch individuals alike. There is no evidence that brooches were replaced at Lechlade. No ‘newer’ brooch types were combined with ‘older’ types, as opposed to occasional cases found at some other Anglo-Saxon sites.67

The analysis of wear is more problematic, as the amount of visible wear may vary, for example, according to whether gilding is present. If one assumes that the saucer brooches at least were acquired new, and kept for life, increasing amounts of wear would be expected with greater age.68 Wear was not detected on the saucer brooches, but was most often found on the disc brooches. Only one brooch buried with individuals between the ages of 6-7 and 30-35 shows signs of wear (Table 6/9).69 Fewer worn brooches, however, were found amongst the oldest adult females, but given the decline in paired brooches, and possible decrease in the wearing of any brooches at all, it is possible that worn brooches amongst the oldest females are ‘missing’. Analysis of breakages was less revealing, as nearly all the brooches showed signs of possible damage. The saucer brooches with late Roman designs were especially vulnerable to breakages of the

---

67 This has been noted at Mill Hill, Kent, for example (Parfitt and Brugmann 1997, 50). Of great surprise was the finding that, at Castledyke, Barton-on-Humber, cruciform brooches did not appear to have been acquired until about the age of 35 (Drinkall and Foreman 1998, 331), and simple annulars above the age of 45, but it should be remembered that there were very few individuals aged between 25 and 35 in the sample.

68 The wear on brooches was examined at Mill Hill, east Kent (Parfitt and Brugmann 1997, 48, table 1).

69 Not all the saucer brooches have been cleaned, so wear, if present, may not necessarily have been identified on them. It is not possible to distinguish traces of wear on the iron penannular brooches.
catchplate (Dickinson forthcoming, a) and may have been made of more brittle alloys (Dickinson 1993, 36).70

The ‘missing’ brooches of such women may have been lost, or this may reflect the handing down of ‘poorer’ varieties, to daughters from about the age of 10 to 15 years onwards. ‘Single’ brooches may even have been deliberately discarded as a mark of becoming a grandmother, or perhaps elder.71 Amongst Hindu women, or the Amish of present day Pennsylvania, marital status, whether unmarried, married or widowed, is depicted by dress (Joshi 1993; Lurie 1992, 179). The use of different colours in Victorian society to depict various stages of grieving are well known, and it is entirely possible that not only the style of dress, but other variables, such as the colour and decoration of fabrics, or the type of hairstyle were employed in the depiction of age, and other roles, such as widowhood. It is clear, however, that at Lechlade, the usual case was for paired brooches to be retained for a lifetime of use.

It was possible to demonstrate for the first time that older women were also more likely to be buried in a non-supine position, and other more unusual positions. One of the four prone burials in the cemetery was an undated older female, in Grave 15.72 The others are juveniles, either undated or belonging to Phase 2 (Appendix 15). It is interesting to note, moreover, that the only crouched

---

70 Note that corrosion means it is often difficult to tell whether pins are broken. Replaced pins and catches are found consistently throughout the age groups, and such breakages must have been a fairly common occurrence. All the applied brooches are fragmentary as they are fragile by nature.  
71 One can only speculate on the fate of such brooches, if deliberately discarded. It is possible that they were melted down, which might account for the metallurgical indications of recycling (Chapter 3).  
72 Prone burials have been viewed as a measure undertaken to punish the individual (sometimes involving live burial) or to prevent the return of ghosts (Hirst 1985, 36-7), and are found in Romano-British burials (Harman et al 1981).
burial at Lechlade (Grave 150) was a female of over 45 years.\textsuperscript{73} The individual in the unusual ‘sitting’ position in Grave 62 was also an older female.

It could also be demonstrated that older women are also found in shorter, shallower graves, a trend not analysed previously in terms of older compared to younger women (Table 6/8).\textsuperscript{74} (The relationship of grave lengths to age groups have rarely been analysed, but are investigated in Chapter 7). Again, this did not always appear to be the case in other cemeteries (Table 6/14), but, as before, the numbers concerned are far smaller than those at Lechlade. The graves of older females are also wider, but this was probably to accommodate the greater number of burial positions on the left or right side.

Adult males

It is interesting to note that the frequency of males with weapons appears to increase slightly, the average number of artefact types remains stable (Table 6/8). There are two possible explanations for this. Firstly older males may not have passed on their weapons at Lechlade, but rather accumulated them with age. Shields in general do not appear to have been inherited.\textsuperscript{75} Other weapons do seem to have been passed on. The increasing size of spearheads with age at Lechlade, a trend well attested in

\textsuperscript{73} This grave was ‘poor’, and cannot be dated, as it was also aligned in an unusual direction of E-W. Such features are often associated with crouched burials. A crouched position has been argued to indicate the presence of a native British element (Faull 1977). Various flaws in the argument for a native influence have already been pointed out, eg that few such Iron Age burials are known, extended burial predominated in the Roman period (Crawford 1997), and crouched burials continue to be found in the Christian medieval period at a time when attachment to any notions of a 'British' ethnicity must surely have died out (Cramp 1983).

\textsuperscript{74} Analysis of the data from Anglian Great Chesterford also showed shorter graves for older women (data extrapolated from Evison 1994). Older people do experience reduced stature (Trotter and Gleser 1952), but this is unlikely to have affected grave length.

\textsuperscript{75} Härke (1990) has argued that weapons appear to have belonged to the individual as shield grips were rarely altered, and repairs to weapons are found amongst older individuals, suggesting a lifetime of use. At Lechlade, during Phase 1 there was only one repair to a shield, in Grave 192, although the age of this individual could only be determined as ‘adult’.
general by Härke (1992b, Abb 38), suggests a continuous series of replacements over time, and the handing down of spears to a younger generation, again with obvious chronological implications (Chapter 4). Sometimes, a second, larger spear may have been acquired, and the first spear retained (such as in the case of Phase 2 Graves 40 and 172/1).\footnote{It is known, however, that swords were inherited, as described in Beowulf and documented in tenth-century wills, but these were very high-status items, and none have been found at Lechlade.}

Alternatively, such apparent trends might be unreliable; the number of graves available for study is small (far smaller than that of Phase 1 females). There are some indications of a concentration of weapon burials amongst young males. Although the numerical base is very small, it indicates a slight leaning of the higher status shield combinations towards young adults (Table 6/15). The most outstanding weapon burial was that of a young male in Grave 58/1, containing a Gotlandkessel. Increasing numbers of types with increasing age are in contrast to general Anglo-Saxon patterns, where a likelihood of being buried with weapons decreases with age (Härke 1995), while a similar pattern is found in the Merovingian Metz region (Halsall 1995, 162). In addition, at Lechlade, in keeping with Anglo-Saxon cemeteries generally, there is a much smaller range of types buried with males than with females, which could produce misleading results.

Of the adult males in Phase 1, 60% (or 54% of the closely aged adult males) were buried with weapons. This percentage of weapon burials is higher than the average of 47% for sampled Anglo-Saxon male adult burials of this date (Härke 1989b, 49).\footnote{This is surprising, given the excellent bone evidence at Lechlade, where it is more likely that non-weapon-bearing males would be identified than at other sites, so lowering the overall percentage of weapon-bearing male graves as a proportion of all male graves.} In general, a basic division of male graves into two weaponed and non-weaponed groups can be made (Table 6/16). It can be seen that weapon
bearing males in Phase 1 have longer graves than non-weapon bearing males. The reasons for this dichotomy could be various. Non weapon-bearing graves could be late sixth to early seventh century in date, although certain shield boss types can be dated to this period (see Chapter 4), or these graves could be of older males. However, the percentage of non weapon-bearing graves is roughly the same for younger and older males. It seems most likely that the unfurnished graves could be those of individuals who regarded themselves as sub-Romans.

**Social structure in Phase 1**

Anglo-Saxon cemeteries have often been analysed in terms of ‘status’, based on artefact type counts (C. Arnold 1980; Shephard 1979). Such analyses are now standard elements of cemetery reports, starting with Hirst (1985, 96-102). Later studies have used the program SOCISTAT, for example (Brenan 1984-5; Sherlock and Welch 1992; Boyle *et al* 1995; Brenan 1998). Such differences in artefact type counts have commonly been explained as denoting differing ‘status’. Continental studies by Christlein (1979) or Steuer (1982) for example, have interpreted graves grouped by similar artefact assemblages as reflecting rank (derived from documentary sources), or a familial hierarchy respectively.

It is clear, however, that the ranking of graves on a linear scale from rich to poor according to numbers of artefact types is premature without a study of age, as in the criticisms made by Pader (1982) or, regarding Continental material, by Samson (1987) or Halsall (1996). Often studies of age have, however, been hampered by poor datasets. For example, in the absence of good bone data, Penn (forthcoming) or Lucy (1998) have consistently isolated four main artefact type
groups. These are: Group A (weapon burials), Group B (accompanied females), Group C (gender-neutral burials) and Group D (unaccompanied burials).

Unfortunately, such studies have been hampered by the lack of good human bone data, combined with small data samples. In order to examine what such groups consist of in the light of complete skeletal evidence, the individuals at Lechlade were divided into artefact groups, ie Groups A-D, as above (Table 6/17). It is clear that each of them was mixed in terms of age. Although weapon burials consisted primarily of adult males, accompanied females were primarily adult females and the unaccompanied burials were primarily juveniles, the neutral burials (ie, non gender-diagnostic graves) are those least correlated to any age or gender.

At Lechlade, it has been possible to demonstrate clearly and in great detail within one cemetery the variety of age markers that cannot be seen in cemeteries of smaller size, or in general surveys of age trends. The most important observation in relation to Lechlade, and indeed Migration Period graves in general, is that there appear to have been very strict ‘rules’ in death at least in the treatment of each individual in terms of age, as well as gender, and status groups within these identities. Membership of each group was marked though dress. There are numerous ethnographic parallels for the use of dress to depict not only gender and ‘status’, but also age, as well as marital status (whether unmarried or widowed) and parental status. For example, not only the difference between juveniles and adults, whether adult females were married, or had had children could also be portrayed in their dress, for example amongst the Bannu of Nigeria (Michelman and Erekosima 1989). Within each Migration Period structural age/gender group at Lechlade, very
few individuals were displayed in a manner at variance to the norm, primarily either by adding to it or subtracting from it.\textsuperscript{78}

Clear artefact acquisition thresholds are in evidence at Lechlade. Spears and ‘cheaper’ forms of brooches were acquired from around 11-12 onwards, perhaps marking marriage. Shields were general adult ‘markers’ acquired at the age of 18 or older (Härke forthcoming; Dickinson forthcoming, a). At Lechlade, this pattern holds true, as seven out of the eight shields were found with adults, and the youngest individual with a shield was aged 16 to 18. Dickinson (1993) noted that the age of acquiring shields is in parallel to the acquisition of saucer brooches amongst females at Lechlade, identifiable clearly for the first time.

It is also interesting to observe that the acquisition of a \textit{peplos} costume, recognisable by brooches, amongst roughly two thirds of the female adults is mirrored in the acquisition of weapons by roughly the same percentage of adult males. Only about a third of all adult males acquired shields, and a third of adult females acquired saucer brooches, so that these must mark a position of higher status.\textsuperscript{79} The increasing rarity of the latest saucer brooches in the Upper Thames in the late sixth century has been argued by Dickinson (1993) and Hawkes (1986, 92) to be a sign of increasing social stratification by the end of the Migration Period. Before then, however, roughly half of the adult females with brooches were buried with saucer brooches, and the other half were buried with brooches that could also be worn as a juvenile, primarily the disc brooches. This distinction creates a division that displays a status differential of a very broad nature, that could be roughly equated

\textsuperscript{78} For the concepts of congruence, addition, substitution, fit through anomaly and deviance, see Pader (1982).

\textsuperscript{79} It is interesting to note that similar patterns of saucer and shield percentages, but involving smaller numbers, are found in another Upper Thames cemetery at Berinsfield, Oxon (Boyle \textit{et al} 1995).
with adult spear combination graves, as opposed to shield (and other weapon type) combinations, where the spear graves are of lower status, and can be found with juveniles. Overall (although in the absence of data as to whether such graves are adult or juvenile) spear combination graves form 44% of weapon burials, compared to shield combination graves and other ‘adult’ weapon combination graves (Härke 1992b, Tab 11). Brooches could be treated in a similar manner, by distinguishing between adults with brooch types that can be acquired as a juvenile, and appear to be low status, and those that can only be acquired in adulthood. At Lechlade, this equates to primarily disc-brooch wearing adult female and saucer-brooch wearing females respectively. This composition of brooch types clearly does not apply to other areas of commonality, apart from Saxon areas, and even within Saxon areas does not match the variety of brooch types in the Lower Thames area, especially at Mucking. Nevertheless, a distinction between ‘adult’ and ‘juvenile/adult’ brooches, reveals that ‘adult’ brooches can be seen at the Saxon cemeteries of Berinsfield or Portway, but not the Anglian cemeteries that have been analysed (Chapter 3).

Such roughly equivalent groupings between adult furnished male and female graves might imply some sort of social ‘equality’ between the sexes, in death at least. Adult males have usually been seen as being of higher status than females (Härke 1997b, 130-37), but the archaeological evidence for this is not conclusive. Dickinson (1993, 29, 39) has argued that, in general, the use of late Roman designs and Style I ornament was introduced to saucer brooches, and Style I to Kentish square-headed brooches (Leigh 1980, 116) via male belt plates. This, and the fact that female graves usually contained more artefacts than male graves (Shephard 1979; Pader 1982), has been used to suggest that kin groups were dominated by men, whose status was communicated through the ornamentation of their womenfolk, although clearly the
opposite could be argued based on the number of artefacts. There is reason to substantiate this, however, at least in the case of ‘late Roman’ designs, as these were found on ‘official’ belt plates, they are also found on equal-arm brooches, and in the case of Quoit Brooch Style, half of these artefacts are not belt sets (Appendix 16). It has also been argued that the first to die of the heads of families would receive the most lavish burial, as an expression of the status of the family, which because of the lower life expectancy of women, would result in more rich female than male burials (Jørgensen 1987). As the life expectancy of males is 34.7 years for men, and only slightly less for women at 33.1 years (Brothwell 1972, 83), even if such a practice occurred, it would have never been common. Although the correlation of the ‘wealthiest’ graves to young adult females may suggest that females acquired prestige most easily through marriage and childbearing, there is also a corresponding drop in artefacts in weapon-bearing males with middle and older age.

It has been suggested that keys indicated a role as guardian of the household valuables, whether symbolic or functional. They were probably keys to chests rather than house door-keys (Sherlock and Welch 1992, 51). The links to a householder’s role as keeper of keys to a store-room, chest or cupboard in the eleventh-century Laws of Cnut (76.1a) are discussed by Audrey Meaney (Whitelock 1979, 466; Meaney 1981, 178-81). Keys at Lechlade only occur with roughly a quarter of such individuals. This might suggest that they were found with the heads of households, as such units would have included several related nuclear families, with dependants (Härke 1997b, 140). Such individuals were not always particularly wealthy, however, and could be ‘adult’ brooch-wearing or ‘adult/juvenile’ brooch-wearing.

---

80 Hawkes’ suggestion that at Polhill, Kent keys denoted ‘housekeepers’ by their non-association with ‘jewellery’ was imaginative, but in fact keys are usually found with brooches in Migration
individuals, nor are they always associated with adult females. Surprisingly, in no cases were boxes/chests buried with the keys.

Just under 20% of adult females were apparently buried without artefacts in Phase 1 (Table 6/18). Such burials at Lechlade, and in other cemeteries, are unclustered in distribution, and there are several possible explanations for them. These graves could date from the late sixth to the early seventh century, when artefacts are notoriously scarce (Chapter 4) or even to Phase 2 (since many were ascribed to Phase 1 merely on their orientation). (Appendix 15). This cannot be proved either way, however. Alternatively, unaccompanied burials could be of older females. The percentage of younger and older adult females buried without artefacts in Phase 1 is virtually the same, so it does not appear to reflect the loss of artefacts with age. Such graves may represent differences of religious affiliation, or the fact that such individuals may have been unmarried, lacking in parental status, or embodying some other lack of status, for reasons now unknown. Unfurnished graves could contain individuals who regarded themselves as ‘sub-Romans’ (White 1988, 148-66; Härke 1992b, 227; Hamerow 1994).

Although the distribution of individual nuclear families can only be pinpointed in one case at Lechlade, the mixed distribution of individuals of differing sex, age, and whether accompanied or not, and if furnished, with differing broad sets of artefacts, suggests broadly equal, internally-differentiated descent

---

81 Perhaps surprisingly, keys were primarily found with young females in their 20s, but their occurrence ranged from an exception at 4-5 years, through two individuals in their late teens, up to 45+ in age.

82 In Phase 1, only one possible biologically linked family, consisting of the clustered Graves 78, 104, and 115 (one female, and two males), is suggested by similar non-metric traits (Boyle et al 1998, fig 3.1, square E1; Harman 1998; see also Boyle forthcoming, b).
groups, which might include several nuclear families (Jørgensen 1987; Down and Welch 1990, 109; Sherlock and Welch 1992, 102; Scull 1993).

Occasional lavish graves may have indicated important figures in a lineage/descent group, such as the woman in Grave 18. The role of social manipulation has been much discussed (Lucy 1998). It has been argued that funerals may have been ‘...events where social roles are renewed, reclassified and reinforced, and where it is possible to negotiate and even manipulate the organisation of society’ (Damm 1991, 43). Lavish burials may have been used to strengthen claims to the inheritance of possessions and position of the deceased (Samson 1987), presumably between competing candidates with claims to be head of the descent group. Another possibility may have been that the household/family/descent group, possibly the unit of social competition, might have been threatened by a death of a member (Geake 1997, 134), and so might stage a lavish funeral to promote the overall status of the family.

It is clear, however, that in Migration Period Lechlade at least, there were only very occasional anomalously high-status burials. Analysis of acquisition thresholds of artefacts at Lechlade appears to indicate that the artefacts found buried with females were acquired from adolescence and/or early adulthood and appear to have been kept, in most part, for a lifetime, acting as items of dress in life. This appears to contradict the findings of Brush (1994), who concluded that brooches had not necessarily acted as items of dress. It might be expected, therefore, that one would find less deviation from the strict ‘rules’ of gender and age in burial in terms of artefact use than in other burial variables, such as the choice of the grave location, size, or body position for example. Nevertheless, even these variables appear to have been subject to tight rules in terms of gender and
age. It has been possible to show that those with non-supine body positions will only be juveniles, and older adult females. Even those individuals whose treatment in death by those who buried the dead could perhaps be seen as a wish to mark ostracism, punishment or a fear of ghosts are restricted to these individuals. Thus in Phase 1, the crouched or prone burials were of older females.

Details of Conversion Period graves are given in Appendix 15, as they are not of relevance to Migration Period Mucking I.

Conclusions

The analysis of Lechlade has highlighted a number of features that relate to age.

Firstly, the examination of only well-preserved sites, including Lechlade, has demonstrated that the percentage of infants, juveniles and older adults is much higher than has previously been thought. The osteological evidence at Lechlade is outstanding in terms of quality and quantity, but even here there is a shortfall of infants, due to infanticide, deliberate exclusion of burial, or fear of ghosts. Nevertheless, the higher frequencies of infants here and at Berinsfield may point to a trend of more common infant burial within cemeteries in Saxon areas.

The detailed examination of cultural trends in relation to age at Lechlade, combined with information from other cemeteries, has confirmed the crucial importance of this as an aspect of social analysis in the Migration Period at least. Distinguished by gender, age groups should form the primary framework of reference when carrying out social analysis. Only after a cemetery is viewed in terms of broad identities, that correlated closely to gender and age constraints, is the examination of ‘status’ then possible.
It is clear that a large dataset of finely aged individuals is required, and this has been lacking until now. As we have seen, Lechlade has a larger number of juveniles than other cemeteries, and one of the largest datasets of Migration Period adult females, making it compare favourably with previous cemetery studies that have investigated the question of age. Some age-related patterns are subtle, and can only be isolated by analysing variables in relation to a large number of aged individuals, as with the shorter grave lengths that apply to older females in Phase 1. A large sample of finely phased individuals is also desirable. Only graves of the same phase should be compared, as burial customs change over time. It is essential that cemeteries be studied individually, and only then regionally, because age-related trends within adulthood in particular appear to vary locally, at least in the Migration Period.

Thanks to the excellent dataset at Lechlade, it was possible to identify consistent age-related trends, as well as age-diagnostic variables (i.e. reliable indicators of age in the absence of skeletal data) in the Migration Period. It is clear that age was signified through a number of features, sometimes but not always in combination. Age-related trends include the presence (at times) of poorer types of brooches, and spears from adolescence onwards. The number of types overall and of gender-diagnostic types increases with greater age. It would appear that juveniles are more likely than young adults to be buried on an unusual alignment, and/or be in an unusual body position, the details of which may vary regionally.

The presence of shields and saucer brooches indicates that the individual is aged 18 years or older. Whilst the link of shields to this age has previously been demonstrated (Härke 1992b), only at Lechlade has it been possible to identify an age threshold for the acquisition of saucer brooches, due to the excellent bone data.
Such a threshold cannot be assumed to have occurred at this age in non-Saxon areas.

Age-related trends can be seen in the marking of the differences between older and younger adult females, examined here in detail for the first time. At Lechlade at least, females acquired jewellery as items of dress, which were then kept, in most cases, for a lifetime of use. There was a decline amongst older females in the numbers of artefact types, however, including a drop in the frequency of paired brooches, and possibly of wearing brooches at all amongst older females, which may indicate the accidental loss or handing down of poorer brooches and beads, or perhaps the deliberate signification of reaching an older age threshold. Data from other Saxon cemeteries may corroborate these findings, although the datasets are small, but Anglian cemeteries display less consistent patterns; at Castledyke, Barton-on-Humber, for example, certain brooch types may only have been acquired in middle age. It was possible to demonstrate that there was a trend towards decreased length and depth of graves for older females at Lechlade. There may also be a greater frequency of unusual body positions and orientations amongst older adult females. Only the availability of larger datasets can advance research on such patterns in other cemeteries.

Broad aged-based categories, or ‘identities’ can be defined, which must form the foundation of social analysis, before focussing on questions of ‘status’, which tends to be hierarchically based. Thus, the broad ‘juvenile’ identity can be contrasted with an ‘adult’ identity. Within the ‘adult’ identity, two groups of furnished and unfurnished graves can be distinguished.

Within the furnished population, subsidiary artefact-based groups were defined. The female brooch-wearing graves were distinguished according to
whether they contained brooches that were only (or almost without exception) acquired in adulthood (the saucer brooches), or brooches that could also be worn by a juvenile (penannular, disc, or applied brooches). These were designated as ‘adult’ and ‘juvenile/adult’ identities respectively. It has also been possible to demonstrate an equivalence in the frequency of spear graves and ‘juvenile/adult’ brooch-wearing graves, where, like spears, such artefacts could accompany juveniles as well as adults. Judging by the lower numbers of types amongst the ‘juvenile/adult’ females, grave length, as well as the quality of the brooches, these graves were of lower status than the ‘adult’ brooch–wearing graves. The saucer brooch-wearing females and shield-bearing males appear to be of equivalent status.

It has been stated that there appears to have been a change in society where status was now ascribed, and not acquired, as part of a transition in England and the Continent from a fluid society based on personal qualities, to a rank-dominated society (Shephard 1979; Halsall 1995). By the seventh and eighth centuries, lavish funerals may have been used not to create, but to legitimize, a now ascribed elite (Parker Pearson 1982; Hodder 1982a). Nevertheless, while it is true that a small and ‘richer’ elite appears to have been the pattern in Conversion Period society, the identification of clear gender and age cultural constraints in Migration Period graves from the late fifth century until the late sixth century seems to leave very little room for social fluidity, at least as reflected in burial. It is argued that there also seems to have been little opportunity for the survivors of the deceased to manipulate such constraints, again because the correlation of burial treatment to gender and age is so strong.
CHAPTER 7. THE DETERMINATION OF AGE, GENDER TRENDS AND CULTURAL PATTERNS IN MUCKING I

7.1 INTRODUCTION

The very poor quality of the bone evidence in Mucking I is clear (Chapter 1.4, Chapter 6.1). The allocation of gender was carried out in Chapter 3. It was felt necessary to investigate what factors may have introduced a bias into the remaining palaeodemography at Mucking (Chapter 6.2). It was concluded that it was highly likely that infants had suffered more from extrinsic factors than adults, so their absence may be unrepresentive of the originally buried population.

As such poor osteological data hinders palaeodemographical and social analysis, the age data will be maximised using the site of Lechlade, which provided the best osteological and social comparative data (Chapter 6). As has been outlined, this can be achieved by establishing the range of body lengths for each age group using skeletal data from Lechlade. This is combined with observation of coffin and grave lengths, and the presence of age diagnostic artefact types to predict age where silhouettes were missing or incomplete.¹

Combining the data on body lengths from both cemeteries at Mucking was considered preferable to analysing the smaller dataset of Mucking I alone. The bone

¹ A similar methodology was used for the eighth- to tenth-century cemetery at Ketzendorf, Lower Saxony (Ahrens 1978b). Here body lengths (measurable only in 38% of graves, a smaller percentage than at Mucking), were allocated ages according to corresponding stature measurements. A reliable relationship of body length to coffin and grave lengths was demonstrated (coffin lengths were roughly the same as body lengths, or up to c 70cm longer, and grave cuts were 20-90cm longer). To establish the ages of missing individuals - especially juveniles, where very few silhouettes were formed - grave and coffin lengths were used to estimate age. It does, however, seem rather overprecise to allocate ages to juveniles (aged under 13) in yearly increments, based on body and grave lengths by measured increments of 5cm.
evidence from Mucking II was also very poor. While unable to provide very little comparative palaeodemographic data (Hirst and Clark forthcoming, b) it did offer a plentiful supply of body silhouettes of a similar nature to those in Mucking I. The larger dataset from Mucking II regarding coffins and grave lengths also proved helpful in corroborating trends tentatively identified in Mucking I. It thus proved possible to revise the latter’s palaeodemographic profile.

The classification of individuals into age groups is discussed above (Chapter 6.1). Thus, in order to estimate the age of more individuals than was possible from the bone evidence, the length of body stains (silhouettes) at Mucking was compared to the range of stature amongst adults, and height measurements for juveniles, at Lechlade. Lechlade provided an excellent dataset for such a purpose as it best met the criteria that were set. These criteria were the following:

The dataset should be as large as possible, and the osteological evidence should be excellent. In order to select the best osteological evidence for comparison with Mucking, it was necessary to collate the osteological data from all published (and some unpublished) Anglo-Saxon cemeteries. The site of Lechlade provides the largest dataset from one cemetery known at present, comprising 121 cases (Table 7/1).

The percentage of juveniles should be high, so that a representative range of body lengths can be found. Although stature can now be estimated for juveniles (Feldesman 1992), this has not so far been done in the case of published Anglo-Saxon cemeteries.

---

2 In Mucking II, only 42% of individuals (118/282) could be aged using the bone evidence (Table 7/9), and again very few juveniles were identifiable using the osteological evidence. This is still very poor osteologically, but a marked improvement on the situation in Mucking I.

3 In Mucking II, only 175 or 62% graves contained bone and/or teeth. (Of these 20 or 7% contained bone, 59 or 21% contained teeth, and 96 or 34% contained bone and teeth.) 261 or 93% of the graves contained soil silhouettes. (Of these, 236 consisted of head and body stains, 12 of a body stain, and 13 with a head stain.) Thus in summary 107 or 38% contained neither stains, tooth nor bone remains (Hirst and Clark forthcoming, b).

4 Although stature can now be estimated for juveniles (Feldesman 1992), this has not so far been done in the case of published Anglo-Saxon cemeteries.
of known juveniles from within one cemetery. The percentage of juveniles is one of the highest recorded amongst Anglo-Saxon cemeteries (see Chapter 6.3).

The dataset should be derived from an area that lies within an ‘area of commonality’ of Mucking. Cemeteries from the same area, or at second best, within the same latitude are the most appropriate for osteological comparison (T Molleson, pers comm). Unfortunately, there is a lack of data on stature in this area due to the common presence of soil silhouettes and/or the legacy of antiquarian excavations. The only cemeteries for which data were available for the Lower Thames area are those at Polhill, Goblin Works, Holborough and Orpington, rendering 24 females at 161.8m and 34 males at 171.7m. Lechlade lies within the Upper Thames area, and so does not fall within the Lower Thames locality (see Chapter 2), but the female average at 161.8 m and male average at 172.4m is clearly similar to the figures in the Lower Thames. In fact, there seem to be no observable regional differences in stature.

Stature should be estimated using Trotter and Gleser’s regression equation (1952; 1958; Trotter 1970). This is held to be the most accurate method, offering the most reliable guide to stature. It is based on measured limb-bone lengths of individuals whose stature was recorded during life and then correlated with cadaver-length series, using male-only American White and Negro series (Trotter and Gleser 1952), as well as Mongoloid series (Trotter and Gleser 1958).

Nevertheless, the estimation of stature is not exact, for several reasons, such as those outlined by Wells (1969, 454-6). Errors will be greater when different population groups are compared. Even within a single population, errors may arise due to the presence of two moieties from which stature can be estimated, the axial (head and trunk) length and the lower limb length, as these moieties can vary considerably. Individuals of identical stature may have different limb-bone lengths,
whilst bones of identical length may have belonged to individuals of differing stature. Once the variations caused by shrinking of the spine are taken into account, in particular amongst older individuals as a result of osteoporosis or arthritis, it can be seen that the estimation of stature is not precise (Trotter and Gleser 1952). Trotter and Gleser estimate that the limits of 95% certainty in estimation can only be ±7.0 and 8.0 cm for lower limb bones, even within the same population group. They even went so far as to state ‘the overall length of the skeletal remains in situ is preferable to stature estimated from the long bones’ (Trotter and Gleser 1952, 154).

The range of data on stature should be representative of the range from other cemeteries. In order to establish this, data on stature were gathered from all known published Anglo-Saxon cemeteries where it is clear that the Trotter and Gleser (1952) equation had been used. Data on 542 males were gathered (Table 7/1), providing a new dataset to compare with that used by Münter (1936) to estimate average male stature. Data on female stature were gathered for the first time, consisting of 477 individuals.

It can be seen that, although Lechlade has one of the broadest ranges, this is probably due to its being the most complete dataset. It therefore appears to be representative of the vast majority of sites.

There is an average difference in stature between male adults found in Romano-British and Anglo-Saxon cemeteries of 6 cm (Table 7/1). This is greater than the 3-4 cm difference identified previously (Harman et al 1981, 149), due to the new

---

5 If a second calculation is needed to assess the length of the maximal femoral length, using Steele’s method (1970), the standard deviation will be even greater.
dataset from Poundbury. It can now been shown that the difference in stature amongst females was only 2 cm.  

Nevertheless, examination of stature datasets in apparently ‘Anglo-Saxon’ cemeteries has revealed that the shortest recorded adults were nearly always shorter than the shortest adults in the largest known dataset from a sub-Roman cemetery, at Poundbury, Dorset (Molleson 1993, 168). Thus it was clear that using the figures for the shortest adults in Anglo-Saxon cemeteries as a cut-off point for categorising adults would encompass any margin of uncertainty about stature. Only one site, Great Chesterford, in Essex, appeared to be anomalous (even though the number of graves here exceeded 50, the minimum number for statistical validity). This site has also already been shown to be anomalous in its juvenile and infant percentages (see Chapter 6.3). Here, the shortest known height for males and females within an Anglo-Saxon cemetery (Table 7/1) was found, at 1.46m for females (although the average appears normal, and similarly low levels were found at Polhill, Kent, albeit in a sample of less than 50 in number) and 1.51m for males (here the average too is unexpectedly low).

It was decided not to use the stature estimates from Great Chesterford as the lowest cut-off point for adult stature, as these appeared anomalous. This represents a

---

6 Using Trotter and Gleser’s equations, a sample of 503 males from Romano-British cemeteries averaged 1.673m (Warwick 1968, 149; Harman et al 1981, 149; Molleson 1993, 168). Molleson (1993, 168) expressed doubts that Trotter and Gleser’s equation was applicable to Romano-British data, as it was drawn from ‘Anglo-Saxons’, but comparisons with other equations proved that this was not a great difficulty. These average statures can be compared to an average of 1.73m for males in Anglo-Saxon cemeteries (Denston 1956; Wells 1969, table A), based on a sample of 161 individuals using the data selected by Münter (1936). Härke (1992b, 195-200) used Münter’s dataset, with the addition of Long Wittenham, Harnham Hill, and Brighthampton (Härke 1992, source Harman). The new average of the data in Table 7/1 corroborates earlier findings. Females in Romano-British cemeteries were on average 1.603m tall, based on 540 individuals (Warwick 1968, 149; Harman et al 1981; Molleson 1993, 168). This compares to the average female stature of 1.62m for those found in Anglo-Saxon cemeteries (Table 7/1).

7 Only two exceptionally short adult males were shorter at Poundbury than any known adult females from Anglo-Saxon cemeteries.
difference of 4cm, or 1.50m instead of 1.46m, but given the margin of error in measuring body lengths, such an adjustment to the exact cut-off point for adults would not greatly influence the results.

7.2 METHODOLOGY

The use of stature/body length

The stature estimated for each individual at Lechlade was compared to that same individual’s body length as measured from the skeletal remains recorded in the grave plans. This was done for several reasons.

Firstly, it was necessary to see how closely the data on stature and body length relating to any one individual compared. Only if these proved similar could body length be used to determine age, as at Mucking stature measurements were missing.

It was found that most body length measurements were within 3-4cm of stature estimates, with a maximum discrepancy of 9cm (Table 7/2). Although imperfect, this was judged preferable to a totally subjective approach to estimating age at Mucking. Clearly once allowance for the decay of joint cartilage and superficial soft tissues is made, body length can only be a rough estimate (Brothwell 1981, 100).

Only data on body length were available for juveniles at Lechlade, as stature estimates had not been carried out. Examining the comparability of stature and body length amongst adults was necessary in order to establish the feasibility of using body length to estimate age amongst juveniles. As the relationship between body length and stature amongst adults appeared to be consistent, it could be assumed that using body lengths amongst juveniles is no more or less accurate than for adults.
The bone evidence at Mucking was considered to be primary, as it provided the most objective dataset, albeit subject to a degree of uncertainty. The bone data from both cemeteries are based on the bone report by Mays (forthcoming), although in the following analysis greater use has been made of the tooth report8 (Hirst and Clark forthcoming, a, table 25).9

The potential problems of ageing using bone evidence are discussed elsewhere (Chapter 6.3). It was decided that the other methods used to determine age, discussed below, should only take precedence over the bone evidence (if any) if the ageing given by the latter was insecure. The osteological evidence was used to determine age in seven (11%) of cases in Mucking I, and in 106 cases (38%) in Mucking II.

Having established that body length would be useful and of sufficient accuracy to generate more precise ageing groups at Mucking, a series of steps was followed. Where body length, age-diagnostic artefacts, coffin or grave lengths were used to determine age, this was indicated in Tables 7/4 and 7/5 by being highlighted. Those measurements that were incomplete, whether substantially or only slightly, are denoted by a measurement with a ‘+’ sign. The steps were not always strictly sequential, however, as sometimes it was possible to estimate body length even when it was far from complete, based on the proportions of the silhouette, and/or by using the coffin or grave lengths.

---

8 Mays used the tooth data compiled by Rosemary Powers only when there was no bone evidence extant for a particular grave. In the following discussion, it was decided to use the teeth as the primary form of data even when bone data existed (but only when no age determinations could be made by Mays, or those determinations were less precise than those offered by tooth evidence). This happens to affect the data in Mucking II, but not Mucking I as there was no overlapping bone and tooth data. There were only two cases of discrepancies between the age determinations from the bone and teeth from the same grave. In the case of Grave 333 the bone data were followed, and in the case of Grave 978 the tooth data.

9 Rosemary Powers is no longer available for comment. The teeth were also interpreted by Theya Molleson.
Measuring the range of stature per age group at Lechlade

The range of stature relating to each age group at Lechlade was established (Table 7/3). This did not produce mutually exclusive ranges for each age group, but the areas of overlap were relatively small, except between adolescents and adults, as was to be expected.

Measuring the body lengths at Mucking

Measurement of the body length for each individual at Mucking was undertaken. Although it was not strictly necessary to measure the body lengths of independently aged individuals, it was felt that this would eliminate problems of circularity at a later stage when establishing the range of body lengths pertaining to age groups at Mucking. It also highlighted any discrepancies between the bone data and body length analysis used for ageing. The measurements from the soil silhouettes at Mucking were not, however, as clear cut as those obtained from the skeletal remains at Lechlade.10

Nearly two thirds of the silhouettes appeared to be complete (Mucking I, 65%: 31 cases, Mucking II, 56%: 158 cases). In some cases a silhouette was almost complete (8 cases, or 13% of the graves in Mucking I, and 85 cases, or 30% of the graves in Mucking II), and here the body proportions of each silhouette could still be used to estimate the original body length. In Mucking I, there were no cases of individuals aged by the osteological evidence that did not match the age allocated according to the silhouette length, but in Mucking II there were 16 cases of

---

10 In estimating body length, the feet were not counted, and where this was apparent, the slumping of heads and curving or bending of the trunk or legs was taken into account.
discrepancies (Table 7/5).\textsuperscript{11} Usually in these cases individuals were identified from their osteological evidence as adults, but appeared to be juveniles from their body length. It seemed inherently less likely that an individual identified as an adult would have a body length far smaller than expected. In these cases, the osteological evidence was disregarded (these data are given in brackets).\textsuperscript{12} In Mucking II, in only one instance (Grave 849) was the bone evidence considered to be more significant than the cultural evidence, as this was the only case with evident tooth wear.\textsuperscript{13} The evidence from the body lengths was used to determine age in 32 (51\%) of cases in Mucking I, and in 142 cases (51\%) in Mucking II.

The use of coffin lengths

In Mucking I, there were 10 cases (16\%) and in Mucking II 34 cases (12\%) where the silhouettes were too incomplete for an estimate of the original body length. Moreover, in Mucking I, 14 graves (22\%) and in Mucking II 21 graves (7\%) contained no trace of a silhouette at all.

In these cases, it was decided to use coffin lengths where available to estimate the maximum length of the body, assuming that individuals would have been laid supine, with legs extended or crossed, in the coffins. (Maximum lengths are denoted by a figure in brackets in Table 7/4, 7/5). Härke (1997) has distinguished between cultural and functional data, of which the latter are not subject to human influence. Coffins fall between these two stools, in that they tend to fit the individual for whom they were made, but are still potentially subject to influences such as status (within

\textsuperscript{11} These were Graves 492, 496, 574, 578, 620, 845, 849, 886, 913, 914, 931, 962, 967, 971, 978 and 997.

\textsuperscript{12} Note that in these cases the bone evidence was re-examined by Simon Hillson, who concurred with the results reached by Simon Mays.
age and gender groups). Some graves displayed silhouettes where the legs appeared to be semi-flexed, but these are rare. On the whole, it can be demonstrated that coffin lengths are fairly predictable in relationship to known body length in Cemetery I (Fig 7/1 and 7/2). Here the difference ranges from $-0.16$ (ie, the coffin is shorter than body length) to $+0.64$m (ie, the coffin is longer), the average difference being only $0.21$m. (There is only one grave [Grave 100] where the body length is shorter than the coffin, and here the coffin appears to have collapsed inwards.) In Mucking II, the difference ranges from $-0.12$ (ie, the coffin is shorter than body length) to $+0.58$m (ie, the coffin is longer), with an average difference of $0.20$m (Fig 7/2). The reliable and fairly close relationship between body length and coffin length meant that in the absence of known body length, the coffin lengths could be used to predict age, and were preferable to using grave lengths. (Coffins appeared sometimes to be longer than the base of the grave, as the length of the top of often splaying coffins were used). In three cases (5%) in Mucking I and in 11 cases (4%) in Mucking II, age was allocated using coffin lengths.

The use of artefacts

The Lechlade research has led the author to draw certain conclusions about the correlation of certain artefact types to age, and in particular to female artefacts and their relation to younger and older adults (Appendix 6, and Chapter 3). The patterns of artefact type use at Lechlade were corroborated by trends elsewhere, suggesting that

---

13 In the case of Grave 849, three premolars and three molars showed slight, flat wear.
14 In Mucking I, three graves (5%) had silhouettes where the legs appeared to be semi-flexed (Graves 241, 244, and 247). Of the 130 coffins in Mucking II, 10 (8%) had silhouettes where the legs appeared to be semi-flexed (Graves 603, 614, 621, 629, 633, 848, 858, 859, 873 and 961A).
on a broad level, there were few regional differences in acquisition thresholds of particular types.

The analysis of the females at Lechlade also pointed to the normal acquisition of brooches at c 14 years onwards, with the acquisition of saucer brooches at c 18 years (Chapter 6.4). The latter age threshold for acquisition could only be demonstrated by this dataset. Unfortunately, this threshold could not be distinguished at Mucking, due to a combination of a general lack of saucer brooches as well as of osteological data from the Lower Thames area. A general survey of acquisition dates of saucer brooches, however, by Dickinson (1993) confirms this to be around 18 years.\(^15\)

At Mucking, there were only five saucer brooches, all in Mucking II, and comprising only 3% of the brooches found. Here applied brooches were the most common type, comprising 19% of the total, and outnumbering cast saucer brooches by 5:1. This is a different picture from the Upper Thames Valley pattern, so clearly demonstrated at Lechlade, where saucer brooches predominated, to the extent of outnumbering applied brooches by a ratio of 2:1 (Dickinson 1976, 100). This difference may also have been chronological, and not merely regional (see Chapter 2). Despite these contrasts, it can still be maintained that the presence of paired brooches in a grave is indicative of an adult or adolescent, as this trend is borne out by every cemetery for which evidence is available (Chapter 6.4). If the brooches at Mucking are divided into those that are only found elsewhere amongst adults, and those that can be found with adult or juveniles, as was undertaken at Lechlade and at other sites (Chapter 6.4), then it might appear that ‘adult’ brooches could be used to identify

---
\(^15\) She notes only three cases of juveniles with saucer brooches, one in Grave 75, Orpington (Palmer 1984, 20, fig 7) and one other in Grave 11 (old number 19) at Lechlade.
adults at Mucking. The small square-headed or button and brooches at Mucking, might, given their relatively prestigious appearance, be used to identify adults. Unfortunately, due to the far wider range of brooches at Mucking than at Lechlade (and other surveyed cemeteries), there was no corroborative evidence for these particular brooch types, and it was felt that the identification of individuals wearing these brooch types should be reliant upon other factors, such as grave length.

Shields, axes, swords, two spears and seaxes were clear adult markers (Härke 1992a, 156-7). Spears were acquired from the age of c 11-12 years, corroborating the trends identified by Härke (1992b) on the basis of a much larger sample, and so could be used as adolescent/adult markers. Arrows were also adolescent markers as they only occurred with individuals up to the age of 14 years, although bows have been found with adults (Härke 1992a, 156-7; 1992b, 186-7).

The presence of weapons and paired brooches was considered in the light of these suggestive trends. Artefact types were never used in preference to body length as a determinant of age. Nevertheless, where body length or coffin length provided no information, certain artefact types could be treated as being age diagnostic. Age-diagnostic artefacts were used to determine age in nine cases (14%) in Mucking I, and in 13 cases (4%) in Mucking II. Thus the impact of using artefacts to determine age in Mucking I was far greater than in Mucking II, as bone evidence and indicators of body length occurred less frequently in the former. In the case of shields, five out of the 10 occurrences reclassified as adult males were individuals originally identified as adolescents/adults from their body lengths, while one burial (‘Grave’ 131), previously unaged as no associated traces of an actual grave were found, and Graves 114 and
121, which were very damaged graves, were determined to be adults on this basis.\textsuperscript{16} The evidence of spears was often overridden by the presence of shields, but otherwise occurred alone in graves already determined as belonging to older children or adolescents (7-18) by the body lengths, for example Graves 128, 244 and 276. Grave 107, also unaged owing to quarrying damage, could now be recorded as an adolescent/adult. There were no seaxes in Mucking I. Examination of the brooch pairs shows that all belonged to graves already identified as those of adults or adolescents, and the single occurrence in an older child’s grave (Grave 93), appears to be the youngest instance of paired brooches in Mucking I.\textsuperscript{17}

In Mucking II, only one seax was found, and this in a burial (Grave 933) already identified as an older adult by the bone evidence, as expected. The presence of an axe in Graves 534, 583 and 976 indicated an adult. Only the latter had to be reassigned from its adolescent/adult status. Six out of the seven sword graves would otherwise have been classified as adolescent/adults on the grounds of body length. Of the 13 shields, 11 were found in graves already identified as adults from the bone evidence (and the body length in the case of Grave 863). One grave (Grave 588) identified as an adult or adolescent, however, could now be reclassified as an adult, and the unaged Graves 618 and 825B, without known body or grave lengths, could also now be counted as adults. Two graves, 777 and 978, were already identified as juveniles, confirmed by the presence of arrowheads. The presence of spears was taken to be an adolescent or adult marker. Two graves, 616 and 869, were allocated to this category by the presence of spears alone. Of the remaining 51 graves with spears, all

\textsuperscript{16} In the case of Grave 248, there was a discrepancy between the presence of a shield, and the body length which only seemed to indicate an adolescent. It was decided to remain with the adolescent identification.

\textsuperscript{17} Here the body length was a mere 1.21m, so it was decided that this should remain classified as an older child.
had already been identified as being of this age bracket, apart from one (Grave 777), identified by its body length as being an older child. This, at age 7-12, was thus the youngest individual, accompanied by a spear, in Mucking II. The sole grave with two spears was already identified by the bone evidence as an adult. The paired brooches were also very largely found with adults or adolescents, as expected. Nine graves with brooches had already been identified from their body lengths, and one from the bone evidence as juveniles, confirming the age determination.\(^8\)

**The use of grave lengths**

Where coffins were not found, or the remains were incomplete, grave lengths were used as a guide to age grouping. Grave length data are problematic, however, as there are many variables that are not related simply to the broad age groups outlined above. The reasons for this are several.

Sometimes the grave cut used bore little relation to the body length of the occupant, as it may have been dug before the death of the individual interred in it. There may, for example, have been an intention to avoid digging frozen ground during winter (Welch 1992, 56), or else graves may have been reused, as suggested by graves which appear to be too long, too short, or to have been recut (Down and Welch 1990, 19, 25).

In a survey of sites in the Anglian area (Penn forthcoming) it was concluded that differences in grave lengths between cemeteries do not appear to correlate to any particular type of subsoil, and may be one of the expressions of the individuality of each cemetery. Thus, for example, within the Anglian area, the maximum lengths of

---

\(^8\) Gravest 341, 540, 548, 610, 649, 650, 874, 936 and 985.
weapon graves at Bergh Apton, Norfolk (Green and Rogerson 1978), West Heslerton, North Yorks (Powlesland forthcoming), and Westgarth Gardens, Suffolk (West 1988) measured c 2m, compared to Morning Thorpe, Norfolk (Green et al 1987) where they were c 2.5m long. Surprisingly, although all of these are gravel, or sandy sites, these are only short and medium lengths compared with the longest graves dug into chalk at Dover, Buckland in the eastern Kentish area, with a maximum length of c 3m (K Penn, pers comm). It could be added that in west Kent (part of the area of commonality that includes Mucking) the longest graves at Riseley, Horton Kirby II also dug into chalk, were often barely long enough to contain the individual (Meaney 1964, 133).

Despite these variations, grave lengths clearly reflect gross age, as well as gender categories. The relationship between grave length and age groups has rarely been examined, except for a few recent studies, eg Berinsfield, Oxon (Boyle et al 1995, 120) and Castledyke, Barton-on-Humber, Humbs (Drinkall and Foreman 1998, 212), but only gross juvenile/adult male/adult female differences were noted. In the latter case, there was no differentiation made between phases, although as we have seen in Chapter 6.4, this makes a great difference in grave lengths, at least amongst older adult females. In the absence of good bone data, other studies, such as that of the cemeteries of the Merovingian Metz region (Halsall 1995, 148, 157) showed some correlation of grave length to gender groups (with discrepancies).

Due to the excellent bone evidence and large sample at Lechlade, lacking for most cemeteries, it was possible to find more subtle age-related trends. Age, gender and/or social standing were sometimes also reflected in body position, which will

---

19 This research was carried out by Kenneth Penn (forthcoming) additionally using, for example the cemeteries of Swaffham, and Spong Hill (Norfolk), Barrington, and Little Wilbraham
affect grave length. There is a correlation of grave length to young and older Phase 1 adult females (Chapter 6.4). In order to compare the trends at Lechlade to other cemeteries, data had been gathered to cover different geographical areas and broad timescales. Unlike Penn’s work (forthcoming), this survey now included data from Migration Period Saxon areas (Table 7/6), and included sites with good osteological data, that could now be related to aged individuals. The analysis by Penn related grave lengths merely to Groups A-E, groups undistinguished in terms of ageing (Chapter 6.4). Penn (forthcoming) had noted unusually long graves in east Kent, but it can now be stated that the grave lengths of other cemeteries appear to be largely similar, and that the grave lengths at Lechlade are largely representative of sites outside east Kent.

It was clear that it is only the relative relationship between body length or stature and grave lengths that can be used to predict age. There seemed to be a relative relationship between body length and grave length at Mucking. There is a fairly consistent relationship between these variables in both cemeteries at Mucking. Whether fluctuations were due to the differences in upper grave lengths between older and younger individuals, as at Lechlade, was also investigated. A similar trend was found in Mucking II (with a fall from an average of 1.99m amongst seven younger female adults, to 1.87m, amongst 12 older adults).21

In both cemeteries the grave lengths at the base were compared to body lengths (Fig 7/3). In Mucking I, the correlation ranged from -0.39 (ie, a shorter grave length) to +1.15 (a longer grave length), with an average difference of +0.24m. In Mucking

---

20 Note that the grave length in any double grave was only counted in the case of the oldest individual in that grave. Damaged graves were disregarded.
II, the correlation ranged from -0.28 to +0.77m, with an average difference of +0.27m (Fig 7/4). Unsurprisingly, these base grave measurements were closer to body lengths than the upper grave cut measurements. In Mucking I, the upper grave lengths consist of -0.18 to +0.76m, with an average of +0.41m (Fig 7/5), and in Mucking II, from -0.40m to +1.13m, with an average of +0.44m (Fig 7/6).

There are various reasons why the base measurement of a grave was more similar to the body length of the occupant than the upper measurement. By its nature, the upper measurement must always be the same as or greater than the base length. In addition, the upper measurement may more usually be subject to distorting factors than the base measurement, such as post-depositional disturbance, including ploughing. Such damage will be the more significant in a shallower grave, but only in an unmeasurable way. The upper edge of graves tend to collapse in lighter soils, such as those at Lechlade and Mucking.22 The presence of hard pan at Mucking also led to recutting of graves to a smaller shape in certain circumstances.23

The base measurements of a grave cut were therefore accorded priority, as these were more likely to be closer to the body length than the upper grave measurements. Normally the base measurements can be taken to indicate the maximum length of the body, but where the body was not supine this would not necessarily be the case.

It should be remembered that most graves within any age group will actually be confined to a narrower range than the overall variation represented. As, broadly speaking, increasing dimensions were found with increasingly older age groups, it was

---

21 Such ageing within the adult category was reliant on bone diagnosis, and could not be added to by the other methods used here. Osteological data on this aspect was largely missing in Mucking I.
22 This happened in the case of Grave 924 in Mucking II, for example.
decided to ascribe the age group which seemed, on subjective grounds, to be most appropriate, in the knowledge that this may, at times, be inaccurate.

Unfortunately, there were very few base grave lengths recorded in Mucking I, and in Mucking II, these were more rarely recorded than the upper grave lengths. In Mucking I, base grave length was used to determine age in only one case (Grave 125). In Mucking II, age was allocated using the base grave length in nine (3%) of cases. Where double graves (with one cut) were found, the data were used only for the oldest individual. It should be noted that very rarely are base lengths published in general, so comparative figures from other cemeteries are not available.

Upper grave measurements were used to allocate age in the case of 11 graves (17%) in Mucking I, and in 12 cases (4%) in Mucking II, but only after base grave measurements had been used. Nevertheless, although upper grave measurements were less reliable, it has been noted that grave base measurements were often the same as the upper grave measurements. There was one instance of a discrepancy between the age derived from upper grave length and the osteological information (Grave 589). This grave was only 1.3m long, yet the occupant had been identified as an ?adult. Bearing in mind that many individuals had been identified as adults from the bone evidence with improbably short body lengths (see above), this grave was determined to be an older child or adolescent.

The use of regional frequencies of brooch- and weapon-bearing graves

The number of individuals who possessed gender-specific artefacts can now be examined in the light of the age evidence so far. It has been argued (Chapters 3, 4, 5, 23 Note that the presence of ‘hard pan’ unknown to Barker et al (1975, 496) led to an overestimate of the grave length of Grave 123B, and therefore they assessed this individual to be an adult. The correct grave length, however, suggests a juvenile.
Appendix 6) that cultural evidence should take precedence over the osteological sexing.

*Mucking I*

What do the expected frequencies of weapon and brooch graves amongst adults suggest about the population in Mucking I as reconstructed from the analysis so far? It was hoped that this answer would be able to throw light on the 43% of the burials that are still not aged closely.

In Mucking I, it had not been possible to sex any graves using the bone evidence, thus the attribution of gender is wholly based upon artefactual evidence. The gender correlations of various artefact types are examined in Chapter 6.4 and Appendix 6. Just under half (31) of the graves contained gender-diagnostic artefacts (Table 7/7). There is a preponderance of adult males compared to adult females, probably because shields can be used to indicate adults, whereas an equivalent adult marker was not available for females (as brooches merely indicate adults or adolescents). Thus, of the adults, ten were identified as males, and four as females, by the presence of weapons and brooches respectively.

From the regional survey of Anglo-Saxon cemeteries undertaken in Chapter 2, it is possible to examine regional trends of weapon as well as gather data on the frequencies of brooch-bearing burials, that were approached in a similar manner to the analysis of weapon burials undertaken by Härke (1992b). Thus the frequency of weapons and their female equivalent, brooches, were compiled for the cemetery overall and for adults in particular. It was decided to use brooch burials and not ‘female’ graves overall, including beads for example, as this would include many
juveniles, whereas brooches are comparable in usage by age groups to weapons. The data on weapon burials is updated by the inclusion of cemeteries published since 1983, the cut-off point used by Härke (1992b, 64), eg Alton, Hants, Broughton Lodge, Notts, Morning Thorpe, Norfolk and Lechlade. The results of this regional survey, encompassing over 4000 individuals, are presented in Table 7/8.

Data collected from Migration Period cemeteries indicate that the occurrence of brooches (as a percentage of all burials) is subject to regional variation (Table 7/8), a pattern not hitherto recognised. It would seem that these regional variations are not due to variations in the percentage of older adult females or males within each cemetery, nor to the size of the juvenile population.

The regional frequencies of weapon burials are examined first. On the whole, the present study has a higher overall frequency of adult males with weapons at 50%, compared to an earlier 47% (Härke 1992b, 150), and an average of 20% amongst a cemetery overall compared to an earlier 18%. (Possible reasons for the lack of regional variation amongst weapon burials in this study are discussed below).

In Mucking I weapon burials comprise 24% of the extant total, or 15 graves. The comparatively small size of Mucking I may be a factor in producing a possibly misleadingly high percentage of weapon burials. It is clear, however, that the number of identified non weapon-bearing adult males is too low. The percentage of identified adults with diagnostically male grave goods (consisting of 10 graves) in Mucking I is a massive 90%; Grave 117 was an adult identified as a male by the broad Quoit Brooch Style belt set, which was thought unlikely to have been worn by a female (Chapter 3). This contrasts with the much lower average percentage (50-51%) of

---

24 In a further 10 cases, artefacts were not gender diagnostic, so gender could not be allocated.
adult males with weapons in other cemeteries, where, on the whole, the bone evidence is better (Table 7/8), indicating that too few adult non weapon-bearing males have been identified. In Mucking I, one might thus expect c 50% of adult males to be weapon bearing. There would then be roughly 20 adult males overall instead of 10.

The estimation of the number of adult female graves can be approached in a similar manner. Firstly, in Anglo-Saxon cemeteries one would expect a balance in the numbers of adult males and females. The assembled data on the palaeodemographic structure of early Anglo-Saxon cemeteries (Table 6/1) demonstrates that there is no consistent under-representation of adult females in general, unlike the situation in the Merovingian region of Metz (Halsall 1995, 83, 141), for example.

Unlike the weapon burials, the highest percentages of brooch burials seem to occur in the Anglian areas, and the lowest in Kent. In Mucking I, only four adult females could be recognised from the bone evidence and body length (Table 7/7 and 7/10). As has already been pointed out, the number of identified adult females is lower than for adult males, owing to the lack of specific female adult markers. Nevertheless, the percentage of brooch graves within the cemetery overall, at 19%, is similar to the Saxon average of 22%.

It was only possible to calculate the more sensitive percentage of adult females with brooches in a few cases (Table 7/8). These include, for example, the Anglian sites of Norton, Cleveland (57%), Great Chesterford, Essex (65-70%), and Empingham II, Leics (76-88%). The Saxon sites seem to have had lower frequencies, with Berinsfield, Oxon at 43-57%, and Lechlade where 61-62% of adult

---

25 Note that the frequency of weapons and brooches overall at Lechlade was not used as here, unlike the other selected cemeteries, there was a great imbalance in the sex ratio.
26 The lower figures of the ‘floating’ percentages indicate when unsexed adults are taken into account. Note that the percentage of weapon burials amongst adults take unsexed adults into account (Härke 1992b).
females in Phase 1 were buried with brooches (Table 7/8). In Mucking I, one would expect there to have been 20 adult females (an additional 16), if the number of female adults was the same for the male adults. This would be a maximum figure, however, as the number of weapon-bearing adults may be a little high. Such potential adult females are perhaps to be found amongst those individuals who could not be closely aged. As seven of those who could only be identified as adolescents/adults possessed brooches, the revised number of female adults would include 11 with brooches, giving a maximum percentage of 55% adult females with brooches (11/20). This percentage would be a little higher if the overall number of adult females was lower. The percentage of adult brooch-wearing female graves is similar to the Saxon average of 46% (Table 7/8). A consequence of such calculations is that nearly all the female adolescents/adults could now probably be counted as adults.

Thus, if there was a total of 40 adults, it would render a minimum juvenile percentage of 37%, adjusted from the earlier figure of 44%.

**Mucking II**

Can the expected frequency of weapon and brooch graves amongst adults indicate what age group the unaged individuals in Mucking II might originally have belonged to? It is clear that 23% of the cemetery is still not aged closely.

The number of sexed adults has risen from five females and 20 males, to 37 females and 55 males (Table 7/9 and 7/10). Grave goods that are gender diagnostic provided the most important data for palaeodemographic reconstruction of the cemetery. Occasionally the osteological sexing of some individuals was contradicted by the artefactual evidence (Chapter 3). It has already been argued that the artefactual evidence is superior to the osteological evidence in such cases (see Appendix 6).
Despite these occasional discrepancies, consideration of the artefacts has corrected the previous ratio of males to females of 5:1, to produce a more even balance (Table 7/10). The preponderance of adult males over females, as in Mucking I, is explicable once again by the adult status conferred by shields, a form of specific marker that was not available for females (who could merely be classified as adolescent/adults), apart from the three graves with saucer brooches.

The percentage of weapon graves overall is 21%, almost identical to the Saxon average of 20%. There has clearly been an underestimation of non weapon-bearing adult males, however, as the percentage of weapon graves amongst the adult males is a massive 84% (46/55). One would expect a regional Saxon frequency amongst the adult males of 50% (Table 7/8), which would yield a total of about 92 adult males. From these figures it would seem that the number of still unrecognised (non weapon-bearing) adult males could be estimated to be around 37.

It was possible, combining the artefactual and bone evidence to recognise 37 adult females, of whom 26 (70%) possessed brooches. This is a vast increase on the five adult females recognised from the bone evidence alone. Nevertheless, to correspond to the extrapolated number of adult males there would be an expected 92 adult females, that is a further 55 individuals. The number of adult females could, however, have been lower than that of adult males, as the percentage of weapon graves in Mucking II is high. A maximum of 49 unaged individuals ('ungendered' or 'female') were now available, of whom 18 possessed brooches, so the numbers of possible adult female graves with brooches was an estimated maximum of 44/86, ie 51%, which is near the average of 46% for Saxon areas (Table 7/8). As in Mucking I, the consequence of such calculations is that nearly all the female adolescent/adults could now probably be counted as adults.
If adult males and females each numbered about 92, the number of adults overall would reach 184 instead of 110, leaving a minimum percentage of juveniles of 35% (98/282). This is fairly high compared to other Anglo-Saxon cemeteries (Chapter 6.3). The infant percentage is also high, at 8%, as in Mucking I. This is similar to the situation at Lechlade, where it was concluded that the levels were relatively high compared to other Anglo-Saxon cemeteries, but still too low when set against the expected number of births.

7.3 RESULTS

The revised palaeodemographic profile

*Mucking I*

Only seven individuals (11%) could be aged using the bone evidence. The forms of analysis described above have greatly increased the total percentage of aged individuals to 95%, with 57% aged closely. There were 23 (36%) individuals who could only be classified as adults or adolescents. In the case of one individual, it was only possible to determine its age as ranging from an older child to an adult. This was because the overlap of the body lengths between adults and adolescents is so great that the age of individuals between the heights of 1.50 and 1.70m cannot be distinguished. Although the presence of shields has been used to denote an adult status, spears or paired brooches cannot similarly be used to distinguish between these age categories. Three individuals (5%) could not be aged, and were counted with the
adolescents/adults (Table 7/7 and Table 7/10). No more adults than before could be closely aged; such fine ageing relies on bone evidence alone. No juveniles had been identified from the bone evidence, but the juvenile population has now reached a figure of 44%. In the light of the regional frequencies of brooch and weapon-bearing burials, it was possible to allocate a probable age determination to all the individuals, and it could be estimated that c. 37% (23 individuals) at least of the population was juvenile. Most individuals classified as adolescent/adults were probably adults. The close ageing of juvenile individuals was not possible, so various ratios of age groups could not be examined, as was undertaken in Chapter 6.3.

It was possible to examine one ratio, however, that of the ratio of infants to older juveniles. This was still very low (at 1:7), and thus was not roughly in proportion as expected from known Preindustrial populations. The infant population has increased, upon reanalysis, from zero to three individuals, or 8%. This is now high compared to other Anglo-Saxon cemeteries, and matches the level at Lechlade, of 9%, and suggests that normally infants were not buried in the cemetery, which may in turn suggest that infanticide was carried out by the Mucking I population, or else denial of burial within the cemetery, or instead that there was a fear of ghosts, with again burial of infants outside the cemetery. It could be argued, however, that when the percentages of juvenile graves shared with adults, and the depth of graves (Table 7/20) are compared to other cemeteries (Table 6/4), there are very few shared graves, and an absence of shallow graves. This points to a destruction of the evidence of infants that cannot be rectified by the present analysis. The numbers of infants that appear to have been lost to post-depositional destruction cannot be known, but it is

---

27 Note that the percentages from this analysis are given as part of the total number of individuals, and not as part of the skeletal total.
unlikely that any such destruction was so great that otherwise a ‘normal’ proportion of infants would have been found. It is interesting to note that the highest infant percentages are at Lechlade and Mucking, but also at Berinsfield and Apple Down, all Saxon sites, although the Anglian cemetery of Barrington also has a high percentage (Table 6/1).

It should also be observed that whilst the juvenile percentage in Mucking I might seem fairly high, it is very similar to the average for well-preserved sites (Table 6/1). This suggests that the figure is accurate.

The ratio of male to female graves is fairly equal, and so matches the situation in other Anglo-Saxon cemeteries.

The number of burials at Mucking were central to Hamerow’s (1993a, 90-1) analysis of population size at any one time. The central point which emerged from her comparison of the settlement with the cemetery is that she saw no imbalance between the number of graves and the number of buildings. The population of Mucking I could be estimated to have consisted on average of c 30± 10% individuals at any one time, calculated as representing the active population (Donat and Ullrich 1971).

There are, however, some difficulties in using this formula (the number of burials x life expectancy for an adult, divided by duration of use of the Mucking I). Firstly, the problems of estimating the original number of graves have been discussed in Chapter 1.1, where the figure of 180 graves was reached. It is also clear that a number of infant burials have been lost. Secondly, the average life expectancy may have been set too low at 30-35 years, as there seems to have been a general underestimation of numbers of older adults in Anglo-Saxon cemeteries, which may in turn lead to underestimation of the overall population represented by a living cemetery (Chapter 6.3). The numbers are too small to estimate the population by phase.
Mucking II

Examination of the body and grave lengths also radically altered the palaeodemographic profile of Mucking II. A total of 65 individuals (all categorised as adolescents/ adults, and representing 23% of the total) could not be closely aged. Nevertheless, the number of closely aged individuals has risen from 118 (42%) to 217 individuals (77%) after analysis. The proportion of closely aged individuals is thus higher than in Mucking I, where it is just over half. Of course, the number of closely aged adults is the same as before the analysis, since this relies on bone evidence alone. The frequency of those aged 35+ (at 50%) and 45+ (at 11%) resembles the percentages in well-preserved cemeteries. It was concluded in Chapter 6.3 that the age of many individuals must have been underestimated. It should be noted that this includes the individual in Grave 554 counted as AD1/2 (ie, 18-35/35-50 years). The ageing methods used by Mays (forthcoming) examined the degree of dental wear and cranial suture closure, and there is good reason to believe that this would have led to an age underestimation of older individuals (see Chapter 6.3). There was an equal proportion of adult males to females.

The percentage of juveniles has risen from only 7% to 44%, while that of infants has increased from none to 8%. Both percentages are comparative to well-preserved cemeteries.

In the light of the regional frequencies of brooch and weapon-bearing burials, it was possible to allocate a probable age determination to all the individuals, and it could be estimated that c 35% at least of the population was juvenile. As in Mucking I, most individuals classified as adolescent /adults were probably adults. The ratio of

---

28 The number of adults has decreased due to discrepancies between the bone evidence and body length, where it was decided that body length indicated a juvenile or adolescent/adult.
infants to older juveniles is still, however, very low (at 1:6), and again possibly suggests the practice of infanticide, or the fear of ghosts.

The body lengths in Mucking II (but not in Mucking I) show a wider range than the range of heights found at Lechlade or other Anglo-Saxon cemeteries (Table 7/1 and Table 7/3).

There were a small number of males who were taller than any adult males recorded at Lechlade or elsewhere (Table 7/3). The tallest recorded male was one measuring 1.90m at Margate, Kent (Table 7/1), yet even this was exceeded in Mucking II by the individuals in Graves 572, 665 and 993, measuring up to 1.99m. It might be considered reasonable therefore to count all unsexed individuals over 1.80m in body length as males (Graves 950, 958, 959A, 959B, 963 and 977), since the tallest confirmed female at Mucking was estimated as 1.77m in height. Given the margin of error in this method of estimating height, however, these individuals have been left as being of indeterminate sex.

At Mucking, a small number of individuals identified from the bone evidence as male and female adults were shorter than the shortest adults at Lechlade or any other Anglo-Saxon site, with the exception of an elderly female estimated to be only 1.37m tall, in Grave 43 at Orpington, west Kent (Tester 1969). The body length of the shortest adult (female) in Mucking II was 1.44m.

The presence of both unusually tall and short individuals at Mucking is surprising. They are randomly juxtaposed, which excludes a family explanation (see below). Unfortunately, the body length data from Mucking are of insufficient quality to pursue this question.
7.4 CULTURAL PATTERNS IN RELATION TO ASPECTS OF AGE AND GENDER

The dataset from Mucking I was not sufficiently large to analyse cultural patterns in relation to age and gender for each phase. It should be noted however, that the patterns found at Lechlade are not applicable necessarily to graves of the earliest phase (Iai/aii). For the purposes of the following discussion adolescent/adults were counted as adults. The linking of artefact types to adults or juveniles is determined by the overall proportion of juveniles compared to adults (with the latter including adolescent/adults counted as adults) within the aged population, which for juveniles is 32% and for adults 68% in both cemeteries. It was decided that if over 50% of a type was found with juveniles, that it would be regarded as ‘juvenile linked’.

The painstaking maximisation of the age data from Mucking has clearly paid dividends by producing a far more complete palaeodemographic profile than would otherwise have been possible. The question remains, however, whether the information on age is superior for the purposes of social analysis to the method using grave Groups A-D, ie weapon-bearing males, accompanied females, neutral and unaccompanied grave groups (Chapter 6.4). To answer this question, each group at Mucking was broken down into numbers and percentages of individuals of known age (Table 7/11). The demographic profile of each group was then compared to those at Lechlade, where the excellent bone data demonstrated the relative crudeness of such groups with their mixing of individuals of different ages. There were fewer adults in the accompanied female and weapon-bearing graves than at Lechlade, but when these numbers were adjusted in accordance with the regional statistics for weapon-bearing and brooch graves, the proportions of aged individuals in the Mucking cemeteries appeared to be similar to those at Lechlade. It should be noted here that Group E
graves - individuals accompanied by pots - were not correlated to age in Mucking II, in contrast to normal trends (Evison 1987, 94; Crawford 1991b).29

On the basis of the maximisation of age data at Mucking, it was possible to analyse the social structure in Mucking I in terms of age, followed by gender, then status, as the primary structuring factors. Trends within the age groups regarding numbers and types of artefacts could then be considered in terms of status as discussed in Chapter 6.4. Certain cultural variables cut across the age (and gender) categories, and they could not be explained by status. The probable reasons for the occurrence of such variables are discussed in Chapter 8.1. It should be noted that there was no correlation of the position of artefacts to age, gender or status, for example, in respect of buckles (Edwards forthcoming, c), knives (Edwards forthcoming, d), wooden vessels, spears or shields.

**Location of the individual graves**

What were the factors in the choice of grave location within the cemeteries at Mucking? There is little evidence of clustering of selected types of artefacts or of particular treatment in death that might suggest the presence of family groups. The osteological data is insufficient for a biological identification of members of the same family through epigenetic linking traits, as has been possible in other cemeteries, such as Lechlade (Chapter 6.4). Even on a cruder level, there were no groupings of exceptionally short or tall adults to suggest membership of the same family.

---

29 In Mucking II, six pots were found with adults, 11 with adolescent/adults and five with juveniles, making this an adult linked type. Only one pot was found in Mucking I, and very few were found at Lechlade, so that a comparable analysis was not possible for these cemeteries.
Nevertheless, it is possible that the use of crossed feet indicates such a group. In six cases of mixed age and sex, the feet were crossed,\(^\text{30}\) and the clustering of these graves (with the exception of Grave 250) suggests that they may represent some sort of kinship link. The siting next to each other of Graves 92 and 93, both with Anglian material, may be taken as supporting, though hardly conclusive, evidence for this. It can also be seen that the spatial distribution of individuals of differing age and gender is mixed (Fig 7/7, Fig 7/8). These observations, together with the random distribution of the range of status differentials, point to the conclusion that Mucking I consisted of broadly equal, internally-differentiated descent groups (Jørgensen 1987).

**Juveniles**

The number of types (Table 7/12) and the overall number of artefacts (Table 7/13) in the graves in Mucking I increased with the age of the individuals with whom they were buried. The trends appear to conform to the patterns of acquisition outlined in Chapter 6.4. Amongst juveniles there were on average 2.2 types per grave compared to the 2.3 at Lechlade. The average number of types amongst adult males and females was also comparable to the number of types amongst Phase 1 adults at Lechlade, which suggests that the number of only broadly aged individuals had not distorted such patterns unduly.

As anticipated, identity became more visible with increasing age in Mucking I, although without the expected preponderance of ‘females’ amongst the juveniles (Table 7/9). (This was not the case in Mucking II, however.) No artefact type was exclusively or even predominantly found with juveniles (unlike at Lechlade, where

---

\(^{30}\) These include the adult female Grave 99, the adult or adolescent female Graves 90 and 102, the adult
bone pins were nearly always found with juveniles), but some objects were found more often with juveniles than would have been expected (see above).

Overall numbers of artefacts were lower at Mucking than at Lechlade, but a similar correspondence with age patterns of acquisition appears (Appendix 6). Bags were found almost exclusively in adult or probably adult graves, usually at the hips. It is interesting to note that the only bag in a juvenile grave in Mucking I (Grave 244) was treated in a different manner from those of the older individuals, being placed above the left shoulder.

It was observed that juveniles and adult females were found primarily with small knives, and adult males with medium-sized knives, following the trends identified by Härke (1989a), although there was an absence of large knives which are usually associated with adult males in other cemeteries. Knife types did not appear to be linked to any age group.

The age of acquisition of brooches in Mucking I appears to have been primarily at adolescence or adulthood, although, as brooches were used as age-diagnostic artefacts, this observation tends to be circular (Table 7/14). Thus only one individual with brooches, the older child in Grave 93, fell below this age threshold. The analysis of selected cemeteries (Chapter 3) and of Lechlade (Chapter 6.4) has indicated that annular, penannular, disc and small-long brooches are found in juvenile as well as adult graves, in contrast to other brooch types which tend to occur in adult graves only. A similar pattern was observed in Mucking II, with a rather more frequent occurrence of applied brooches (a type particularly common in the Mucking cemeteries), cruciform, small-long brooches without lappets, and quoit brooches male in Grave 272, the older child in Grave 91 and an infant or younger child in Grave 250.
Nevertheless, although there is a slightly higher frequency of juveniles than one would expect, all these brooch types remain adult associated. When examples from both cemeteries are counted, only the quoit brooches were juvenile linked (with four out of six examples found with juveniles). It should also be noted that disc brooches appear to have been worn more commonly by older females.

It is clear at Mucking that the bead strings are related to age, and possibly to status. There is a strong link between juveniles and blue glass monochrome bead strings. This appears to explain the association at the Anglian cemetery of Sewerby and elsewhere of blue bead strings with ‘poorer’ individuals (Sherlock 1977, 8; Hirst 1985, 75). This was not the case at Lechlade (Clark forthcoming, h), but perhaps the overall rarity of glass beads there gave them a higher status. Predominantly blue bead strings were found in Mucking I in Grave 93, with mixed colour strings in Graves 90 and 99.

Again, in Mucking I, the acquisition of weapons particularly during adolescence was observed. Spears were used as markers of adolescent or adult status. Indeed a single spear was the artefact type most commonly found with male juveniles, as it was at Lechlade, but data on body and coffin lengths were also considered, and could override the spear ‘combination’, in order to reduce the number of circular deductions. The youngest individuals with spears were the older children or adolescents in Graves 128 and 244. The length of spearheads generally increased with

---

31 The maximum lengths for juveniles still stand (Härke 1989a, 146). It was not possible to say whether knives were found more commonly with female or male juveniles, as the numbers were too small.

32 It was possible for example, to establish a clear correlation of increasing numbers of beads to greater age at Lechlade (Clark forthcoming, h), and the presence of non-amber beads. Taking both cemeteries at Mucking, there is indeed a slightly higher average of 40 beads per adult (and adolescent/adult) compared to 31 amongst juveniles.

33 Of the blue bead strings, of which there are ten examples, seven were worn by juveniles. The mixed colour monochromes at Mucking (of which there were nine examples, including one each of primarily purple and dark green/black beadstrings), four were worn by juveniles. Two or the four miniature bead strings were worn by juveniles.
age (Härke 1992b, Abb 38), as evidence from Mucking II suggests (Table 7/17), but this pattern is not clear in Mucking I. There were too few measurable spear shafts for them to be used as indicators of age. Shields are judged as an adult marker, so all the examples in Mucking I were interpreted accordingly, apart from the case of Grave 248, where the individual was classified as an adolescent on the grounds of short body length. It is not surprising, therefore, that the average number of weapons in adult graves was two (ie a shield plus spear combination), compared to an average of one in juvenile graves (ie the spear alone). The unstratified sword and axe finds imply though that other more diverse weapon combinations must have occurred.

It is not possible to compare juvenile weapon graves to other ‘male’ juvenile graves without weapons, as it is the presence of weapons upon which identification of males depends in Mucking I. Nevertheless, it is clear that other juveniles, either with non gender-diagnostic artefacts, or in unfurnished graves, were buried with fewer artefacts (or none at all) and that the average depth of their graves was shallower than for male juveniles (Table 7/18). All the weapon graves included coffins, compared to a juvenile average of 75%, although the absolute numbers involved are perhaps too small to provide a basis for productive analysis.

In both Cemeteries I and II, the presence of coffins and covers appears to have been slightly more common amongst adults than amongst juveniles, and was not related to gender (Appendix 19). Unsurprisingly, the lengths of coffins increased with age. This observation is not as circular as it might appear, however, since the primary method of allocating age was by body length.

34 The average depth of juvenile weapon-bearing graves was 0.41m compared to the cemetery average of only 0.34m.
35 The preponderance of male weapon graves with covers may be due to the greater chance of wood mineralisation on shields. The presence of juveniles with coffins was, however, noted at Bremen-Mahndorf (Grohne 1953, 279).
There are some indications that other kinds of grave furniture may have been provided for adults, but the numbers are again small. Pillows were found with adults, of which two were female, but the occurrences are too few to identify a pattern. The possible grave markers are also associated primarily with adult or adolescent graves. Elsewhere, grave markers were predominantly associated with adults as at Castledyke, Barton-on-Humber, Humbs, for example (Drinkall and Foreman 1998, 355). It is also interesting to note that the possible structure in Grave 240 belonged to an adolescent/adult burial.

As grave lengths were used to determine individual age, the correlation of age groups to grave lengths could be seen as a circular argument. Nevertheless, because body stain lengths, coffin lengths and age-diagnostic artefacts were accorded priority over grave length in assigning age, the range of grave lengths per age group in the Mucking cemeteries can be established with some degree of independence. They can be compared to the corresponding data from other cemeteries (Table 7/19). Regarding the dimensions of the top of the grave cut in Mucking I, the largest of these in infants’ and younger children’s graves exceed those in any other cemeteries, and in Mucking II the same applies to younger and older children (Table 7/19). This may be a local peculiarity; on the other hand it may merely result from imprecision in the ageing of individuals.

In considering grave depths, it is noteworthy that the shallowest adult, juvenile and infant graves in Mucking I were deeper, and the average depth of juvenile and infant graves greater, than in other cemeteries (Table 7/20).

The percentage of juveniles in graves shared with adults is low compared to other cemeteries, and this may be due to differential survival factors (Chapter 6.2). The two double graves each contained a juvenile and an older individual. Grave 123
contained a well-furnished adolescent/adult (probably adult) female (123A) laid to one side of a ?slightly earlier, unsexed juvenile burial. Another possible case of double burial was Grave 127, which held the superimposed burials of an adult (with a knife and iron pin) and an unsexed child. The slightly different grave cut of the child burial suggests that it succeeded the adult burial. As with Grave 123, there may have been only a short interval between the burials, as the evidence suggests that the outline of the older individual’s grave may still have been clear, or was demarcated in some other way. About a quarter of the 200 or more double or multiple burials in Anglo-Saxon cemeteries were superimpositions on an earlier grave (Wilson 1992, 71). Such burials may have been accidental or had sinister implications (Hirst 1985, 40-43), but in all cases some kind of family relationship or kinship appears likely.

Adults

Adult females

In Mucking I, the average number of artefact types in a grave was similar to that for adult females at Lechlade (4.5, compared to 4.8 for Phase 1 adult females at Lechlade). This average was higher than amongst adult males, in keeping with the findings from other Anglo-Saxon cemeteries (Chapter 6.4).

As mentioned above, graves containing bags were primarily those of adults. Of the five bags found in female graves, four were at the left hip (Graves 99, 100, 123A and 246), and one on the chest (Grave 256). This corresponds with the evidence from Mucking II, where most of the bags in female graves were on the left, while bags in male graves were generally on the right side (Edwards forthcoming, b).
The primarily amber (and gold-in-glass) bead strings appear to be linked to adults. One example was found in Mucking I in Grave 283. Very few juveniles were buried with small-long brooches with lappets, applied, small square-headed or saucer brooches.

As mentioned previously, adult females were found predominantly with small knives, and adult males with medium knives, following the trends analysed by Härke (1989), although there was an absence of large knives, usually associated with males in other cemeteries. No correlation was found between gender and any particular knife position, type, or even the presence of a knife.

In Mucking I, no fine ageing distinctions were possible amongst the adult females. In Mucking II, no ‘old’ females (AD3, ie, 50+ years) were identified, but there were seven young adult females (AD1), seven middle-aged females (AD2), and five middle-aged or older females (AD2/3). This data was used in a comparative investigation of the number of artefact types, the occurrence of single or paired brooches, and grave depth and length, which are all age-related variables (Chapter 6.4). Unfortunately, the only definite observation to emerge was that grave lengths were longest amongst the younger adult females, averaging 1.99m (seven individuals), compared with 1.87m (averaged from 12 individuals) at Lechlade.

_**Adult males**_

The average number of artefact types in adult male graves at Lechlade (2.5) was identical to that in Mucking I. This is a lower figure than for adult females (see above), and indeed the average for ‘male’ graves in Anglo-Saxon graves is generally

---

36 There were no examples in this cemetery of the mixed monochrome and polychrome beads in red,
and regularly lower than ‘female’ graves. A comparison was made between adult male graves with weapons, taking into account aspects such as the depth of the graves, presence of coffins and numbers of associated artefacts, and graves of non weapon-bearing males, who certainly must account for some of the undiagnosed burials, even if they cannot be individually recognised (Table 7/18). It emerged that the average depth of complete adult weapon graves (and non-weapon graves) was identical to the average depth of all the graves in the cemetery. This matches the findings of a wider analysis by Härke (1992b, 226). Although weapon graves in general display a greater frequency of coffins in comparison with non weapon-bearing graves (Härke 1990, 38), in Mucking I there was not a great difference between the proportion amongst the adult weapon graves (at 60%) and the overall adult figure (at 50%). Nevertheless, as expected, amongst adult weapon-bearing males the average number of types was consistently higher than for gender-neutral furnished and unfurnished adults, some of whom must have been males.

In Mucking I, no fine ageing distinctions were possible amongst the adult males any more than amongst the females (see above). This made it impossible to correlate the presence of decorated shields with age (Härke 1992b, 226). Although this could not be confirmed in Mucking I, it is possible that in Mucking II the longest spearheads were found with the oldest adult males, but this must remain uncertain, as the sample is small (Table 7/17).

white and yellow, which in Mucking II were largely worn by adults.
Unfurnished adults

Of the adult (including adult/adolescent) graves in Mucking I, 14 were unfurnished, and nine contained ungendered artefact types.\(^{37}\) Graves such as these are normally interpreted in terms of low status.

Those in unfurnished graves or graves with non-gender specific artefacts comprised 32% of the adults or probable adults in Mucking I, and 31% in Mucking II. Unlike Mucking I, the number of individuals aligned roughly E-W and supine in Mucking II was very small (at 5%) compared to the overall numbers of unfurnished and poorly furnished graves. It seems unlikely that unfurnished graves in both cemeteries could be explained as being due to Conversion Period burials or reflecting a sub-Roman burial practice. (Further reasons are outlined in Appendix 18.)

It was apparent at Lechlade that older adult females (and males) were more likely than younger adults to be buried in unfurnished graves. The true numbers of Migration Period unfurnished older females at Lechlade in particular could be much higher than it would appear, as they are more difficult to phase, especially given the tendency to choose unusual orientations (Chapter 4). As we have seen, there are regional variations in the percentages of brooches within a cemetery overall. In Anglian cemeteries, the incidence of brooches is significantly higher than in east Kent, with Saxon areas occupying an intermediate position. The same differentials occur when the frequency of brooches amongst adult females is examined (as opposed to the frequency within an entire cemetery). These frequencies are summarised in Table 7/21. This could be accounted for by regional variations in patterns of artefact use during the Migration Period that were examined in Chapter 3. It would appear that in

\(^{37}\) Of these unaccompanied burials, only three could be identified as adults, and 11 as adolescents or adults. There were also three graves where neither age nor gender could be identified.
at least some Anglian cemeteries, brooches may have been acquired late in life, and in general that artefacts may not have been lost or given up in middle or older age with the same consistency as in Saxon areas (Tables 3/2, 3/3, 3/4, 3/5, 6/12). The patterns in Kentish areas are more difficult to discern, given the small size of the database, but it seems that this may already have been a wealthier part of Britain than Saxon and Anglian areas. Certainly, graves were on the whole longer than in other parts of the country (Table 7/6), whilst the average number of artefacts was higher than in Anglian and Saxon areas (Table 6/12). Examination of individuals datable to the Migration Period at Mill Hill, Deal, Buckland, Dover and Lyminge did not reveal a greater number of single brooches amongst older adults females. It could thus be tentatively suggested that the low percentage of adult females with brooches might be a reflection of a society with a relatively unequal wealth-distribution structure, resulting in fewer adult females wearing brooches overall than in other areas.

Härke (1992a, 163; 1992b, Tab 6) appears to have related at least some unfurnished burials to the presence of low-status (ie non weapon-bearing) biological Saxons. He argued that areas with a high percentage of weapon graves were largely the same areas as those with frequent cremations, which rarely contain weapons, so that cremation and unfurnished inhumation appear, at least at times, to have been alternative but equivalent burial practices.

For this to be accepted, it has to be demonstrated that cremation was a largely adult related low-status rite, as indeed appears to be the case. Data facilitating the comparison of inhumations with cremations in Britain has not previously been available, but analysis of Mucking II has demonstrated that, in this cemetery at least,
complete cremations had fewer artefacts on average than inhumations. Without direct evidence of pyres, and given a probably incomplete survival and retrieval rate from them anyway, the number of artefacts cannot be ascertained with certainty (Clark forthcoming, s). It would appear that retrieval from the pyre was not selective, for two reasons. Firstly, the artefact types show a similar, if not identical, range (allowing for differential survival of bone and amber artefacts), to that in the inhumations. Secondly, nearly all the artefacts from the cremations at Mucking were burnt, unlike the case at Liebenau, Lower Saxony, where only relatively unburnt items were retrieved from pyres (Siegmann 1997). Retrieval of all artefacts from the pyre appears therefore to have been unselective. This implies, although without certainty, that the rates of retrieval were also fairly complete.

The cremations at Mucking do not coincide with other factors that might tend to lower the percentage of artefacts, such as a larger population of juveniles. Juveniles tend to be buried with fewer artefacts than adults, at least at Mucking, although age differences were also marked by the size of pot. At Mucking, however, and in general, it may be that fewer juveniles were cremated than inhumed. Cremation has also been seen as the expression of a different religious tradition from the one represented by inhumation (Crawford 1997). The possible religious beliefs involved in cremation are now lost in obscurity, with only hints provided by

---

38 Complete (and near complete) cremations had on average only 1.1 artefacts, compared with 2.2 in inhumations in Mucking I, and 2.9 in Mucking II. The percentage of fairly complete cremations with artefacts at Mucking was also far smaller than amongst the graves. Cremations with associated artefacts comprised only 41% (19/46) of the total, compared with 78% (219/282) of the inhumations in Mucking II, and 65% (41/63) in Mucking I.

39 Juveniles comprise only c 15-20% of known cremations (McKinley 1994, 68, table 3; Richards 1987, 124) compared with 35% in well-preserved inhumations respectively (Chapter 6.1). At Mucking, the percentage of cremated aged individuals who were juveniles was comparatively high, at 34%. Amongst the inhumations in Mucking II (and Mucking I), comparable or slightly higher percentages have been estimated.
Artefacts that suggest a ritual purpose are not found in every cremation, so the symbolic connotations may have been more important in some cases than others. The rite of cremation appears to reflect not only religious, but also status-related differences from the rite of inhumation (Clark forthcoming, s).

If cremations do appear to be a low-status rite, then this might be an alternative, or additional, explanation for the regional variations in the percentage of brooches associated with older adult females. The pattern at Lechlade suggests that older adults had fewer artefacts than younger ones, but data on this matter, and on the percentages of older adults among Anglo-Saxon cremations in general, are unavailable. Nevertheless, there is a correlation between the regional frequency of brooch burial and the regional frequency of cremation (Table 7/21) which is echoed in the evidence from Mucking. In Mucking II, where cremations occurred, there was a greater frequency of brooch burials than in Mucking I, where there were no cremations. (Mucking I has 19% of graves with brooches compared to 24% in Mucking II.)

Nevertheless, although these regional variations in the frequencies of brooches can be identified for females, corresponding regional variations in the frequencies of weapons do not appear to be the case for males. This is for two reasons. Firstly, the regional variations identified by Härke (1992b) in his dataset of weapon burials do not stand up to close examination. The overall frequency of weapon burials within

---

40 The presence of miniature toilet sets and combs, and as well as the presence of ‘window’ urns, with urns stamped with ‘sun’ or wyrm symbols, and (at Mucking at least) probable offerings, suggested by the finding of copper alloy bowls, and burnt pots (and possibly grain), have a meaning at which we can only now guess (Clark forthcoming, s). It is clear that the inclusion of items related to the grooming of hair in cremations has symbolic and/or religious significance (Vierck 1972; Thieme 1978; Beilke-Voigt 1994).

41 The proportions of older adults amongst cremations are unknown in general, but comprised at least 51% of the closely aged adults in the Mucking cremations, compared to 64% of the inhumations in Mucking II, and an average of 46% in well-preserved inhumations (Table 6/1).
cemeteries in Saxon areas has always been greater than in East Anglia (contra Härke 1989b; 1992b, 99-101, Tab 6). Moreover, the previously low frequency in east Kent appears to have been the result of sample bias (Table 7/21). This could reflect to slight differences in regional boundaries compared to those used by Härke (Chapter 2), who did not differentiate between sites that lie in east or west Kent, or include data from the Isle of Wight in his Kentish group. It is more probable, however, that the relative infrequency of weapon burials in his findings is due to the fact that he included in his sample long-lived cemeteries that extend into the Conversion Period, (when weapon, and brooch, burials were less common). These long-lived cemeteries are particularly common in east Kent (Chapter 4).

Secondly, Härke (1995) identified no regional trends in the use of weapons amongst older males in inhumations, unlike the case with older females (Chapter 6.4). Despite the lack of corroboration by cremation frequencies, older inhumed males do seem to have fewer weapons, so that it could be expected that at least some unfurnished graves will be of older males. In conclusion, the unfurnished adult graves at Mucking may fairly frequently have been those of older adults.

Possible non-chronological bias in the ordering of the seriation sequence

The interplay of various factors, such as age at death, the age of the artefacts, and at what stage of life artefacts were acquired, may have affected the combination of artefacts within a grave (Chapter 3). This will therefore affect the relative order of the graves within a seriation. Whether Mucking followed the same patterns of artefact use as found at Lechlade could be determined by examining at what stages of life artefacts appear to have been acquired, whether the length of knives and spearheads
correlates to the age of individuals, and whether wear is concentrated amongst the oldest and youngest members of the population.

The concentration of worn and broken artefacts amongst older adults at Lechlade suggests that artefacts were generally acquired for life (Chapter 6.4), but this could not be confirmed at Mucking, since very few older adults could be identified (Chapter 3), and these only in Mucking II. Worn and/or repaired knives, amber beads (Hutchinson 1995; Appendix 1), weapons could not conclusively be linked to any particular age group. Analysis of wear and breakage is especially problematic at Mucking, as there were many different types of brooch, in contrast to the smaller range of types at Lechlade. The predominant type of brooch, the applied brooch, is by its nature so fragile that analysis of its breakage would have been misleading as a basis for generalisation. Nevertheless, it is possible to say that worn or damaged brooches were found most often in juvenile graves, raising the possibility that, in some cases at least, they had been handed down from previous owners (Table 7/16).

The bone evidence is poor, but, such as it is, consistent with the view that the acquisition thresholds for certain artefacts are similar to those identified in Phase 1 graves at Lechlade (Chapter 6.4), and this is corroborated by evidence from other Saxon cemeteries. As we have seen (above), individuals tended to acquire brooches and spears from adolescence onwards. Paired brooches and shields were acquired on reaching adulthood, and appear to have been kept for a lifetime of use. Lastly, there is a tendency for the size of knives and spearheads to be linked to age, which suggests that these artefact types, as in other cemeteries, were acquired by males throughout their adult lives.

Does the relative ordering of graves reflect age-related bias? It is possible that the relative ordering of graves was affected by an unusually long circulation period of
certain types as opposed to others, which reflects age-related patterns of artefact use. In particular types with longer circulation periods would appear to be the more functional items, as well as short and medium-sized spearheads, and ‘poorer’ types of brooch. In practice no particular problems of interpretation arise here, for various reasons, some of which are archaeological, and others to do with minimisation of age-related bias by the coding.

To examine the archaeological factors first, it would appear that length-related bias was spread amongst the types; the association of spearhead and knife types with each other and with shield types was random. Although there appears to be a tendency for shorter spearheads to be associated with juveniles (see above), these were also found with adults or probable adults.

There were relatively few juveniles in the male seriation, so they cannot have had much effect on the sequence. This was because they rarely possessed anything other than spears and knives (artefacts that would often have been ‘second hand’), and at least two types within any grave are needed for that grave to be included in the seriation. Only one juvenile at Mucking possessed a spear in combination with a shield (Grave 248). The lack of juveniles with shields could be a circular observation as shields were used (after body length) to identify adults. Nevertheless, the usual association of a single spear (unaccompanied by other weapons) with juveniles seems to reflect the more general trends observed by Härke (1992b).

In the female seriation, juveniles were fairly common, but again the effect of this on the ordering of the graves does not appear to have been unduly great. The majority of identified adolescents, and even some children, do not appear to have been buried with brooches. Indeed, juveniles may have worn simple tunics, although
given the scarcity of positive evidence, this cannot be regarded as certain. Where juveniles were buried with brooches, there is no evidence that they were handed down. One grave contained a non-matching pair of small-long brooches (Grave 584A), and there does seem overall to be a fairly high incidence of non-matching brooch type combinations, compared to those found with adults, which may mean that one of them was inherited, or possibly both (Table 7/16). A small number of infants and children appear to have inherited broken or single brooches that could not have been worn as part of their dress. The brooches involved include the small-long, quoit, equal-arm, applied, annular and penannular types. As they occur in only about 10-15% of the total number of graves with brooches in both cemeteries, and as most of these types were only coded once or twice, they cannot have had much effect on the ordering of other types associated with them, ie primarily simple buckles, beads and knives of various types, each of which were coded only once.

The coding also minimised the impact of age-related bias. As spears and knives were only coded once, while shields were coded at three levels, they will have had proportionally less effect on the ordering of graves compared to shields. In addition, length-related bias was not coded for amongst the knives.

In conclusion then, some juveniles might have been buried later than it would appear from the sequence, and therefore the phasing, in the seriation. For this reason, their presence is noted on the seriation sequence (Figs 5/1, 5/2). Artefact evidence associated with juveniles, such as it is, may lead to the misdating of particular juvenile graves, in absolute terms, but it is not liable to lead to errors in the relative dating (ie overall ordering) of the graves in the two cemeteries.

---

42 Only one example of a tunic was reconstructed in Mucking I, in the older child’s Grave 93 in Phase IaIII (Edwards forthcoming, a). A close parallel occurs in the burials of a younger or older child (2-12
Does the ordering of types reflect differing adult status groups or regional groups? Despite the general absence of misleading positive association of types that did not share overlapping production periods, it is still possible that groups of graves in the sequences reflect differential status or regional groups. It has already been established that coding has minimised the effect of differing age groups.

One danger of the hierarchical coding is that, although it is possible to code artefacts with elaborate art styles at more levels than those with simpler ornamentation, elaborate artefacts tend to be of higher status; the grouping of graves with these artefacts could then be reflective more of status than of chronology. There seems no reason, however, to abandon the assumption that artefacts elaborately ornamented in the same art style are more likely to be of similar date than artefacts that are not. Examination of the possibility of differential status, identifiable through negative association of graves, would need to be carried out after completion of the seriation.

There is a possibility of negative association being linked to differential status groups and not to chronological differences in the female seriation. This does not seem to have happened, however, for several reasons.

It has been argued in Chapter 6.4, based on the findings from Lechlade, that juveniles and older adult females appear to have been of lower status than young adult females, as evidenced by their artefact types, as well as by orientation and body position. The denser concentration of the former in Phase Iaiii as compared to earlier and later phases is noticeable (Fig 5/2). The clearest negative association between the brooch groups was between the high-status, almost exclusively adult-linked ‘Style I’ years) in Mucking II, Grave 936, of Phase Ibi/bii. Both are based on mineralised textile evidence found on brooches.
(small square-headed and button) brooches, found only in Phase 1bi/bii, and nearly all the other brooch types, ie disc, applied, small-long, penannular, quoit and annular brooches, which were found in Phase 1aiii and appear to be low status because of their association with juveniles. This would seem to be confirmed by a lower average number of artefact types found with these apparently earlier individuals; graves placed in the earlier phase in both cemeteries had a smaller average number of types than those in the later phase.

Nevertheless, it does not appear that the seriation merely isolated differing status groups, for the following reasons. Firstly, not all the graves in Phase 1aiii are low status. There were numerous graves with keys (in Mucking I in Graves 123A and 246, and in Mucking II in Graves 553, 648, 633 and 650). The presence of keys has been seen as indicating heads of households, and therefore high status. Nearly all the keys at Mucking appear to have been buried with adults, in contrast to Lechlade where juveniles also possessed them, although the fact that they were not found in the ‘richest’ adult female graves at Lechlade has cast some doubt upon their status credentials (Clark forthcoming, e; Chapter 6.4). In Mucking I, although the adolescent/adult Graves 123A and 246 were only moderately well furnished, a stoup was included in Grave 246. Stave-built vessels such as this, usually occur in well-furnished graves (J Cook, pers comm), but in this case the status of the burial may have been indicated by the quality and prestigious character, rather than the actual quantity, of its grave goods. Two further examples of a stoup and bucket were found in this phase (in Mucking II in Graves 553 and 998). A glass vessel was also found in Mucking II, in Grave 924B.

Secondly, although there is also a negative association between the adult-related bright yellow, white and red bead strings (in Phase 1biii/2) and other bead
strings, the latter were both adult-linked and juvenile-linked, but overlapped with each 
other in the seriation, so that the separation of juvenile-linked from adult-linked bead 
strings was far from automatic. For example the adult-linked amber strings of Phase 
1bi/bii overlapped with the juvenile-linked blue bead strings.

Lastly, there seems to be a link between association of types in the seriation 
sequence and their physical proximity within the cemetery. The idea that spatial 
association is of chronological significance cannot be proven, but it is certainly 
suggested by the fairly regular distribution of individuals of different age and gender 
in both cemeteries. The proximity of graves may thus reflect household or kinship 
groupings, encompassing individuals of varying status (Chapter 6.4). If spatial 
clustering can be interpreted as denoting some degree of chronological affinity, it 
would suggest that there is a rough correlation between the degree of association in 
the seriation sequence and the spatial proximity of the same brooch types within 
Mucking II. (The smaller size of Mucking I has meant that any such trends could not 
be observed.) Thus, brooches with ‘late Roman’ designs are found at the beginning of 
the seriation sequence, and overlap with the plain crossbow brooches, which in turn 
overlap with small-long brooches with lappets, and penannular brooches. These 
brooch types are also, in terms of spatial proximity, their closest neighbours in 
Mucking II.

It would seem that in the male seriation there could also be a case of negative 
association that reflects differing status groups, but not chronological differences. 
Firstly, all but one of the shields were confined to Phase 1bi/bii, as were most (but not 
all) of the swords. Amongst adult weapon-bearing males, the possession of a spear 
alone seems to be an indicator of lower status compared to those with shields (Chapter 
6.4).
Secondly, the short spear types (E1, K1, D1, H1) were concentrated in the earlier Phases 1aii/1aiii, in contrast to the larger spear types (C2, H2, E2 or E3) which tended to be found in Phase 1bi/bii.

Nevertheless, we would argue that the negative associations in the male seriation do not primarily reflect differences in status. Firstly, there is no simple negative association of low-status individuals with high-status ones. Two of the most high-status graves in the male seriation are found in Phase 1ai/aii: Grave 117 (in Mucking I) and Grave 979 (in Mucking II). Grave 117, of Phase 1ai/aii, was the most obviously high-status male grave, and is discussed separately in Chapter 8.3. Although less prestigious, the individuals in Phase 1aii/1aiii cannot be classed as low status. In Mucking I, Grave 272 may also have been accorded a special status, suggested by the provision of a visible superstructure, as well as an inlaid buckle. In Mucking II, weapon burials of this phase included various high-status artefacts, such as inlaid buckles (in Mucking II in Graves 789 and 844) and axes (in Graves 534, 583, and 976), as well as the bucket in Grave 825B and the cup in Grave 583.

Secondly, although there are indications that relatively higher status graves existed in both cemeteries in Phase 1bi/bii compared to Phase 1aii/1aiii, the weapon burials in Phase 1bi/bii were not uniformly of high status. On the whole, the weapon graves in Phase 1bi/bii from Mucking I were not as prestigious as those of Mucking II, which contained swords, and included Grave 600, with an ornate shield boss and a bucket as well as a sword. Certainly there are indications of graves of some status in Mucking I in Phase 1bi/bii.\(^{43}\) There was, however, an absence of the high-status

\(^{43}\) Zoomorphic shield appliqués like those in Grave 122 (unseriated, but placed in Phase 1bi/bii) are often associated with ‘richer’ graves containing a greater number of finds than average (Dickinson and Härke 1992, 30), but apparently not here. Shields with Type II.D handles are usually found in higher status contexts than average, and are of a more complex construction than other types (Dickinson and Härke 1992, 38), but the sole occurrence in Mucking I (in Grave 159), reflects no obviously greater
stave-built vessels that are often associated with weapon burials (Härke 1992b, 152). Thus although Phase Ibi/bii overall includes graves that are high status, not all of these graves, especially those from Mucking I, are very prestigious, yet they were all seriated together in the sequence.

Thirdly, the spatial patterning of the spear types in Mucking II is not conclusive, and not as clear as for the brooch types, but it does seem consistent with the allocated phasing. It also seems compatible with the distributions of brooch types in the equivalent female phases.

Fourthly, although at first glance there may appear to be a stark difference between graves with spears and those with shields (and spears), it can be observed that many spear-only graves are found in Phase Ibi/bii with the shield graves.

Lastly, although longer spears tend to be found only in the later phases, this cannot be conclusively accounted for by the absence of juveniles or younger adults, as the former are altogether too scarce, and the latter are intermixed with older males (Fig 5/1). Overall, although there is a tendency for shorter spears to be found with younger individuals, juveniles are not always found with the shortest spears.

The male seriation does not appear to reflect regional differences in the contents of graves. Although most of the weapon types do not have strong regional associations, in some cases they do seem to belong to types that have primarily Saxon status than average. The weapon burial in Grave 248 does appear to have been of unusually high status. Type H2 spearheads can often be found in richer burials (Swanton 1973, 111; 1974, 20), and this spear type was found in the adolescent Grave 248, significantly in combination with a shield with decorative lozenge-shaped fittings.

44 There were no individuals with glass or copper alloy vessels, or copper alloy bound buckets of the kinds found at Lechlade (Chapter 6.4).
Social trends through time

Anglo-Saxon social structure grew more hierarchical towards the end of the Migration Period. The construction of regional identities, and perhaps the strict social rules and constraints identified at Lechlade, may have been established only by the late fifth century (the preceding period at Mucking is discussed in Chapter 8). At Mucking, from around the late fifth century onwards (Phase 1a iii), a range of brooch types were worn, none of which appear to have been of conspicuously high status compared to other later types, except perhaps the applied brooches. Disc, applied, small-long, and ring brooches were worn, while high status was denoted more by other associated artefacts, such as buckets.

Higher status individuals are more visible in Phase 1b i/b ii (early to late sixth century). In Mucking I, the four highest status graves (Graves 90, 92, 99 and 102), were all placed in Phase 1b i/b ii. It would seem that in this phase, a relatively small number of individuals were buried wearing small square-headed and button brooches. In Anglo-Saxon cemeteries generally, males appear to have become more visible in the late sixth and early seventh centuries (Arnold 1997, 210), as in Merovingian Austrasia (Halsall 1992b, 267). At Mucking, this trend appears to start earlier; males are on the whole more visible in the sixth century than in the fifth century in both

---

45 These include the C4 Type spearhead in Grave 557 (in Phase 1b i/b ii), or the K1 Type spearheads (in Phases 1ai/aii-1aiii and in Phase 1b i/b ii).
46 Grave 90 contained an equal-arm brooch, that appears to have been an heirloom, and two button brooches. Grave 99 contained a large assemblage of artefacts, including a glass bowl, a pair of small square-headed brooches, a pair of button brooches, and many beads. Grave 102 contained a pair of
cemeteries. Few males could be firmly identified and dated to Phases 1ai/aii or 1aiii (compared to the females). Their graves tended to contain spears and axes. In Phase 1bi/bii, however, a greater number of males were identified, whose graves now contained spears and shields.

By the latest phase, the female graves generally do not appear to be as high status as the male ones. The latest female seriated graves (in Phase 1biii/2) contained particular types of bead strings. In other cemeteries, such as Lechlade (Chapter 4) and Morning Thorpe (Penn forthcoming), graves with these late beads also contained brooches. On these grounds, it has been argued elsewhere that the wearing of a peplos costume may have continued as late as c AD 600 or even later, even though the brooch types they were associated with would not normally be identified as late sixth century in date. At Mucking, however, the late bead types were not associated with brooches.

A marked absence of distinctively late forms of brooch, such as the large saucer, florid cruciform or Kentish disc brooches was apparent. Perhaps they should not be expected, given that earlier forms of these regional brooches, including Kentish-derived brooches, had not been common previously. Nevertheless, the absence of late sixth-century brooches in the Lower Thames (as well as in Sussex) in contrast to the Upper Thames area, still appears to stand. This difference may be due to a desire in areas near east Kent to emulate Kentish fashion by the adoption of a tunic instead of a peplos, but this does not account for the absence of Kentish disc brooches. Another explanation may lie in east Kentish domination of the surrounding areas, and their consequent impoverishment (Welch 1983, 174-5). Whatever the

---

small square-headed brooches, a pin, a smaller quantity of beads and a pot. Grave 92 contained a high-status glass claw beaker.
reason, many of the males at Mucking at this time (Phase 1biii/2) were buried with swords, high-status artefacts, while at the same time the status of women may have fallen relative to that of males. Alternatively, perhaps it was considered- for some reason that now eludes us- that it was more important for males not only to be visible, but also to display high status.

Conclusions

We have sought to demonstrate that the combined use of stature in relation to body length, coffin lengths, age-diagnostic artefacts and grave lengths is effective in retrieving a large number of aged individuals, where this data would otherwise have remained lost. In the absence of osteological information, body length provided by far the most useful information for age determination. The average stature for adult females in Anglo-Saxon cemeteries has also been calculated for the first time. The compilation of data on stature demonstrated that there was a close link between stature and body length, which provided the primary method of determining age. The unusual character of the evidence from Mucking has allowed detailed observation of the typology and individual features of coffins. It was also clear that grave lengths corresponded closely to body length, which confirms the results from Lechlade and other cemeteries, albeit that absolute average lengths vary, in what appear to be local or regional patterns. In order to assess the frequencies of gender-linked graves, regional frequencies of graves containing brooches were systematically surveyed for the first time, and were found to vary. This combined methodology should be applicable to any poorly preserved cemetery with soil silhouettes and little bone evidence, and even in the absence of soil silhouettes, although with less accuracy.
This methodology could be applied to sites such as Morning Thorpe or Spong Hill, for example.

The percentage of aged individuals was increased from 11% in Mucking I to 95%, and in Mucking II from 42% to 100%, although 43% in Mucking I, and 23% in Mucking II could not be more closely aged than as adolescents or adults. In the light of regional frequencies of weapon-bearing and brooch-wearing graves, all the individuals in both cemeteries could be allocated a probable age, and the known juvenile percentage has risen from 0% to at least 37% (and possibly up to 44%) in Mucking I, and from 7% to 35-44% in Mucking II. The percentage of known infants has risen from 0% to 8% in both cemeteries. Such frequencies are as high as in well-preserved Anglo-Saxon cemeteries, with those cemeteries with high infant percentages tending to be in Saxon areas. The ratio of infants to older juveniles is still very low, however, and suggests the practice of infanticide or the fear of ghosts. The numbers of older adults could not be determined without bone evidence, but it seems likely from comparison with the data from Lechlade that the percentage of archaeologically identified older individuals in both cemeteries is in fact too low. An estimate of the population of Mucking I is made.

Even with a cemetery that still partly lacks ageing data, social analysis using age as the primary structuring principle has proved informative. In Mucking I the numbers were too small to show up detailed age-correlated trends, although it was possible to demonstrate in Mucking II older females were buried in shorter graves than younger females. The age-related patterns seen at Lechlade were in evidence here, in a greater number of types and increasing visibility of gender-diagnostic graves with increasing age, the age thresholds for the acquisition of brooches and weapons, and the tendency for larger spearheads and knives to be linked to greater age.
It was possible to demonstrate with the help of the osteological dataset from Lechlade that there were very clear conventions of treatment in death related to the age, gender and status of the individual. At Mucking, this applied particularly to the use of artefacts, and the inclusion of grave goods, as well as coffin and grave size, although in combining these different kinds of evidence the danger of predetermined circularity should be borne in mind. Unfurnished graves were deemed to be likely to be those of older adults, at least at times.

There is every reason to think that, as at Lechlade, older adults and juveniles were more likely to have been buried with older artefacts, with the possible consequence that their graves might be dated too early in absolute terms (Chapter 3). In practice, this does not seem to have affected the ordering of graves in the seriation. The coding was carried out in such a way as to emphasise artefacts with what appear to have been relatively short circulation spans, and which were more likely to have been found in combinations of artefacts with contemporary or largely contemporary production spans. This helped to produce a grave sequence that is probably chronologically reliable, although this can never be established with certainty.

Certain social changes appear to have occurred, with a tendency for society in general to become more hierarchical in Phase 1b, with a tendency in the last phase for at least some males to become more visible and/or more prestigious than females.
CHAPTER 8. OTHER ASPECTS OF BURIAL PRACTICE IN MUCKING I

8.1 THE RELATIONSHIP OF THE SETTLEMENT TO THE CEMETERIES

The contrast between the ‘status’ differentials observed within the cemeteries and the settlement has often been noted (Esmonde Cleary 1993; Scull 1993, 73). There are several possible reasons for such a lack of symmetry (Hamerow 1993a, 89), but the most probable is that the settlement consisted of communal households including individuals of different generations, gender and status, whereas in an individual burial stricter rules of treatment governed by gender and age will have been consciously expressed.

The location of Mucking on an elevated terrace has been seen primarily as an indication of its strategic nature. Nevertheless, many other early Anglo-Saxon settlement sites have also been found on hilltops. The extraction of gravel (found on terraces of the Thames), combined with the difficulties of identifying sites on alluvial valley bottoms means that this could be due to recovery bias (Appendix 17). Fieldwalking and metal detecting in conjunction with limited environmental evidence in north-west Essex and Suffolk, and settlement patterns revealed by road development to the west of Mucking, suggest, however, that it may be accurate to think of early Anglo-Saxon settlement as primarily located on light soils (at least in this area). Gravel and sandy soils may have been more productive in the past than now, and such light terrace top soils may have been chosen on their merits as agricultural land, although more loamy and doubtless more fertile soils were located downslope, where placename evidence suggests a sub-Roman presence (Appendix 17).
The presence of two distinct cemeteries displaying a fundamental contrast in orientation of the graves, and an absence of definite Anglo-Saxon cremations in Mucking I, suggests that they may represent separate populations each with its own settlement. Were the cemeteries composed of different 'groups', it might be assumed that the settlement of the Mucking I group lay elsewhere. Nevertheless, in comparing the settlement to both cemeteries there does not seem to have been any imbalance between the number of graves and the population of the settlement estimated from the number of buildings (Hamerow 1993a, 90-1). Nor does there seem to be much probability that a settlement lies undiscovered elsewhere in the vicinity, apart from possibly on the eastern slope (Appendix 17). There is no reason to suppose that the Mucking cemeteries served any other settlements along the lines of the model proposed for Spong Hill (Hills et al 1994, 156). In the area of Mucking, the nearby settlements were more distant (ie over 1km away), and appear to have been relatively late (primarily sixth to seventh century in date, or even later), judging by the presence of grass-tempered pottery (Appendix 17). Indeed the close proximity of the settlement and cemeteries at Mucking has contributed to a reassessment of the relationship between Anglo-Saxon settlements and cemeteries, so that the burden of proof has now shifted to those who would argue for separate locations (Welch 1985b, 17). Anglo-Saxon sites comprising adjacent or overlapping cemeteries and settlements (ie less than c 500m apart), have since increased in number.¹ In Essex itself, for example, it has been recognised that several sites feature associated

¹ Examples are listed by Welch (1985b, 17), Boddington (1990, 195) and Hamerow (1993a, 91).
cemeteries and settlements. Unfortunately, in contrast to the situation at Mucking, where excavation was on a large scale, there have usually been considerable problems in determining the exact relationship of other settlements to their adjacent cemeteries.  

It thus appears that the settlement belonging to Cemetery I may have been located at Mucking. It is possible that there were two hamlets at Mucking inhabited by the two populations. Hamerow states that ‘There is not a simple equation between two cemeteries and two settlements...’ (1993a, 90), but this nevertheless remains a possibility (Welch 1992, 31). Should this have been the case, it could be argued that the fifth- and possibly sixth-century settlement at Linford was the settlement of the people in Mucking I. The occupants of Mucking II may have lived in the Phase A (fifth-century) area of Mucking, on the other side of the road to East Tilbury, which was correspondingly larger in size. (There were over 10 times the number of Grubenhäuser compared to the Linford site, and not four times as one would have expected, although it should be remembered that the latter site was incompletely excavated.)

There are two areas representing Phase A/B. The southern and smaller Phase A/B sector (late fifth to early sixth century in date), consisting primarily of Grubenhäuser, may have belonged to the inhabitants of Mucking I. The northern

---

2 These include Chadwell St Mary, where settlement traces are newly found (see Appendix 17) and Ardale School, North Stifford (Wilkinson 1988). At Springfield Lyons, however, the settlement may be late Saxon (Tyler 1996, 111-12; Tyler in prep).
3 There are problems of dating; for example, the posthole structures at Highdown, Sussex cannot be dated securely (Welch 1983, 30). There are also problems with the quality of the data. It has been argued, for example that in the Darenth Valley, in north-west Kent, an area with great similarities to that of Mucking, cemeteries were located on hill tops and settlements in valley bottoms (Tyler 1992; Tyler in prep). This interesting pattern is largely reliant on antiquarian finds, which are more likely to identify graves than settlements; to substantiate it, further fieldwalking or excavation should be carried out.
Phase A/B consisted primarily of posthole buildings. It could then be argued that the difference was merely functional in nature, but it should be remembered that the southern area suffered from more hurried excavation, with the possible loss of posthole buildings. Moreover, the northern Phase A/B sector can be positively tied to Mucking II by the link between the square-headed brooch mould in GH 109 and the brooch fragments found in Cremation 942.

There is only one excavated area ascribed to Phase B/C (dated to the mid to late sixth to seventh centuries) and Phase C (seventh to eighth century in date). It is possible that by this time the community using Mucking I lived downslope to the east, in a largely unexplored area. It cannot be positively ascertained, however, that any very substantial areas of settlement lay outside the excavated area, judging by the phases of settlement deliniated by Hamerow (1993a, fig 50), which appear to be fairly complete (Appendix 17). It might be more likely that in later phases the inhabitants of Mucking I and II, having presumably become merged through intermarriage, lived in the same area. The settlement at Mucking continued in existence until well into the eighth century, dated by sceattas (Hamerow 1993a, 97), or possibly even longer; the latest Grubenhäuser were largely aceramic, and could, in theory postdate the metal detected coin evidence.

It is interesting to note that at around the time of this possible merging of the populations within the settlement, the Migration Period cemeteries ceased to be used. The settlement clearly continued in use for longer than the Migration Period cemeteries at Mucking, where there is an apparent lack of burials datable to the

---

4 At an early stage of excavation it was suggested that the population of Mucking I lived in the more northerly part of the settlement (Jones 1975a, 192), but there does not seem to be any concrete evidence for this.
seventh and eighth centuries. It is very unlikely that the missing Conversion Period burials can be accounted for by unfurnished, supine, W-E graves within the known cemeteries (Appendix 18). Thus it seems probable that late burials took place elsewhere, especially as Mucking is one of the few Anglo-Saxon sites that has benefited from complete landscape excavation. It is possible that one single separate cemetery, which has failed to be located, was established from the mid seventh century onwards, replacing the two earlier Migration Period cemeteries. This may again indicate a merging of the populations.

The situation at Mucking would appear to support the classic model of ‘Final Phase’ cemeteries, which envisages the establishment, in the second half of the seventh century, of a new separate cemetery close to the old one (Hyslop 1963, 189-91; Meaney and Hawkes 1970). Such burials might be expected to lie within c 1km of the Migration Period cemeteries, but probably within a few hundred yards. Nevertheless, the nature of the missing Conversion Period cemetery is not certain. The relative visibility of cemeteries with artefacts datable to the late seventh and eighth centuries has overshadowed those cemeteries orientated W-E with few or no artefacts (Geake 1997, 17) that may be contemporary. It cannot be assumed that such cemeteries were located near to the preceding cemetery; a better dataset of such cemeteries with dating established by radiocarbon methods is necessary.

---

5 This pattern was, however, clearly not universal. The ‘Final Phase’ model has come under considerable criticism (Morris 1983, 54; Boddington 1990; Geake 1992). In particular, it is clear that at least some cemeteries continued from the Migration Period into the Conversion Period (Chapter 4), and it may be that the full chronological span of many cemeteries has been masked by incomplete excavation.

6 This need not place the Conversion Period graves at Mucking in an elevated location, although this is usually the case (Hawkes 1973, 186).
The location and relationship of cemetery to settlement in the early and middle Saxon period is clearly complex, and in great need of further data (Welch 1985b; Hamerow 1991; Appendix 17). Regardless of whether the Conversion Period cemetery at Mucking was located near to the Migration Period cemeteries or not, the situation at Mucking does not corroborate the landscape model of a ‘Middle Saxon Shift.’ It has been argued that by the late seventh and eighth centuries, cemeteries and settlements tended to be located separately (Arnold and Wardle 1981); it has been envisaged that while ‘Final Phase’ cemeteries continued to be sited in similar locations to their early Saxon cemetery predecessors, settlements were re-located to lower-lying, more fertile soils. At Mucking, the settlement appears to have remained located on the terrace top well into the eighth century (and possibly later). Clearly, ‘despite the imprecise character of much of the data, it is evident that the pattern of Anglo-Saxon settlements is more complex than previously thought’ (Boddington 1990, 196).

8.2 ASPECTS OF BURIAL PRACTICE NOT PRIMARILY RELATED TO AGE OR GENDER

A distinction can be made between grave characteristics primarily determined by age and gender as discussed in Chapter 7, and those that are more uniform, tending to cut across these identities, which are examined below. A strict set of ‘rules’ governing the treatment in death of individuals according to age and gender, as expressed in dress and grave goods, as well as in coffin and grave lengths, appears to have been applied in Mucking I (Chapter 7.1). Other variables, such as the location of the grave, orientation, the presence or absence of coffins, and choice of body position and
grave inclusions (such as plants and charcoal), are much less strongly linked to these particular identities. The organic traces are too rarely preserved to indicate how common their use was originally, but some 'ritual' purpose seems probable, whereas body positions and orientation were so uniform that other explanations have to be considered (Appendix 19).

Most individuals were laid supine in a position that tended to be associated with furnished burial. A small segregated group of burials laid on their sides appears to be linked to a juvenile or older female status, whilst the two crouched burials may represent unusual or ritualistically 'aberrant' treatment connected with ostracism, punishment or avoidance of haunting. The presence of particular inclusions in the grave fill, such as plant remains and charcoal, may have had a ritual significance. For example, the use of plants and burnt wood may be linked to ritual aspects. The selection of oak for making coffins was primarily practical, but oak may also have been symbolic of life forces and rebirth. The use of W-E orientation may (uncertainly) be due to an adoption from late Romano-British burial practice, unlike the use of dugout coffins, which are do not seem to be a feature of late Romano-British burial practice.

8.3 CULTURAL INTERPRETATION OF MUCKING I

Mucking I (and Mucking II) in Phase 1ai/aii

Grave 117 in Mucking I and Grave 979 in Mucking II have famously been interpreted as being 'federate' in character (Jones et al 1968, 226). The use of 'Germanic'
federates in Britain in order to defend against Saxon and Pictish seaborne and land-based raids has often been postulated. This would postdate c AD 420, ie the transition from Böhme’s *Stufe* II to *Stufe* III (1989), by which time the use of Roman troops for the defence in Britain could no longer be maintained (see below).

Two main models of federate settlement can be hypothesised (always supposing, of course, that such settlement took place at all). Firstly, it might have taken the form of a ‘crack elite’, a small number of mercenaries perhaps wearing ‘official’ insignia of the Roman Empire, most likely wide belt sets (*cingula*), symbolic of the authority of the Empire, combined with Roman-issue weapons and possibly a single brooch. These wide belt sets are very varied in form, but all have zoomorphic ornament, and some are relief cast (Böhme 1974, 54-83). Many examples have been found in the Elbe-Weser area of Free Germany, as well as within the Roman Empire, particularly along the Rhine frontier and in northern Gaul. The attribution of these graves with belt sets as Germanic is largely due to the proximity of female graves with brooch types that are believed to have originated in the Elbe-Weser area. The burial of some belt sets along with weapons has also been seen as a Germanic trait. Thus the presence of people appearing to be of Germanic origin within the Empire, displaying ‘official’ insignia, has been interpreted as indicating the presence of regular troops and/or federates who were recruited from Free Germany.7

Secondly, settlement on a larger scale, officially sanctioned, can also be envisaged (Hills 1979, 300). This might have taken place instead of, or as well as, settlement by high-status leaders with ‘official’ insignia, so that one need not always

---

7 At what must have been a time of great social disturbance, it might be expected there would have been the formation of armed retinues in the service of a leader, as well as individual armed adventurers. These individuals would not necessarily be expected to wear *cingula*.
expect the presence of wide belt sets. Such settlement might have been a response to incentives in the form of money, grain or land offered by late Roman authorities mindful of the defence requirements of their territories. Welch (1985b; 1993, 275) has suggested that East Anglia was one such area of controlled settlement, with new cremation cemeteries established along the Icknield Way during the overlap of *Stufen* II and III. The absence of wide belt sets in East Anglia may well reflect the true situation, rather than the destruction or loss of evidence, as wide official belt fittings have been known to survive the cremation process (see below).

There are problems with the interpretation of certain graves as those of federates, in particular their identification in ethnic terms, such as ‘Roman’ or ‘Anglo-Saxon’, and the uncertainty about whether they were mercenaries or entirely independent settlers.

It is well known that wide belt sets, or *cingula*[^1], could denote either a military or civilian-administrative function (Tomlin 1976). Men in the civil service adopted a military style of dress in the late fourth century consisting of a *chlamys* or cloak held in place by a single brooch (Wild 1968, 192).

The problems of distinguishing ethnic identities are manifold. The labels ‘Briton’, ‘Saxon’, ‘Frank’ and ‘Roman’ were used at the time and later, but were subject to many shifts and imprecisions of meaning. Such labels might well have been used differently by people applying them to others than when applying them to themselves, if indeed they used such ethnic terms to describe themselves at all. Certainly, the term ‘Anglo-Saxon’ is anachronistic before the late fifth or early sixth century.

[^1]: Brooches of *Stufe* II were present in this area, such as equal-arm brooches of the Sahlenburg variety, Type Krefeld-Gellep and Jouswier applied brooches and *Stutzarmfibeln*, as well as early cruciform...
centuries, when cultural, and especially regional, identities were constructed (Scull 1993; Hines 1994).

Even if certain labels are meaningful, the origins of individuals cannot be distinguished from the archaeology, particularly in Stufe I. Even if the origins of individuals were known, their subsequent self-perceived identity might well have been different. It could be expected that in the course of their military service people from the Elbe-Weser area would have accumulated artefacts that would tend to obscure their origins. Belt sets acquired during military service in Gaul could come to be buried in the Elbe-Weser area following retirement and their owner’s death. Wives of soldiers, originally from Free Germany, may well have lived part of their lives, and died, in Gaul. In consequence, belt sets and brooches of similar types are found throughout a particular zone extending from the Elbe to the Loire. The presence of weapons in possible ‘federate’ graves has been seen as implying a specifically ‘Germanic’ identity, although it might equally signify high status (Halsall 1992a).

Burials with wide belt sets have been categorised by the ‘ethnicity’ of the female burials that appear (at least at times) to be associated with them. The presence of wide belt buckles in itself cannot be assumed to denote a ‘Germanic’ identity, although that assumption has often been made (Hills 1979, 299). Halsall (1992a) has

---

brooches from Schleswig-Holstein (Böhme 1986, Abb 54-6), but they may not have been deposited until Stufe III.

9 Distinguishing between ‘Franks’ and ‘Saxons’ is impossible, because if they served in the late Roman army, both are likely to have acquired their belt equipment and weapon sets during their military careers in the Rhineland or north-east Gaul (Welch 1991, 261); this may even apply to troops who previously served in Britain but were withdrawn to the Continent in AD 407.

10 Particular types of brooch of Stufe I appear to be largely found in the Elbe-Weser area, which include the Lower Saxon type A and B supporting-arm brooch with trapezoid foot (Böhme 1974, Karte 3). On the other hand, Halsall (1992a) has pointed out that some brooch types (such as certain types of Tutulusfibeln) are more often found in late fourth-century Gaul than in the Germanic homelands.
pointed out that there are fewer ‘Germanic’ brooch graves in Gaul than graves with weapons or wide belts, suggesting that no simple inferences can be drawn from the data. The prevalent late fourth-century practice of unfurnished burial in Britain can, by its very nature, only constitute negative evidence for the presence of late Roman burial. Nor can it be assumed with any confidence that the marriages of federates were always between individuals of the same self-perceived identity, whether this was expressed in terms of material culture or not.

The active social construction of a new hybrid burial rite seems to have occurred (Hills 1979, 302). The late Roman burial custom of inhumation, which was widespread within the Empire (Philpott 1991) was introduced into the Elbe-Weser area, although cremation remained the predominant rite (Todd 1977, 39). Copying of late Roman inhumation practice was accompanied, however, by unprecedented displays of wealth in these new burials, which often contained Roman glassware, bronze vessels and wheelthrown pottery.

Given the imponderable factors in the complex situation on the Continent, various scenarios present themselves. There is no reason why the possible ‘federate’ burials should not all be of regular soldiers serving in the late Roman Empire, whatever their origins or self-perceived identity. This scenario accords with the fact that putative federate graves were always located in late Roman cemeteries that were already in existence in the late fourth century, not in newly established ones. It has been argued that one would expect federates to have been buried in existing late Roman cemeteries (Hills 1979, 308), as a reflection of their service to the Roman authorities. On the other hand, given the autonomous status of federate peoples, with their own leaders and laws, and with probable large-scale movement of peoples, the
establishment of new cemeteries might perhaps be expected. Halsall (1992a) has argued that those individuals buried with wide belt buckles in north-east Gaul may have been leading *bacaudae*, whom he sees as Gallic individuals of high status, competing to fill the power-vacuum created by the retreat of imperial authority.

To sum up, on the Continent there is no unequivocal evidence for the existence of federates. If they existed in Britain, having previously served in the late Roman army, it would be misleading to label them as either ‘Roman’ or ‘Saxon’, as their self-perceived identity would now be impossible to establish, given the ‘mixed culture’ that stretched from northern Gaul to the Elbe.

The situation in Britain differed in some ways from that on the Continent. There is documentary evidence for the recruitment of ‘Saxons’ using the mechanism of a *foedus* (Welch 1993, and refs therein) for the defence of Britain. The presence of federates is also suggested by the distribution of distinctive belt sets in Quoit Brooch Style. There is, moreover, no evidence that the late Roman army continued in existence in Britain, unlike in Gaul, so that there may have been a particular need for the recruitment of federates to serve in Britain. The particular landscape at Mucking can also be taken to indicate the presence of federates.

The documentary sources of relevance to the ‘federate’ question are Chapter 23 of the *De Excidio et Conquestu Britanniae*, by the sixth-century monk Gildas, and the *Gallic Chronicle* of AD 452. At least some federates appear to have been hired in or around AD 428 (Böhme 1986, 559-61; Hawkes 1989). It would seem, from the

\[\text{\footnotesize It should be noted that the term ‘Saxon’ may have been a broad term that was used to refer to seafaring western barbarians, and/or to individuals from Free Germany. In either case, or both cases, the individuals thus referred to may not have used this term to refer to themselves.}\]
evidence of the *Gallic Chronicle*, that a seizure of power by federates occurred in around AD 442 (Böhme 1986, 559-61; Hawkes 1989, 82). Such a takeover of power may have taken place later in the environs of Mucking, if any reliance can be placed on the date of AD 457 for the revolt of the federate Hengist against the Britons, and the Battle of Crayford (west Kent), as recorded in the *Anglo-Saxon Chronicle*, and cited by Hamerow (1993a, 94).

It would seem, then, that one would expect to find burials with wide belt sets datable from around the 420s to the 450s (and perhaps later), probably in the newly established cemeteries. In Britain, if federate graves could be identified, these would be expected to contain belt sets of the ‘Simple’ variety, belonging to the transition between *Stufen* II and III. Graves with wide belt sets are, however, extremely rare. In Britain, the number of graves containing individuals who can be categorised as federates on the basis of such artefacts is very small.\textsuperscript{13} The general poverty of contexts that are early to mid fifth-century in date is clear (Hines 1990). Unfortunately, most of the possible examples of ‘Simple’ belt sets are unstratified or poorly recorded, or else found in graves with later material.\textsuperscript{14} The absence of plain late fourth-century non-zoomorphic buckles (Simpson 1976) in cemeteries that later develop an Anglo-Saxon character does suggest, however, that wide zoomorphic belt fittings were deliberately selected.

\textsuperscript{12} Additional documentary material may be found in the works of late fifth-century Byzantine writer *Zosimus*, the early fifth-century *Notitia Dignitatum*, the ninth-century *Historia Brittonum* and the ninth-century *Anglo-Saxon Chronicle*.

\textsuperscript{13} They are: Dorchester I, Oxon, Milton-next-Sittingbourne, Kent and Mucking Grave 979 (Hawkes and Dunning 1961, 1-20, 59-68; Böhme 1986, 495, Abb 19-22; White 1988, 48-9, 53-5, Map 7; Welch 1993).

\textsuperscript{14} Over 30 cemeteries are known to contain belt sets of the ‘Simple’ variety, counting rosettes and lancet-shaped strapends (which can, however, be earlier). Other examples, that appear to have been scrap or curiosities, are listed by Welch (1993, 271), to which the rosette in M647 at North Shoebury, Essex (Tyler 1995a), could be added.
Supposedly ‘federate’ graves appear to be ‘poorer’ than those on the Continent (in that there is no evidence that they include luxury vessels, such as glass), and so cannot be explained as merely a ‘high-status’ phenomenon.

When such graves are found, they are not in late Roman cemeteries, but are the first burials in cemeteries that subsequently developed an ‘Anglo-Saxon’ character. This is more suggestive of ‘federate’ settlement, given their autonomous nature. It is impossible for various reasons, however, to trace any sort of chronological continuity from late fourth-century cemeteries into the early or mid fifth century. The contexts are poor; certain cemeteries contain material of the fourth or late fourth century, as well as material of the early to mid fifth century, but graves containing fifth-century material appear also to contain later material, or fifth-century material that is unstratified. The identification of continuity from coin-dated artefacts (Chapter 5) are problematic because of the end of circulating coinage at around AD 420. It seems likely that certain artefact types may have continued in use longer than it would appear. Dating difficulties are compounded by the customary late Roman practice of unfurnished burial. Spatial continuity does not necessarily equate with chronological continuity (Reece 1989); the re-use of prehistoric and Roman barrows for example, is well known (Williams 1997). Nevertheless, at

---

15 These cemeteries include North Higham (west Kent), Kempston (Beds), Frilford I and Cassington II, (Oxon), Highdown (Sussex), and Croydon (Surrey). At North Higham (Evison 1956, 110; Meaney 1964, 123) an unstratified Quoit Brooch Style brooch was found, and at Kempston ‘Simple’ belt fittings were found in Grave 14 (Kennett 1983; Clark and Dawson 1995, 66). At Frilford I a Quoit Brooch Style buckle was found with saucer brooches in Grave 5, and in Cassington II, Oxon a lancet-shaped strapend was found in a bag in Grave 2 (Dickinson 1976, 402). At Highdown there appears to have been a Roman cemetery and/or a villa (Welch 1980, 277), with Quoit Brooch Style buckles, in Graves 12, 34 and 60. At Croydon four complete ‘Roman’ pots were found, suggestive of a cemetery (Poulton 1988, 215), with unstratified ‘Simple’ and Quoit Brooch Style belt fittings.
Dorchester-on-Thames, although the late fourth-century (and later) cemetery was not used for the burial with a ‘Simple’ belt set.\textsuperscript{16}

Quoit Brooch Style belt buckles, reminiscent of ‘official’ wide belt sets, appear to have been used by leading federates employed in Britain (Welch 1993, 273). It has been argued (Appendix 16) that Quoit Brooch Style artefacts were made by sub Romano-British craftsmen. These artefacts were found in association with artefacts of Bohme’s \textit{Stufen}, if not directly in the same graves or even cemeteries, at least within cemeteries that later develop into Anglo-Saxon ones, and which were not late Roman. They have, perhaps surprisingly, rarely been found in the same cemeteries as ‘Simple’ belt sets.\textsuperscript{17} The distribution of these Quoit Brooch Style artefacts is, however, similar to that of ‘Simple’ belt sets (White 1988, Map 7; Appendix 16), except that only Quoit Brooch Style artefacts are found along the south coast, especially in Sussex and east Kent.\textsuperscript{18} Although there are very few demonstrably contemporary contexts, this distribution is likely to bear some relation to the original distribution of such artefacts. As Ager (1985) has pointed out, the distribution could be distorted by the more prevalent practice of cremation in northern and eastern England, and especially in East Anglia, but on the other hand the absence of official belt sets and Quoit Brooch Style artefacts in cremations does appear to be

\begin{itemize}
\item[\textsuperscript{16}] The graves at Dorchester-on-Thames are nearby, but not actually in the cemetery at Dorchester, Queensford Farm, Oxon, which has been radiocarbon dated from the fifth to?seventh centuries (Chambers 1987). The one example of a pre-existing late Roman cemetery, Lankhills, Hants, where federate burials have been claimed, does not stand up to examination, \textit{contra} Clarke (1979, 389-402) as there was an absence of brooches of the ‘mixed culture’ in female graves (Dickinson 1977, 407-8; Hills 1979, 308).
\item[\textsuperscript{17}] This combination has only been found at Mucking and Croydon, Surrey (Hawkes and Dunning 1961, 14, 15, 65-6, figs 4, 23c, 24c; Evison 1965, 28, 33, 50-1, figs 13, 14b; Böhme 1986, 495, 522, 564, Abb 21.4, Liste 2).
\item[\textsuperscript{18}] Quoit Brooch Style belt sets have been found primarily along the south and east coasts of England, especially along the coast of north and east Kent, and the Lower Thames, and the south coast,
\end{itemize}
real. The fact that Quoit Brooch Style artefacts are almost exclusively placed in graves, and not cremations, also associates them with this ‘mixed culture’. The distribution pattern seems to support the idea of federates being deployed on the major estuaries of the east coast, even as far north as the Humber, to provide a defence against Pictish attacks from the north, as well as against Saxon raids in the south-east (Welch 1993), in what appears to have been a coherent defence policy, perhaps implemented by Vortigern, the ‘proud tyrant’. Given the relative rarity of Quoit Brooch Style and ‘Simple’ belt sets overall, however, it appears likely that local men were recruited for military service without acquiring ‘official’ belt sets (Hawkes 1986, 73). Finds in France (Appendix 16) suggest a comparable system of defences on the other side of the Channel. Female artefacts are also decorated in Quoit Brooch Style, such as the bracelet in Grave 631 at Mucking II, and may reasonably be interpreted as signs of alliance with, or marriage to, federates.

There would have been a need to employ federates for defence, as there is no evidence that the late Roman army continued to operate in Britain after AD 407. Böhme (1986, 522-3, 558-61) and White (1988, 22) have argued that the Roman army continued to exist in Britain until the mid fifth century, citing in support of this the finding of wide belt sets and Quoit Brooch Style artefacts in what subsequently became ‘Anglo-Saxon’ cemeteries. Indeed, Graves 117 and 979 at Mucking were especially of Sussex, with a cluster in the Upper Thames There have also been a growing number of finds in northern France.

Parts of cingulaf have been known to survive the cremation process. They include a rosette which was found in M647 at North Shoebury, Essex (Tyler 1995a, 51, fig 38), a lancet-shaped strapend in Cremation 2, Alton, Hants (Evison 1988, fig 39), a Quoit Brooch Style brooch in Mucking II (Cremation 607), and a Type II belt plate at Droxford, Hants (Evison 1968, fig 41). Cremation has not prevented other fragile fifth-century artefacts being retrieved in these areas, such as applied disc brooches (Böhme 1986, Abb 57).

This is more convincing than the picture painted by Hawkes (1989, 86), who suggested that local civitates were responsible for the ad hoc employment of federates.
identified by Böhme (1986, 527, 538) as the graves of late Roman troops. This does not appear to be the case, however, for several reasons. Firstly, it does not fit the documentary evidence (Welch 1993, 274) which gives AD 407 as the date of withdrawal. Even if too much reliance should not be placed on this evidence, either in terms of what really happened in that year, of what might have occurred subsequently, payment of the army would not have been possible when, as seems undeniably to be the case, the circulation of coinage ceased by c AD 420. (Indeed the last major shipment of coin into the British provinces occurred c AD 402.) In addition, Böhme seems to have placed too much reliance on distribution maps in order to argue his case, without distinguishing between different contexts for those artefacts. He cites as evidence Quoit Brooch Style products, ‘Simple’ belt sets, fixed-plate buckles, Type I belt fittings, as well as Krefeld-Gellep and Brighthampton Type swords, which he dates as late as the second half of the fifth century (Böhme 1986, 523-6, Abb 44). The graves containing these swords may in fact be even later in date than he supposed. All these finds are either unstratified, or stratified in late Roman sites, as well as in cemeteries that subsequently became ‘Anglo-Saxon’. Given that Quoit Brooch Style artefacts and brooches of Stufen II and III do not seem to be found in continuously pre-existing cemeteries in Britain, it is reasonable to compare wide belt sets from late fourth-century cemeteries associated with the late Roman army with similar finds from more recent cemeteries. This comparison shows that the distribution of ‘Simple’ and Quoit Brooch Style belt fittings from newly established cemeteries is not similar to that of belt fittings of the middle and second half of the

---

21 For example, Welch (1993) noted that Böhme (1986, Abb 32, 33, 35) dated certain graves too early, such as Grave 42, Abingdon, Oxon, Grave 21, Petersfinger, Hants, and Grave 31, Brighthampton, Oxon.
fourth centuries, which, it can be supposed, reflects the presence of the late Roman army (Böhme 1986, 52, Abb 18).

At Mucking, the only two ‘federate’ graves that appear to be most convincingly of the appropriate date are Graves 117 and 979. The *cingula* could point to a civil-administrative role, but the rural site of Mucking would have been an unlikely base for officials of the late Roman Empire, who would be expected to have been based in walled towns or perhaps villas. That Mucking was a strategically secure site is well known. As Hills (1980, 87) has pointed out, however, a strategic site can be used either for offence (suggesting independent invaders) or for defence (pointing to federates), and both could have been possible in the case of Mucking. The possible continued existence of a sub-Roman settlement only 300-500m downslope at Walton’s Hall Farm, suggested by place-name evidence (Appendix 17) would seem unlikely, however, had independent invaders settled on the terrace. At Mucking, more fertile land would presumably have been seized had the settlers been acting independently; the terrace is relatively unfertile compared to adjacent lower-lying areas (Fig 1/2). It is even possible that the settlement at Walton’s Hall Farm continued in use into the sixth or seventh century, as is suggested by the find of a complete grass-tempered pot, although lack of excavation here makes this impossible to confirm (Hirst and Clark forthcoming, b).

The preference for the establishment of new, subsequently ‘Anglo-Saxon’ cemeteries is a striking feature at Mucking, even though late Roman cemeteries existed nearby, and were in use perhaps into the late fourth century (Chapter 8.1), but from then on (?or later) were defunct, as seems to have been the case elsewhere.
No *cingulum* had been securely associated with weapons in a cemetery of a subsequently ‘Anglo-Saxon’ character until the excavation of Grave 979 in Mucking II. In Mucking I, Grave 117 contained a Quoit Brooch Style belt set, and may possibly be associated with the unstratified sword, but unfortunately this remains uncertain. Elsewhere, there are other possible examples of graves with ‘Simple’ belt sets associated with weapons, but their interpretation has unfortunately been hampered by poor or incomplete excavation.\(^{22}\)

The possible federate Graves 117 and 979 appear to be part of a ‘mixed culture’, which could include individuals who had previously served in the late Roman army in Britain, and, after that, perhaps in Gaul. By *Stufen* II and III, this ‘mixed culture’ had shifted from an area that stretched from northern Gaul to the Loire, to now encompass an area from Britain to the Elbe-Weser area. Nevertheless, there is still a substantial number of brooch types representing this culture recorded from northern Gaul (Böhme 1986, Abb 54, 69, 72), such as Muids and Mahndorf Type applied brooches. The Quoit Brooch Style buckle in Grave 117 is a type of artefact that has a primarily insular distribution, and the art style is clearly derived from late Roman ornament, but the cemeteries in which such artefacts are found, like material of Böhme’s *Stufen*, are not late Roman, but subsequently have an Anglo-Saxon character. The sword with which it may have been associated unfortunately is incomplete. The type of spearhead, as well as the Type C penannular brooch and the

\(^{22}\) At Dorchester I, Grave I, Oxon, it is probable that weapons were originally present but were thrown away at the time of discovery (Hawkes and Dunning 1961, 1-3, fig 1; Böhme 1986, 495, Abb 20). Only one example of a Quoit Brooch Style buckle associated with weapons has been found, from Itchen Abbas, Hants (Youngs et al 1985), but the lack of any further information limits more discussion here. In Grave 14, Kempston, Beds (Kennett 1983), a sword scabbard was postulated, but this represent a misidentification of ‘Simple’ belt fittings (White 1988, 49, fig 26.1).
plain iron purse-mount in Grave 979, are types found from within the region of the Elbe to the Loire, and the same is probably true of the knife and tweezers.

It could be questioned whether archaeological evidence can be safely and effectively co-ordinated with the historically attested events of the period. Set within a precise historical chronology, the problems of differentiating between date of manufacture and date of burial of artefacts, or the age at death of individuals, for example, is of critical importance in the dating of ‘federate’ graves. Although there are problems in reconciling the chronology of the *Gallic Chronicle* with the later, inaccurate dating sequence provided by Gildas it does nevertheless seem that the two waves of settlement by federates that he described did take place (Welch 1993).

The earliest graves at Mucking, perhaps relating to the first wave, appear to belong to the transition between *Stufen* II and III, in other words to the 420s or 430s at the earliest (Chapter 5). The fine craftsmanship of the belt set in Grave 117 rightly led Hawkes (1989, 71) to suggest that this grave was more prestigious than Grave 979 in Mucking II. There are no clearly early to mid fifth-century female graves to accompany Grave 117, except perhaps for Grave 100, with the broken *Armbrustfibel*. Any of the unfurnished graves in Mucking I in theory be potential accompanying graves to Grave 117. Indeed, given the usual practice of passing on *cingula*, it can only be a matter of speculation whether there were other graves of federates lacking any evidence of their former status.

In Mucking II, the only burials that can reasonably be deemed to be contemporary to Grave 979 appear to be one unfurnished and unsexed adolescent grave (619), and Grave 631, a female grave. The latter appears to be ‘Roman’ in character, given the presence of bracelets, and absence of brooches (although
bracelets are found as part of the ‘mixed’ culture. Although these graves are not situated particularly close to the male graves, the Quoit Brooch Style bracelet in Grave 631 may be displaying ‘official’ insignia. The unfurnished Grave 619 exemplifies the problem of identifying ‘Romans’ when the usual late Roman practice of unfurnished burial can, by its very nature, only constitute negative evidence for the presence of an indigenous late Roman burial. The earliest cremations may also be contemporary with the earliest inhumations; the earliest artefacts have been identified as the Quoit Brooch Style brooch in Cremation 607, dated from the early to mid fifth century, or later (Chapter 5; Clark forthcoming, s), but possibly handed down, and the barred zoomorphic combs, which are dated from the late fourth century onwards (Clark forthcoming, s). It is possible that these cremations represent the remains of the larger scale type of controlled settlement, as envisaged in East Anglia (see above), but this cannot be known with certainty. The earliest cremations are found in the earliest areas of inhumations and the subsequent layout of Mucking II shows continued close spatial proximity between cremations and graves with similar artefact types. There may have been kinship ties between those who were inhumed to those who were cremated (Clark forthcoming, s).

Historically a second, later wave of federates could be envisaged around the middle of the fifth century. At this time, the Roman army still seems to have been operating in Gaul, though perhaps in a state of gradual disintegration, so that some troops might well have come to Britain to serve as mercenaries. The self-perceived identity of these individuals cannot be known. In Mucking I, the individual in Grave 272 may have been a federate; this grave contained a Rhenen-Vermand type shield.
boss, a type produced for the late Roman army in Gaul.23 The kidney-shaped inlaid buckle could have been made either in Britain or in Gaul (Chapter 1.2). The Type K1 spear is a type concentrated in the Elbe-Weser area (Böhme 1974, 101; Dickinson 1976, 313-16; Welch 1983, 134), and may provide the best clue as to his origin, although not his self-perceived identity, since the buckle and shield could quite possibly have been acquired in northern Gaul during military service, whereas the presence of the spear cannot be explained in this way.24

There are two further possible federate graves in Mucking II, but they are not closely datable: the male wearing a single penannular brooch and buried with weapons in Grave 789, and the unseriated individual in Grave 823, with Quoit Brooch Style belt fittings and an inlaid buckle. This grave was of an adolescent, however, and the wide belt fittings were worn. Other possible federate graves in Mucking II cannot be certainly identified as such, because the remaining cingula¢ and Quoit Brooch Style artefacts all appear to have been handed down (Chapter 5).

It has usually been considered that the ‘federate’ burials at Mucking are ‘Romanised’ in character whereas the female burials are ‘Germanic’, based on the presence of the female Graves 987 and 989 (Böhme 1986, 538; White 1988, 59). It is argued here that all these graves belong to a ‘mixed culture’. These graves may be dated slightly later than Grave 979, from the mid to late fifth centuries, or they could be contemporary (Chapter 5). Given the still unknown precise ages at death of these adults, it is possible that their artefact assemblages were acquired at the same time as

---

23 The attribution of manufacture to the Roman army is based on the makers' stamps on the silver sheet cladding on this type of shield boss, although this was not present on the shield in Grave 272.

24 Although Grave 91 contained a Krefeld-Gellep variant of the Type IIIB official buckle, of Stufe III or later, this was a child’s grave, suggesting that the buckle had been passed down, as was often the case, particularly with females (White 1988, 60).
that of Grave 979, but that the women lived longer and acquired further artefacts. Thus even if the females in these graves were buried later than Grave 979, they may still have accompanied the federate in life. Whatever the precise date of Grave 989, the dolphin-headed Type IIA buckle in Mucking Grave 989 appears to have been part of a *cingulum* that had been passed down, or else it demonstrates continued production of this type. The position of this grave very near to Grave 979 may in itself suggest that this buckle was intended to appear ‘official’.\(^{25}\) Although not wide, or relief cast, buckles of Type I, such as that found in Grave 987, may have been worn by the wives and/or descendants of federates (White 1988, 60).\(^{26}\) Of course any of the other female graves in Phase Ia/i could be potential accompanying graves, but they lack the ‘official’ buckles. They can be contrasted to Grave 875 in Mucking II which lacks material of Böhme’s *Stufen*, and which appears to have a ‘Roman character’, containing a bracelet, single penannular brooch and finger ring (although this is not conclusively so).\(^{27}\)

In fact, only around half the subsequently ‘Anglo-Saxon’ cemeteries that are known to contain Quoit Brooch Style or ‘Simple’ belt fittings have yielded brooches

\(^{25}\) In late fourth-century contexts such buckles appear to be concentrated at strategic locations (Hawkes 1974, 393), so they have been linked to the British militia (Clarke 1979, 289-91). Böhme (1986, 483) argued that dolphin-headed buckles had been used in the late fourth and early fifth centuries as *cingulæ*, prior to the adoption of relief cast buckles.

\(^{26}\) It has long been recognised that these buckles acted as ‘official’ insignia (Evison 1981, 128-30), as their late fourth-century contexts are primarily military and civil (Corney 1999). The association of such buckles with females, noted by Welch (1982), has led to suggestions that they were the official regalia of the wives of Roman troops (Böhme 1986, 507), whilst Corney (1999) sees them as being handed down second-hand to the wives.

\(^{27}\) The closest parallel to these graves in a subsequently Anglo-Saxon cemetery appears to be Grave 17, Chatham Lines, Kent, although this grave is dated to the mid to late fifth century (White 1988, 108, fig 54). In this grave, the shape of the Quoit Brooch Style decorated bracelets appears to be later than Grave 631 at Mucking: one bracelet (White no 7) with spoon-shaped terminals appears to be mid fifth-century in date, while another bracelet (no 6) has a terminal which does not appear to be purely Romano-British, and the motifs on the finger ring can be dated to the late fifth century (E Swift, pers comm).
that belong to Böhme’s *Stufen* II or III. 28 When these brooches are found, they could point to the former existence of accompanying female graves, but in the absence of good contexts, this cannot be established with certainty.

It could be argued that the case for a newly constructed ‘hybrid’ culture has been overstated, as certain brooch types found in Britain and datable to the early to mid fifth century clearly have their most concentrated distribution in the Elbe-Weser area. At Mucking, brooches of this category include the *Stutzarmfibeln* found in Cemetery II, in Graves 987 and 989 (Böhme 1974; 1986, Abb 54) and for the unstratified equal-arm brooch of Dösemoor type. *Armbrustfibeln* appear to be a type found largely in this area, although this may not apply to the particular example from Grave 100, which, if it is a Ruurthsbo Type, is found more typically in northern France. The only known female (outside of Mucking) who appears to accompany a probable federate grave in Britain is at Dorchester, Oxon. Here Grave I was associated with a female in Grave 2 whose cruciform brooch is a type concentrated in the Elbe-Weser area and Schleswig-Holstein. 29 The rite of cremation is also clearly one that was restricted to Free Germany (Todd 1977), and only rarely formed part of the funeral rites of northern Gaul. As we have seen, the cremations at Mucking are contemporary or near contemporary with the first male inhumations, and in all probability had some connection with them. Nevertheless, the mere fact that the rite of inhumation was used, combined with the use of ‘official’ insignia symbolising, even if only obliquely, the authority of the Empire, removes these individuals from a

---

28 This ratio only rises slightly if Type I buckles are counted as ‘official’ female markers.
29 In this grave early cruciform and applied brooches were found that are clearly primarily forms found in the Elbe-Weser area and Schleswig-Holstein (Böhme 1986, Abb 54, Abb 56).
straightforward ‘Germanic’ categorisation, even if they did originate from Free Germany.

The spotting and interception of sea-borne invaders by federates at various points along the Thames including Mucking seems plausible (Hawkes 1986, 71), although whether its purpose included the defence of London in the absence of early to mid fifth-century material in that area (Jones and Jones 1975, 185; Hamerow 1993, 93-4) is an open question. In the case of Mucking, it would seem that the primary purpose at least of any federate presence could be to guard the river crossing at East Tilbury to North Higham, Kent. The North Higham cemetery is situated across the Thames, directly opposite Mucking, at the easiest crossing-point on the river. The cemeteries at Kempston, Beds (Kennett 1986, 5), Croydon and Mitcham, Surrey (Poulton 1988, 214) also appear to have been located near river crossings. Many battles recorded in the Historium Brittonum which are dated to the fifth and sixth centuries (Alcock 1983, 55-7, 345) took place at river crossings, which must have been of great strategic importance. The defence of roads is also likely to have been important at Mucking, as it also appears to have been in Surrey (Morris 1959). At Mucking, it is possible that tolls (in kind) were collected, as the initial settlements of the populations of Cemeteries I and II appear to have straddled a road leading to the crossing (Chapter 8.2) but on balance this seems unlikely as this crossing was over three miles distant from the settlement. What is clear enough, however, is that the site was chosen because it offered good views across sea and land, and was defensible. It would also have been suitable as one of a series of beacon stations.\footnote{This could have resembled the early warning beacon system that reached its height in the sixteenth century. One beacon is known to have existed at 'Tilbury', located near, or possibly at Mucking, and it}

\footnote{This could have resembled the early warning beacon system that reached its height in the sixteenth century. One beacon is known to have existed at 'Tilbury', located near, or possibly at Mucking, and it}
In conclusion, Mucking II, Grave 979, provides the only known, properly excavated and definite example in Britain of a wide belt set of *Stufen* II-III, in what appears to be a contemporary context, and in association with weapons. The evidence from Mucking I is less clear cut, with the Quoit Brooch Style belt set in Grave 117 being only insecurely associated with a weapon, and not known to be associated with later artefacts.

The identification of federate burials remains problematic. The strategic character and agriculturally inferior nature of the Mucking site, in conjunction with documentary evidence for the use of federates in Britain, point to some kind of official, military presence. The documentary evidence, and non-use of the pre-existing late fourth-century cemeteries, further suggest that the people in question were federates, but their own perception of their identity cannot be known. Certainly attaching the labels ‘Germanic’, ‘Anglo-Saxon’ or even ‘Saxon’ to these federate graves would be anachronistic, despite the possibly contemporary, and certainly subsequent character of the material culture.

**The later cemetery (Phase IaI/aiii to IaIii/2)**

The artefacts from Mucking I from Phase IaI/aiii, as in other cemeteries, can be interpreted as evidence of trade (both overseas, and regional), intermarriage and/or immigration.31

---

31 Immigration may have been a complex, large-scale and prolonged process (Hines 1984, 297; Welch 1985b, 14; Welch 1992; Scull 1993, 70; Hines 1994; Hamerow 1994; Scull 1995, 73; Crawford 1997) rather than a small-scale process, characterised by elite dominance (Higham 1992).
At Mucking, relatively little material with parallels in the Elbe-Loire area can be dated to later than the middle to late fifth century, the most evident links being with northern France and the Low Countries. The presence of Frankish artefacts of the second half of the fifth century can be attributed in part to trade, as part of an east Kentish monopoly, and also to intermarriage and/or immigration (Welch 1987), and perhaps the continued movements of weapon-bearing ‘adventurers’. Most of the glass beads are probably Frankish artefacts. Likewise, the stoup in Grave 246 (dated to Phase Iaiii) appears to be from northern Gaul. This grave also included a front-fastening style of costume (Types 3 and 4 in Edwards forthcoming, a), similar to that found in Grave 252, also of Phase Iaiii, which has been argued as showing possible parallels with costume found in the Elbe-Weser area, such as at Issendorf (Hässler 1994, Abb 14). Alternatively, this type of costume might point instead to Merovingian Frankish or Kentish influence, although the brooches used in these instances were not Kentish. In Phase 1bi/bii, Frankish artefacts include the glass bowl in Grave 99, and in Phase 1biili/2, a shield-on-tongue buckle in Grave 116. The few categories of imports that do not appear to have been traded through Kent include amber beads and ivory bag rings (Huggett 1988).

32 Such trends are also found in the Mucking II inhumations and cremations (Hirst and Clark forthcoming, b; Clark forthcoming, s).
33 It is probable that all the glass beads were imports, particularly from Alamannic and Frankish areas. These include the polychrome beads in Phase 1bi/bii graves, such as Type P15 in Grave 102. Monochrome beads such as Type M5.1 (opaque yellow) in Graves 90 and 99 may be Frankish, and Type M1.1 (purple) in Grave 99 may have originated in the lower Elbe region. These imports continued in Phase 1biili/2, with the wiredrawn bead (P4) in Grave 116, which may have been Alamannic, and the ?Frankish polychrome Types P6, P9 and P23.
34 In Grave 252 the costume was fastened at the neck by a disc brooch, with a reused Iron Age pin at the chest, and in Grave 246 an annular brooch fastened a tunic at the chest.
35 Traces of these bag rings were found in the Mucking II cremations, where they were preserved by burning (Clark forthcoming, s). There were no traces of bag rings in Mucking I, possibly due to the soil conditions.
Links to other areas are also in evidence. The commonest link is of course Saxon, displayed in the frequent applied and disc brooches in Phase 1aiii. Kentish small square-headed brooches are in evidence in Phase 1bi/bii (Grave 99). In the case of the brooches in Grave 102 (Phase 1bi/bii), however, the triangular feet show links with brooches from the coastal region of northern France and the Low Countries. The cruciform brooches in Grave 92 display Anglian links.

Conclusions

The early cultural affinities of Mucking I appear to be primarily with the Elbe-Loire area. At Mucking the quality of the evidence for graves of the first half to middle of the fifth century is unsurpassed. The earliest grave, Grave 117, was clearly that of a high-status individual, who may have been a federate. By the late fifth and the sixth centuries an ‘Anglo-Saxon’ culture had developed, with regional differences. The cemetery was now primarily ‘Saxon’ in character, but with some Anglian and eastern Kentish influences. Frankish artefacts were also found, but whether they denoted immigration, intermarriage or trade is not clear. The cemetery appears to be a ‘folk’ cemetery, with relatively few individuals of high status until the early sixth century and later, when social hierarchies appear to develop. By the late sixth or early seventh century, burial seems to have taken place elsewhere, but the new site (or sites), used from that time is unknown.
EVALUATIVE SUMMARY

The eight chapters in this thesis offer a detailed analysis of all aspects of Mucking I, Essex, as a basis for the methodological study of Anglo-Saxon cemetery data. Mucking I was only incompletely retrieved and consisted of only 63 individuals, with very little bone data.

Chapter 1 is a synopsis of the data from Mucking I. It includes an account of the discovery and excavation of Mucking I, an assessment of its original size, and discussion of the dateable features in the area. The grave goods are discussed in detail, followed by a summary of the burial practices in the cemetery, including grave furniture, extraneous material in grave fills, orientation and the grave dimensions.

Chapter 2 expounds the rationale of the methodologies employed. Emphasis is placed on the comparative, and therefore regional, nature of the study, as well as on age thresholds, which have an important influence on chronological and social analyses. Given the small dataset from Mucking I, it was decided to supplement it by the far larger unpublished dataset of Mucking II, which consists of 282 graves and is almost unique in being a completely retrieved Anglo-Saxon cemetery. In both Mucking cemeteries, bone evidence was largely lacking, so a large cemetery with good bone evidence, and from the same ‘area of commonality’, was selected for systematic comparison. A survey of all known Anglo-Saxon cemeteries was undertaken in order to select the most useful for the purposes of comparison, and to provide a dataset for analysis of regional patterns of artefact use. The cemetery at Lechlade, Gloucs, which is unusual for the high quality of its bone evidence, was selected.
In Chapter 3 familiar dating methods (chain linking and core dating) are considered in terms of their uses and drawbacks, both in general terms and in relation to Mucking I. The additional advantages to be gained from a seriation exercise were recognised, together with the problems of making most effective and reliable use of it. A review of the factors affecting absolute (and to a lesser extent, relative) dating, with reference to the Lechlade dataset, was carried out with the aim of developing an approach to the coding of the seriation data for Mucking I to minimise the effects of misleading find-combinations which would cause errors and distortions in the findings. This approach produced a revised and more detailed picture of artefact acquisition on a regional basis.

Chapter 4 is an account of the ‘trial run’ seriation of the female graves at Lechlade using the UCL program ‘Seriate’, based on correspondence analysis, the most useful known technique. This cemetery provided one of the largest datasets of female graves, with bone evidence that made it possible for graves to be easily distinguished by sex. The two modes of orientation demonstrated a clear chronological trend, which on the whole corroborated the seriation results.

Chapter 5 describes the seriation of both cemeteries at Mucking. The results were on the whole corroborated by the stratigraphy and by the distribution patterns within Mucking II. The seriation was corroborated, and phased according to the coin-dated material of Böhme’s Stufen (1974), and Frankish material.

An examination of palaeodemographic material from all relatively large Anglo-Saxon cemeteries was undertaken in Chapter 6. Full investigation of the effect of poor preservation factors on the palaeodemographic profiles of these cemeteries has been attempted here for the first time. Well-preserved cemeteries were examined in terms of
their paleodemographic profiles. Finally, the detailed social analysis of an individual Anglo-Saxon cemetery is presented using age as the primary structuring principle. Traditionally, social analyses have concentrated on investigating status, but it now became apparent that ‘status’ cannot be isolated without first distinguishing the most basic structuring principles of age and gender. New, surer, knowledge was obtained, especially about adult females.

The first objective of Chapter 7 is to define and explain a methodology that combined different types of information in order to make good the deficit of bone evidence at Mucking with a data ‘subsidy’ from Lechlade, so as to reconstruct its palaeodemographic profile. Data about body lengths, coffin and grave lengths, age-diagnostic artefact types, as well as about regional frequencies of brooch and weapon type amongst adults was compiled for the first time (although data on weapon frequencies had to be reconfigured, as it was found to be unreliable). The methodology developed here is suitable for wider application. By combining several approaches, it transformed the very poor bone evidence at Mucking into a palaeodemographic profile that matches in accuracy and detail that of well-preserved Anglo-Saxon cemeteries.

This chapter also presents a social analysis of Mucking I, using age and then gender as key referents. The cultural trends based on many age variables in relation to age that were examined in great detail at Lechlade were then applied to the newly-aged individuals in Mucking I. The finding was recorded that unfurnished burials are, at least sometimes, the graves of older adults of both sexes. The full effects of age-related patterns of artefact use in the seriation were examined in the light of maximised age data, so that social trends through time could be examined.
In Chapter 8, aspects of the burial rite of particular relevance to Mucking I, which did not seem to be affected by age and gender, are discussed. Finally, the uniqueness of Mucking as an example of a ‘mixed culture’ cemetery prompted a critical consideration of the limits of applicability and reliability of unfortunately unavoidable ‘ethnic’ terms (such as ‘Roman’ and ‘Anglo-Saxon’) both to the artefacts, and to the people that owned and used them.


The garnets from grave 71, in Boyle et al (forthcoming).

Archaeological typology and practical reality. Cambridge: Cambridge University Press.


The Alternative Quoit Brooch Style pendant, in Scull (1992), 243-245.

A Quoit Brooch Style belt-plate from Meonstoke, Hampshire, Anglo-Saxon Stud Archaeol Hist, 9, 111-114.

A late Roman buckle or belt piece in the British Museum, said to be from northern France, Medieval Archaeol, 40, 1-6.

Recent re-discoveries in the Continental early medieval collections of the British Museum, in G De Boe and F Verhaeghe (eds), Method and theory in historical archaeology. Papers of the 'Medieval Europe Brugge 1997' Conference 10, 139-144. Zellik: IAP Rapporten.

The significance of the late Roman belt-fittings from Ickham.

The bells, in Boyle et al (forthcoming).

The disc brooches, in Boyle et al (forthcoming).

The mount from Lechlade grave 180, in Boyle et al (forthcoming).

The ‘Thunor's club’ pendant, in Boyle et al (forthcoming).

The face-mask brooch pair from Lechlade grave 136, in Boyle et al (forthcoming).

The penannular brooches from Lechlade, in Boyle et al (forthcoming).

The bird plaque from grave 123, in Boyle et al (forthcoming).

The spangles, in Boyle et al (forthcoming).


Die Leute von Ketzendorf, in Ahrens (1978a), 323-244.

An account of excavations in an Anglo-Saxon burial ground at Harnham Hill, near Salisbury, Archaeologia, 35, 259-278.

Note on some further discoveries in the Anglo-Saxon burial ground at Harnham Hill near Salisbury, Archaeologia, 35, 475-479.


Report on researches in an Anglo-Saxon cemetery at Brighthampton,


Aston, M, and Burrows, I (eds) 1982 *The archaeology of Somerset, a review to AD*
1500. Taunton: Somerset County Council.


Bateman, T, 1861 *Ten years’ diggings in Celtic and Saxon grave hills in the counties of Derby, Stafford and York from 1848 to 1858.* London.


Bernardi, B, 1986 *Age class systems: social institutions and polities based on age.* Cambridge: Cambridge University Press.


Biek, L, forthcoming, a The soil silhouettes, in Hirst and Clark (forthcoming, b).

Biek, L, forthcoming, b The insect pupae, in Hirst and Clark (forthcoming, b).


---, 1990 Models of burial, settlement and worship: the Final Phase reviewed, in Southworth (1990), 177-199.


Bond, D, 1988  Excavations at the North and South Rings, Mucking, Essex: two late Bronze Age enclosures. Gressenhall: E Anglian Archaeol Rep, 43.


----, forthcoming A seriation of Anglo-Saxon beads.


Chapman, R, 1977  The late and sub-Roman cemetery at Queensford Farm, Dorchester-on-Thames, Oxon, Oxoniensia, 52, 36-69.


---, forthcoming The textiles, in Hirst and Clark (forthcoming, a).


Davies, W, and Vierck, H, 1974 The contexts of Tribal Hidage: social aggregates and settlement patterns, Frühmittelalterliche Studien, 8, 223-293.


---, 1982 Fowler's type G penannular brooches reconsidered, Medieval Archaeol, 26, 41-68.

---, 1993 Early Anglo-Saxon saucer brooches: a preliminary overview, Anglo-Saxon Stud Archaeol Hist, 6, 11-44.

---, forthcoming, a The saucer brooches, in Boyle et al (forthcoming).

---, forthcoming, b The button brooch, in Boyle et al (forthcoming).
---, forthcoming, c The applied brooches, in Boyle et al (forthcoming).
Djindjian, F, 1985a Seriation and toposeriation by correspondence analysis, To pattern the past (PACT 11), 119-135.
----, forthcoming St Peter's Tip, Broadstairs, Kent: the human skeletal remains, in Haith (forthcoming).
Dumond, D E, 1974 Some uses of R-mode analysis in archaeology, American Antiquity, 74 (2), 253-270.
Dunning, G C, 1958 The skeletal material, in Chadwick (1958), 60-63.


-----, forthcoming, b. The position of the bags, in Hirst and Clark (forthcoming, b).
-----, forthcoming, c. The position of the buckles, in Hirst and Clark (forthcoming, b).
-----, forthcoming, d. The position of the knives, in Hirst and Clark (forthcoming, b).


The location and relationship of the Sancton Anglo-Saxon cemeteries, Antiq J, 56, 227-233.


Inventorium Sepulchrale: An account of some antiquities dug up at Gilton, Kingston, Sibertswold, Barfriston, Beakesbourne, Chartham, and Crundale...Kent, from A.D. 1757 to A.D. 1773, London: T Richards.


Recommendations for age and sex diagnosis of skeletons, J Hum Evol, 9, 517-549.

The eastern orientation of Merovingian graves and the seasonal distribution of morbidity and mortality (using the Sasbach-Behans and Bischoffingen-Bigärten cemeteries as examples), J Hum Evol, 9, 49-59.


Snape, Curr Archaeol, 118, 348-352.


The Anglo-Saxon cemetery at Snape, Suffolk.


Flower, J W, 1874a Notices of an Anglo-Saxon cemetery at Farthing Down, Coulsdon, Surrey, Surrey Archaeol Collect, 6, 109-117.
---, 1874b Notices of an Anglo-Saxon cemetery at Beddington, Surrey Archaeol Collect, 6, 125-126.


---, forthcoming, a The Romano-British and Anglo-Saxon settlement and cemeteries at Stretton-on-Fosse, Warwickshire.
---, forthcoming, b The Anglo-Saxon cemetery at Alvesdon, Warwickshire.

Fowler, E, 1960 The origins and development of the penannular brooch in Europe, Proc Prehist Soc, 26, 149-177.


Gelling, M, 1984 Place-names in the landscape, the archaeology of medieval Britain. London: Dent.


---, 1993c The middle Saxon period, medieval and later, in Clark (1993), 22.


Haddon-Reece, D, 1987 Comments on the radiocarbon dates in the late and sub-Roman cemetery at Queensford Farm, Dorchester-on-Thames, Oxon, in R A Chambers, *Oxoniensia*, 52, 35-70.


----, 1992b Social change around AD 600: an Austrasian perspective, in Carver (1992a), 265-278.


377
Early medieval cemeteries. Skelmorlie: Cruithne Press.


Hamerow, H, 1993b The Anglo-Saxon cemetery at West Hendred, Oxon, Anglo-Saxon Stud Archaeol Hist, 6, 113-123.


Harman, M, Lambrick, G, Miles, D, and Rowley, T, 1978 Roman burials around
Dorchester-on-Thames, Oxoniensia, 43, 1-16.


Hather, J, forthcoming The charcoal from the cremations and its environmental implications, in Hirst and Clark (forthcoming, a).


----, forthcoming The Anglo-Saxon cemetery at Kingsworthy, Worthy Park, Hampshire.

Hawkes, S C, and Dunning, G C, 1961 Soldiers and settlers in Britain, fourth to fifth century, with a catalogue of animal-ornamented buckles and related belt-fittings, Medieval Archaeol, 5, 1-70.


Heyworth, M, forthcoming Analysis of non-ferrous metal objects, in Hirst and Clark (forthcoming, a).


----, 1994 The becoming of the English: identity, material culture and language in


---, forthcoming The great square-headed brooch from Grave 18 (57), in Boyle et al (forthcoming).


Høilund Nielsen, K, 1988 Correspondence analysis applied to hoards and graves of the Germanic Iron Age, in Madsen (1988a), 37-54.

Stud Archaeol Hist, 8, 111-143.


Hollingworth, E J, and O'Reilly, M M, 1925 The Anglo-Saxon cemetery at Girton College. Cambridge: Cambridge University Press.


Hope-Taylor, B, 1950 Excavations on Farthing Down, Coulsdon, Surrey, Archaeol Newsletter, 2 (10), 170.


Hutchinson, M E, 1995 A technical examination of the non-glass beads from two Anglo-Saxon cemeteries at Mucking, Essex, Ancient Monuments Laboratory


----, 1968b A thousand years of Thurrock's past, *J Thurrock Local Hist Soc (Panorama)*, 11, 33-44.


----, 1979a Saxon Mucking - a post excavation note, *Anglo-Saxon Stud Archaeol*
Hist, 1 (BAR Brit Ser, 72), 21-37.

1979b Mucking, Essex: the reality beneath the cropmarks, Aerial Archaeol, 4, 65-76.


1980 Mucking and the early Saxon rural settlement in Essex, in Buckley (1980), 82-86.


Kendall, G, 1982 A study of grave orientation in several Roman and post-Roman cemeteries from southern Britain, *Archaeol J*, 139, 101-123.


King, C E, forthcoming Coins found in Saxon graves, in Boyle et al (forthcoming).


Kruskal, J B, 1964a Multidimensional scaling by optimizing goodness of fit to a nonmetric hypothesis, Psychometrika, 29 (1), 1-27.


Larrick, R, 1986 Age grading and ethnicity in the style of Loikop (Samburu) spears, World Archaeol, 18, 269-283.

Layard, N, 1907 An Anglo-Saxon cemetery in Ipswich, Archaeologia, 60, 325-342.

Leahy, K, 1993 The Anglo-Saxon settlement of Lindsey, in A Vince (ed), Pre-Viking Lindsey, Lincoln: City of Lincoln Archaeol Unit.

Leeds, E T, 1912 The distribution of the Anglo-Saxon saucer brooch in relation to the battle of Bedford, AD 571, Archaeologia, 63, 159-212.


Leigh, D, 1984 Ambiguity in Anglo-Saxon Style I art, Antiq J, 64, 34-42.


Legoux, R, 1980b Analyse chronologique relative d'une vaste nécropole: l'exemple du site.


----, 1933 The Saxon cemetery at Guildown, Surrey, Surrey Archaeol Collect, 41, 119-122.

----, 1935 Excavations at Ewell in 1934. The Saxon cemetery and Stane Street, Surrey Archaeol Collect, 43, 16-35.


Martin, M, 1989 Bemerkungen zur chronologischen Gliederung der frühen Merowingerzeit, Germania, 67 (1), 121-141.
----, forthcoming The human remains, in Hirst and Clark (forthcoming, a).


----, 1991  Demographic implications of the age structure of early English cemetery samples, Actes des Journees Anthropologiques, 5, 113-121.


----, 1962  Gazetteer of pagan Anglo-Saxon discoveries in Bedfordshire, Bedfordshire Archaeol J, 1, 63-76.


----, 1978 Amulets or small change?, *Antiq J*, 58, 252.


Neville, R C, 1852 *Saxon obsequies, illustrated by ornaments and weapons*. London.


----, 1904  *Methods and aims in archaeology.* London: Macmillan.

----, 1920  *Prehistoric Egypt.* London: British School of Archaeology in Egypt.


Philp, B, 1979  Four more Anglo-Saxon graves discovered at Polhill, *Kent Archaeol Rev,* 58, 178-188.


Pollitt, W, 1923  The Roman and Saxon settlement at Southend-on-Sea, *Trans
Southend Antiq Hist Soc, 1, 92-141.


Rahtz, P A, 1977 Late Roman cemeteries and beyond, in Reece (1977), 53-64.


Rodwell, K A, 1988 The prehistoric and Roman settlement at Kelvedon, Essex.
----, forthcoming St Peter’s Church, Barton-upon-Humber. London: English Heritage.
----, 1962 Worsaae’s Law and the use of grave lots for archaeological dating, American Antiquity, 28 (2), 129-137.
Rutter, E, forthcoming, a The copper alloy bowls, in Boyle et al (forthcoming).
----, forthcoming, b The turned wooden vessels, in Boyle et al (forthcoming).
Sandford, K S, 1965 Notes on the gravels of the Upper Thames Flood Plain between Lechlade and Dorchester, Proc Geol Assoc, 76, 61-75.
Saunders, P R, 1980 Saxon barrows excavated by General Pitt Rivers on Merrow Down, Guildford, Surrey Archaeol Collect, 72, 69-76.


Smith, C R, 1848  Discovery of Anglo-Saxon remains, Northfleet, Kent, *J British
Antiqu Ass, 3, 235-240.

----, 1860 On Anglo-Saxon remains discovered recently in various places in Kent, Archaeol Cantiana, 3, 35-47.

----, 1868 Collectanea Antiqua VI. London.

----, 1872 On Anglo-Saxon remains discovered recently in various places in Kent, Archaeol Cantiana, 3, 35-47.


----, 1907 Recent and former discoveries at Hawkshill, Surrey Archaeol Collect, 20, 119-128.


----, 1923 A guide to the Anglo-Saxon and foreign Teutonic antiquities in the Department of British and Mediaeval Antiquities. London: British Museum.


Spurrell, F C J, 1889 Dartford antiquities, British, Roman and Saxon, Archaeol Cantiana, 18, 314-315.


Starley, D, forthcoming A technological study of knives and spearheads from the excavations at Mucking, Essex, in Hirst and Clark (forthcoming, b).


Thorpe, B, 1840 *Ancient laws and institutes of England.* London: Record Commissioners.


---, in prep The Anglo-Saxon cemetery at Springfield Lyons, Essex.
Walsh, R, 1981 Recent investigations at the Anglo-Saxon cemetery, Darenth Park Hospital, Dartford, Archaeol Cantiana, 96, 305-320.
Walton Rogers, P, forthcoming Dyes, in Hirst and Clark (forthcoming, a).
Watts, S, forthcoming Analysis of the jet-like beads, in Hirst and Clark (forthcoming, a).


Webster, L, and Cherry, J, 1972 Medieval Britain in 1971, Medieval Archaeol, 16, 147-212.

Webster, L, and Cherry, J, 1973 Medieval Britain in 1972, Medieval Archaeol, 17, 138-188.


----, 1985a Button brooches, clasp buttons and face masks, Medieval Archaeol, 24, 142-145.

----, 1985b Rural settlement patterns in the early and middle Anglo-Saxon periods, Landscape Hist, 7, 13-25.


----, 1991 Contacts across the Channel between the fifth and seventh centuries: a review of the archaeological evidence, Studien zur Sachsenforschung, 7, 261-270.


----, 1993 The archaeological evidence for federate settlement in Britain within the fifth century, in F Vallet and M Kazanski (eds), L’armée romaine et les barbares du IIIe au VIIe siècle, 269-277. Rouen: Association Française d’Archéologie Mérovingienne.

----, 1996 Early Saxon, in D Williams, Some recent finds from East Surrey, Surrey Archaeol Collect, 83, 165-186.


---, 1998  *A corpus of Anglo-Saxon material from Suffolk.* E Anglian Archaeol Rep, 84.


---, 1990  Scrap or substitute: Roman material in Anglo-Saxon graves, in Southworth (1990), 125-152.


---, 1988  Settlement chronology and regional landscapes. The evidence from the claylands of East Anglia and Essex, in D Hooke (ed), *Anglo-Saxon settlement*,


A METHODOLOGICAL EXAMINATION OF ASPECTS OF CHRONOLOGICAL AND SOCIAL ANALYSIS OF EARLY ANGLO-SAXON CEMETERIES WITH PARTICULAR REFERENCE TO CEMETERY I, MUCKING, ESSEX

Dido Florence Clark

PhD

University College London

Volume 2
APPENDIX 1. THE GRAVE CATALOGUE OF MUCKING I

INTRODUCTION

The Mucking grid lines were 19° east of Ordnance Survey grid north, and co-ordinates are given as northings and then eastings (as they were during the excavation), ie in the opposite manner to OS grid references.

The grid reference for each grave is to the corner of the ten foot (3.05m) square in which the head end of the grave lies. Measurement of graves, coffins etc, given in the order of length, width, depth, were taken along their central axes, though additional measurements are sometimes also given. Where a second measurement occurs in brackets (in measurements of graves) this refers to the same dimension at the bottom of the grave. Depths of graves are all from the scraped surface of the 'subsoil' (designated 'O' or horizon B/C) and therefore less than the original depth from a contemporary ground surface (Hirst and Clark forthcoming, b). In grave sections the level of the side of the coffin along its length was projected into the section: these projections have been retained in the drawings but are always shown with the convention of coffin edges/sides, while covers or lids are shown by a contrasting symbol (see Fig Appendix 1/1). The key for glass bead colours is shown in Fig Appendix 1/2. Individual grave plans and grave goods are illustrated in Figs Appendix 1/1-26. Where the grave is completely empty, it is not illustrated.

Orientation is of the grave in the direction in which the head points and was initially measured along a central datum line towards the head end of the grave with a magnetic compass.

Initials identifying specialist comments (in brackets) are as follows (see acknowledgments for details of contributions):

HMA    Harry Appleyard
JB     Justine Bayley
LB     Leo Biek
RB     Roger Bland
EC     Elisabeth Crowfoot
JC     Jean Cook
DDM    Dominique de Moulins
GE     Glynis Edwards
VIE    Vera Evison
EF     Eric Freeman
TF     Tom Finney
MH     Michael Heyworth
MEH    Marjorie Hutchinson
WTJ    Tom Jones
CK     Carole Keepax
SL     Susan La Niece
AM     Ailsa Mainman
SM     Simon Mays
NM     Nigel Meeks
CM     Catherine Mortimer

402
Abbreviations
AA Atomic absorption
AB animal bone
AML Ancient Monuments Laboratory
AS Anglo-Saxon
BA Bronze Age
CA copper alloy
CH charcoal
Crem cremation
diam diameter
ext external
FC fired clay
Fe iron
FL flint gritted
FPRL Forestry Products Research Lab
fr fragment
Gr grave
GT grass tempered
HB human bone
int internal
IA Iron Age
L left
max maximum
MPWB Ministry of Public Buildings and Works
R right
RB Romano-British
sh sherds
WIRA Wool Industries Research Association
WT wheelturned
Xrad X-radiograph
XRF X-ray florescence

Storage
Most of the objects from the Mucking cemeteries are currently stored at the British Museum stores at Blythe Rd, Olympia, West London. However, certain objects are on display at the British Museum (the equal-arm brooch 90/3, claw beaker 92/1, the button brooches 99/5 and 99/6, the glass bowl 99/13 and the belt set 117/1).
Problems with the Mucking site grid specifically affected the position and orientation of graves in Cemetery I. The details of the site grid are given in Clark (1993, 7). Cemetery I was dug in two stages, in 1967 and 1969. Between these years, it was realised that the site grid had been incorrect. Notebook 29,3 states that in January 1967 the coordinates on the 1967 plan (4243) were equivalent to a $1^\circ$ error at 1150N x 60W, ie = 1150N x 58'9"W and a 3.5° error at 1200N x 60W, ie = 1200N x 57'8"W. This was confirmed by:

a) The magnetic readings for graves dug in 1969 (none were taken in 1967).
b) The re-corrected orientation of the conveyor belt on this plan using a $1^\circ$ shift matched the field plan for 1969 (4259) exactly.

It was therefore important to note the date of excavation for individual graves so that those dug in 1967 could be corrected to the 1969 site grid. Graves 90, 91, 92, 100, 107, 126, 127 and 130 were dug in 1967 and had no recorded coordinates. These had to be plotted from the plan 4243 (which appears to have been reasonably accurate when coordinates were given). Graves 93, 99, 102, 108, 113, 114, 115, 116, 117, 119, 120, 121, 122, 123, 124, 125, 128, 129 were also dug in 1967 and plotted from their coordinates. No graves, whether with coordinates or not, had magnetic readings done at the time. Possible empty graves dug in 1967 were: F5000, F6934-8 and F6979. Graves 240 and 101/272 were started in 1967 and finished in 1969.

Graves 131, 159, 241, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 255, 256, 257, 258, 264, 265, 266, 271, 276 and 283 were dug in 1969. Their recorded magnetic north readings matched those on the plan (except for Gr 131, which was destroyed, and Grs 258 and 283 where no readings were taken). Possible empty graves dug in 1969 were: F1169 (Gr 259), F3999, F6930 (Gr 254) and F6956 (Gr 242).

The plan published in Clark 1993 (site atlas plan 12) was drawn by plotting the graves dug in 1969, then plotting the graves from 1967 on a separate piece of permatrace according to the plan of that year (4243), then adjusting the latter's position until it matched the one feature found in both years—the conveyor belt.

There were numerous problems with coordinates for individual graves in matching the notes and field plans, recorded in the catalogue. Notes on resolved difficulties are stored in the archive.

CATALOGUE

90

GRAVE: 1160N x 60W; cut 6761; 1.95 x 0.79 x c 0.52 m; oriented WSW (c 252°).
Fill: Greyish fawn loam with small pebbles, flecks of ginger orange clayey sandy loam; a few flecks of 'CH' at intervals. Curved linear stain ?animal disturbance, 0.15m long, below feet at 0-0.30m.

STRUCTURES: a) Coffin, 1.70 x 0.42m x at 0-0.36m. Irregular rectangular stain with sides ?collapsed out at at 0-0.30m head end particularly, and less so at foot end. Varied from black to light grey.

b) Posthole- 0.30m x 0.45m, but drawn as if integral to grave cut.
NB line of grave cut slopes down from 0-0.30 to 0.45m towards posthole. Hardpan was suggested as the reason.


FINDS:
90/1 Button brooch, copper alloy with non-ferrous coating. With facemask design. Round eyes surrounded at bottom and sides with punchmarks. Rounded helmet and narrow ?slightly open mouth with crescent-shaped punch marks around the inner part of the rim. Pin, spring and axis bar missing, but slight traces of iron. Pin catch alignment is at 180°, rim slightly chipped. Organic (GE): pupae cases on back of brooch. Textile (GE): replaced traces on remains of pin and spring. (Conserved in BM but no notes found; AML 29; no Xrad, Brooch no. 2) Probably on R shoulder, no depth recorded.

90/2 Button brooch, copper alloy with non-ferrous coating. Irregular layout with ?two cheeks, a nose and mouth, or a leg. Iron spring, pin and ?axis bar fairly complete. Organic: pupae cases (GE). Textile (EC): on iron pin and spring, lump c 14 x12 mm, mineralised, clear areas very small, spinning Z/Z, even, medium twist, probably tabby weave, count c 6/6-7 on 5 mm. (Conserved in BM but no notes found; AML 28; no Xrad, Brooch no. 1) Probably on L shoulder, near neck, no depth recorded.

90/3 Equal-arm brooch, copper alloy with non-ferrous coating. Relief cast with S-scrolls within arms, animal heads projecting from bars and bow and an egg motif along bow. Faintly beaded outer borders around upper and lower arms. Decorating the longer arm is a pair of double S-scrolls with spiky offshoots and pellets; on the lower arm is a pair of S-scrolls with leaf-shaped terminal and spiky offshoot and pellets. An animal head with neck, ear, and open mouth projects from each arm, and another head which is simpler and thicker, from each side of the bow. The bow is decorated with a row of ring-and-dot punchmarks at each end (three at the bottom and four on the top), and an egg motif in the middle with three vertical bars at the top. Two lateral and integral copper alloy lugs with remains of iron pin, spring and axis bar with a copper alloy applied pin catch, which could be a mend. No apparent traces of niello (GE/CM). Textile (EC): Front; traces and patches of undyed linen fabric, ?flax, tabby, parts not completely replaced, best area 14 x 8mm, Z, Z, plain weave, count c 16 x 16 per 10mm (taken as 8 on 5mm). Back; round pin, folds of probably the same fabric, replaced, Z,Z, plain weave where identifiable. (Conserved in BM but no notes found; AML 30; Xrads 549 [missing], 582, R615.) Just below skull stain and slightly to the L of the backbone, no depth recorded.

90/4 String of 21 beads. Thirteen monochrome, four gold-in-glass, two polychrome and two amber beads. In chest area, probably strung between button brooches, but found in two main groups between 90/1 and 90/2 (button brooches) and 90/3 (equal-arm brooch), (on one plan but other plan shows group near centre only), and around the base of the backbone
and pelvis, with one on the line of the coffin parallel to the lower legs. No depth
given. Exact order recorded.
(Conserved in BM but no notes found; AML 36; no Xrad.)

Monochrome - 13 beads:
a) Two medium discs in opaque red, both with tapering holes. Beads 16, 18 (not ill).
b) One medium annular in opaque red. Beads 1.
c) Two medium discs in opaque yellow, both with tapering holes. Beads 4, 12 (not ill).
d) Five medium annulars in semi-translucent blue green, now pitted. Beads 2 (not ill),
6, 13 (not ill), 15 (not ill), 21. Max dimensions: D- 0.8cm, L 0.4cm, perf D- 0.4cm,
min dimensions: D- 0.5cm, L 0.3cm, perf D- 0.1cm.
e) Two medium irregular annulars with tapering holes in opaque white with
?deliberate first layer consisting of red opaque core (JB). Beads 14 (not ill), 19.
f) One medium disc in opaque blue white, with tapering hole. Bead 11.

Gold-in-glass - four beads:
g) Four gold-in-glass small segmented globulars. Beads 7 (not ill), 8 (not ill), 9 (not
ill), 10. JB: all contain gold, except for bead 10 which has no metal between the layers
of glass, but the outer layer of glass is yellow tinged to give a gold-like appearance.

Polychrome - two beads:
h) Two medium discs in opaque yellow glass with translucent blue green double

Amber - two beads:
i) One medium irregular globular, now only a third of a bead. MEH: Bead 17 no
obvious wear.

j) One medium sized long irregular biconical. MEH: Bead 5 both ends abraded flat by
wear and chipped by decay and wear from string. Hole bored from both ends.

91

GRAVE: 1160N x 60W; cut 6763; 1.40 x 0.64 x 0.43m; oriented WSW (c 248°); cuts
posthole.
Fill: dark loam soilmark, above cleaner gravel layer, above 'light chocolate' loam with
pebbles; clean gravel with soilmarks of greyish fawn fine silty loam at between 0-
0.15m and 0-0.20m, then mottled and mixed.

STRUCTURES: No evidence.

BODY: Near complete body stain found without the lower L arm. At 0-0.28m and
feet at 0-0.30m, pelvis at 0-0.38 m.
Position: supine with extended legs and feet together, R arm on side, head central.
Bone: one molar or premolar found but too fragmentary for recovery.
Age: older child (size). Sex: uncertain.
FINDS:
91/1 Copper alloy buckle with D-shaped loop ending in animal head terminals, and a trapezoidal plate cast in one with loop. Loop with diagonal grooves, but with no signs of inlay (GE). Animal head terminals near the plate with incised lines and cast jowl and jaw. Traces on loop of iron corrosion from tongue (GE). Plate with two originally dome-headed rivets, of which one is complete with flattened end. Plate has a crude rectangular cut-out for tongue. Iron tongue with copper alloy traces on it from loop, now detached but complete when excavated. Organic: on one side of tongue traces of possible leather from belt (GE). Textile (EC): Front on tongue; some very coarse Z threads, probably twill, beneath this, next to copper alloy, finer threads. Back; on tongue, area 9 x 7mm, fine regular 2 x 2 twill, Z,Z, count c 12 x 12 per 10mm (taken as 6 on 5mm). Two frs of this weave loose, probably same fabric, wool ?, 6 x 5 and 5 x 8mm, regular spinning and weaving, count c 16 x 14 per 10mm (8 x 7 on 5mm). (AML 27; Xrads R550, A8996.)

In waist area, at 0-0.36m, tongue pointing R.

92

GRAVE: 1160N x 60W; cut 6765; 2.07 x 0.67 x 0.36m; oriented WSW (c 248°); cut by posthole.

Fill: 0.05m of loam, top soil, outliers of natural gravel, with worm and root holes. Foot end of grave is uniform greyish fawn loam from turf from 0-0.15 to 0.28m. Circular patch of brown silty loam at 0-0.30m at foot area. Patch of grey silt in centre at 0-0.30m.

STRUCTURES: Coffin stain, 1.89 x 0.36 x 0.21m (from 0-0.15 to 0-0.36m), very regular and rectangular stain, more disturbed at foot end. Base must have been visible as outline ‘traced by following coffin bottom’. Wood on 92/3 but exact position uncertain.

Base of grave cut from head end to middle of grave sloped down to 0-0.23 to 0.36 m. Hard pan suggested as reason.

BODY: Head stain only, 'grey chocolate' loam at 0-0.20m. Position: no information. Age: adolescent/adult (size). Sex: female (artefacts).

FINDS:
92/1 Claw beaker. Light green-brown (equivalent to Mucking translucent yellow) vessel, slightly thickened and everted rim, straight, vertical wall curving in to foot, folded with a tubular cavity at the edge and pushed in with a pointed tool. Two zones of horizontal trails, one dropped on 55mm below the rim and turned upwards over 20 times, becoming melted in near the rim, the other dropped on 45 mm above the foot and turned downwards 16 times. Two rows of four claws each are applied very near to each other, the top row being pulled to within 10mm of the foot and the lower row slightly nearer to the foot. Each row of claws has a vertical indented trail, those on the lower row touching the foot and finishing at the top in a loop. On the foot is the scar
of a ring punty, diam 14mm. Small bubbles, glossy. A vertical trail accidentally dropped on the upper trail zone has been flattened. Broken and reconstructed with several small gaps.
(Conserved in BM but no notes found; AML 33; no Xrad.)
To R of skull, at 0-0.25m.

92/2 Cruciform brooch, copper alloy. Splayed wings, lappets in the form of downward biting animal heads and horse headed foot. Head with splayed, fragmentary wings and half-round, slightly hollow knob with nipple on top, cast in one; double arc punchmarks border middle panel. What appear to be possible punchmarks at the top and bottom of the headplate are due to corrosion (GE). Slot on the ends of the half-round side knobs to enable fixing on edge of wing. These knobs accommodate an iron axis bar along the back of headplate, piercing an integrally cast lug in the centre of the headplate. Remains of iron spring, axis bar and pin. Hollow curved bow with row of ring punchmarks at each end, between two sets of incised lines at the top and one set at the bottom with a few remaining tiny triangular punchmarks along both edges. Central median line. Pierced lappets on foot in form of Style I downward-biting animal head with curling beak. Between lappets is area with similar double arc punchmarks to those on the headplates. Triple raised ridges between lappets and foot. Plain raised band where foot expands. Simple hollow horse's head terminal with scroll nostrils and unpierced pointed nose. Brooch chemically stripped and no gilding intact (GE). Textile (EC): round pin attachment mineralised textile, Z threads, ?cord, under and through spring, 'loose threads?' as on 92/3 (cruciform brooch). (Conserved in BM but no notes found; AML 32; no Xrad, Brooch no. 2.)

On R shoulder, head facing feet and turned in a little towards the body, at 0-0.28 to 0-0.30m. Knobs separated from brooch to top R corner of coffin and half way down coffin on R side, in a small hollow, due to animal disturbance, at 0.18m.

92/3 Cruciform brooch similar to 92/2 but no clear median line on bow due to corrosion. Side knobs on headplate were loose, but found in position. One side knob pierced at back by perforation for side pin. Clearer remains of axis bar with iron spring and pin. The terminal knob on the head plate has a slightly different depth and positioning of the grooves. Horsehead on footplate has well-defined eyes, with some marking between them, possibly representing an animal mane, unlike 92/2. No gilding intact (GE). Above and attached was an organic stain. Organic: Quercus sp (oak) (CK) but not now present (JW), location not recorded, that was probably part of the coffin. Textile (EC): (a) Front; tiny frs and threads replaced textile from copper alloy, the largest 4 x 3mm, plain weave, Z,Z, tabby, count estimated c 18/15 per 10 mm. Around pin attachment (b), Z/Z frs, more like twill. (Conserved in BM but no notes found; AML 31; no Xrad, Bronze no. 1.)

On L shoulder, head down and turned in a little towards the body, from 0-0.28 to 0-0.30m.

93

GRAVE: 1160N x 40W; cut 6767; 1.55 (1.40) x 0.49 (taken from head end as middle is destroyed) x 0.34m (slopes from 0-0.20 at head end, and 0.34 at foot end), scraped
level 0.08m below subsoil, and 0.38m below modern surface; oriented WSW (c 255°); L side cut by dragline, especially in the centre.
Fill: soft sand on one side, with hard pan near the head and underneath the brooches, brown stain above L knee.

STRUCTURES: a) Coffin/bier, 1.37 x 0.30m (but damaged especially on L side) x no depth (no info). Incomplete rectangular stain.

b) Cover? Wood above brooches 93/1 and 93/2.

Slope down from head end at 0-0.20 and bottom at 0.34 m. Hard pan near head.

BODY: Partially complete, head central, 0.05 to 0.08m thick, of fine light brown sand, lower half of extended legs, especially the R one.
Position: supine body with extended legs, central head.
Age: older child (size). Sex: female (artefacts).

FINDS:
93/1 Small-long brooch, bronze (AA, CM). Bilobed angle in upper arms of slightly broken cross and single rounded angle between lower arms of cross on head plate. Convex grooved bow faceted at each end. Foot has side facets and ridged moulding below; terminal is crescentic. No gilding intact, chemically cleaned (GE). No incised line under bow, and iron pin missing. Iron spring, pin and axis bar remains. Organic: wood stains on both brooches that are probably coffin ‘underneath and over’ (WTJ notes) found but nothing now remaining (JW). Textile (EC): Front; scraps of replaced textile on front, the only decipherable pieces, tabby, Z,Z, plain weave, probably the same as that on 93/2. (AML 26; Xrad R550, Brooch no. 2.)
In centre of chest, lying parallel to 93/2, horizontal with headplate towards R, no depth recorded.

93/2 Small-long brooch, bronze (AA CM), similar to 93/1, but with transverse groove immediately under the bow. Complete iron pin, spring and axis bar. Organic: ‘fair amount of wood’ leaving stains on both brooches that was probably from the coffin (WTJ notes) but none remaining (JW). Textile (EC): Front; areas of undyed linen, the best on the bow, c 10mm square, Z,Z, flax?, tabby, plain weave, count estimated c 10 x 10 per 10mm. Back; replaced damaged Z-twists that might possibly be tabletweave. (AML 25; Xrad R551, Brooch no. 1.)
In centre of chest, lying parallel to 93/1, horizontal with headplate towards R, no depth recorded.

93/3 String of 14 beads. 12 monochrome, one polychrome and one amber bead. (AML 38; no Xrad.) In the waist area, in a circle, perhaps around a wrist, precise order recorded, no depth recorded.

Monochrome glass - 12 beads:
a) One medium disc in opaque red. (Bead 2.)
b) Six medium annulars in translucent pale blue green, wound and unmarvered. (Beads 3, 5 (not ill), 7 (not ill), 9 (not ill), 12 (not ill), 14 (not ill). Max dimensions:
D-1.0cm, L-0.6cm, perf D- 0.6cm, min dimensions: D- 0.9cm, L- 0.3cm, perf D- 0.5cm.
c) Two medium annulars of translucent blue, wound unmarvered. (Beads 8, 10 (not ill)).
d) Two medium coiled globulars in translucent blue, wound unmarvered. (Beads 4 (irregular), 11 (not ill).)
e) One (min) fragmentary translucent blue. (Bead 13 (not ill)).

Polychrome glass - 1 bead:
f) One medium disc in translucent yellow glass, with opaque red double crossing waves and opaque yellow spots. (Bead 1.)

Amber - 1 bead:
g) One large irregular wedge (reused half bead). MEH: Bead 6 drill marks in both holes, but different, hole bored ?both ends. End probably flattened to stabilise bead for drilling hole. One end abraded flat.

GRAVE: 1170N x 50W; cut 6769; 2.41 x 0.82 x 0.53m; oriented WSW (c 255°); ?cut by F6929 (scraper track?) and ?cuts 5234 (probable Anglo-Saxon ditch).
Fill: irregular bottom, covered in hard pan with pockets of soft sand at head end, with ?patches of organic stains, from 0-0.08 to 0.36m and brown compact silt, many worm casts and small pockets of pea-grit. Foot end partly collapsed. ?Turf, 'greyish fawn', greasy loam decayed, irregular oval, c 0.30 x 0.15m, on R side of grave, outside coffin, at 0-0.38 to 0.48m. Slight hollow beneath head. Inside coffin, blotchy, frequent lenses of hard orange gravel, organic patches of grey/brown silt, worm runnels and peagrit.

STRUCTURES: Coffin, 1.93 x 0.48 x 0.11m (from 0-0.30 to -0.41m), incomplete rectangular stain, black carbonaceous. Foot end partly collapsed, at 0.60 to 0.90m along. Wood on 99/1 but position uncertain. Wood below shears 99/12 suggests coffin base.
BODY: Fairly complete body stain, missing the vertebrae, feet and ankles together at 0-0.46m.
Position: supine, extended legs, arms unknown, head central.
Age: adult (size). Sex: female (artefacts).

FINDS:
99/1 Small square-headed brooch, in gilded copper alloy. Head-plate frame is ornamented with a row of annular punchmarks; there is a plain raised second panel border, and an inner panel with relief cast zoomorphic ornament including a limb. The panelled bow also bears zoomorphic ornament. The undivided lozenge-shaped foot bears vestigial animal heads with prominent eyes and possible jaws on the upper borders. The inner panel of the footplate is a plain raised lozenge with raised panel frame and footplate frame, both 'notched'. The lower borders of the footplate bear annular punchmarks. The rectangular terminal has further notched animal ornament, probably a limb or possibly a tail. Iron pin, spring and axis bar missing. Copper alloy
bead (99/4w) fused onto the back. CM: EDXRF reveals probable mercury gilded, preserved in patches but no evidence for niello. Chemically cleaned and gilding missing in places. Organic: matter over textile that may be remains of body. Loose scraps of ? leather and wood seen by EC but no longer exist (GE). Textile (EC): (a) Front; traces textile, Z spun. Back; replaced area c 15 x 14mm, on pin and round copper alloy bead (99/4w), ?linen, flax?, tabby, Z,Z, regular spinning and weaving, plain weave, 14/13 per 10mm. Back of pin, weave not clear, probably tabby from front, Z/Z, 4 threads per 2.5 mm. Other traces on the surface Z threads probably from same. Loose; scraps of same weave, one double. (Conserved in BM but no notes found; AML 41; no Xrad; Brooch no 3.)

On R shoulder with headplate towards feet, no depth recorded.

99/2 Small square-headed brooch. Similar to 99/1 but foot more damaged. CM: EDXRF of surface revealed the presence of much gold, some silver, traces of mercury and copper, tin, zinc, lead from the brooch. Probably mercury gilded, and no niello was used. Frs of brooch with frs of iron corrosion. Organic: none (GE). Textile (EC): on pin (a) area 10 x 10 mm, Z/Z, tabby weave, 13/11 per 10mm. (Conserved in BM but no notes found; AML 42; Xrad RS 83; Brooch no 4.)

On L shoulder, with headplate towards feet, no depth recorded.

99/3 Incomplete iron pin, spherical headed with circular section broken shaft (GE). Organic: possible textile on shaft, but very degraded (GE). (Conserved in BM but no notes found; AML 558; Xrads A9071, A9301, A9808.)

Central chest, just below neck, no depth recorded, under 99/1 (brooch).

99/4 String of 95 Beads.
Fifty-two monochrome and seven polychrome glass beads, plus 29 amber, five cannel coal/shale, one pewter and one copper alloy bead. Four amber beads (iii) unstratified: No. 1, at 0-0.30m. At 0-0.43m Beads 2-4 found, two outside coffin and one inside in chest area at 0-0.43m. The rest in a string between 99/1 and 99/2 in chest area at 0-0.46m, in two or three strands. Exact order known. (Conserved in BM but no notes found; AML 34-5; no Xrad.)

Monochrome glass - 52 beads.
ai) Five medium annulars/discs in translucent purple. Beads 16 (now chipped) (not ill), 22 (irregular not ill), 29 (not ill) (fragmentary) 41 (semi-translucent), 78 (now broken) (not ill). Max dimensions: D- 0.9cm, L- 0.6cm, perf D- 0.3cm, min dimensions: D- 0.8cm, L- 0.3cm, perf D- 0.3cm.

aii) Five medium globulars, very irregularly wound, in translucent purple. Beads 10, 47 irregular (not ill), 74 (not ill)(semi-translucent), 85 (not ill), 87 (not ill). Max dimensions: D- 1.0cm, L- 0.7cm, perf D- 0.2cm, min dimensions: D- 0.6cm, L- 0.5cm, perf D- 0.3cm.

aiii) Two (min) beads in translucent purple, fragmentary. Beads 20, (not ill), 67 (not ill).

bi) Three medium irregular discs with tapering holes in inhomogeneous opaque red with black streaks (JB). Beads 17, 77, 82 (not ill) with square perforation on one side.
bii) One medium barrel in inhomogeneous opaque red with black streaks (JB). Bead 64.

biii) One medium short globular bead in opaque red, with tapering hole. Bead 32.

ci) Four medium discs in opaque yellow (two with square perforations). Beads 14, 28 (not ill), 68 (not ill), 81 (not ill). Max dimensions: D- 1.0cm, L- 0.4cm, perf D- 0.2cm, min dimensions: D- 0.7cm, L- 0.2cm, perf D- 0.1cm.

cii) Two medium cylinders in opaque yellow. Beads 39 (slightly six sided) and 44 (irregular).

d) One (minimum) translucent yellow, fragmentary. Bead 57 (not ill).

e) Two medium annulars/discs in translucent dark green. Beads 52 (not ill), 54.

f) One medium annular/disc in opaque green/black. Bead 59a.

g) Two medium annulars in translucent blue green. Beads 31 (not ill), 65.

h) Two medium discs in semi-translucent blue green. Beads 9, 86 (not ill) square perforation on one end.

i) One medium disc in semi-opaque green blue. Bead 69.

j) Eight medium annulars in translucent blue. Beads 19, 24 (not ill), 34 (not ill), 36 (not ill), 38 (not ill), 72 (not ill), 75 (not ill). Max dimensions: D- 1.0cm, L- 0.4cm, perf D- 0.5cm, min dimensions: D- 0.8cm, L- 0.3cm, perf D- 0.4cm.

ki) Six medium annulars in translucent dark blue. Beads 43 (not ill), 45 (not ill), 47b (not ill), 60 (not ill), 70 (not ill), 91. Max dimensions: D- 1.1cm, L- 0.5cm, perf D- 0.5cm, min dimensions: D- 0.8cm, L- 0.4cm, perf D- 0.4cm.

kii) One large annular in translucent dark blue, with a square perforation at one end. Bead 48.

l) One 'annular' in 'deep' blue (not ill). Bead 26. Once extant but now missing, with no further information from the bead records.

mi) Two medium discs in opaque white. Beads 23 (not ill), 73 (not ill), square hole on one side.

mii) One (min) very fragmentary bead in degraded opaque white glass. JB: with a black traces around the perforation due to inhomogeneity. This is probable discoloration from iron or copper oxides forming on the surface of the rod (not ill). Bead 27.
miii) One medium disc in opaque blue white. Bead 80 tapering hole, that is square on one side. JB: small dark olive trail that is an accidental inhomogeneity.

Polychrome glass - seven beads:

n) One small fr of white opaque glass with translucent blue green trails. Bead 21.

o) One irregular thin walled cylinder in semi-translucent blue green glass with monochrome opaque yellow and opaque red irregular linear trails. Bead 8.

p) Two medium discs in white opaque glass with opaque red and translucent pale blue green spots. Beads 42 has two spots in blue green near one edge and two spots in opaque red nearer the circumference. Bead 47a has four spots in blue green and four in opaque red, of which two are irregular, with the colours intermixed in position.

q) One irregular medium sized barrel bead in white opaque glass with translucent stripe and single irregular wave in blue green. Bead 76.

r) One medium barrel bead in semi-translucent blue green glass with opaque yellow spiral below opaque red wave. Bead 58.

s) One medium disc in white opaque glass with blue translucent double crossing waves and opaque red spots. Bead 37.

Amber - 29 beads:

ti) Two medium amber irregular disc beads. MEH: Bead 55 hole has wear facet on one end, hole bored both ends (not ill), Bead 61.

tti) Five large amber irregular disc beads. MEH: Bead 4, Bead 6, ends abraded flat, Bead 51 hole oval one end, one end abraded flat (not ill), Bead 89 egg-shaped hole, hole bored mainly from one end (not ill), Bead 90 ends not flat (not ill). All with abraded ends, and hole bored both ends, 4 and 6.

tti) Six large amber irregular wedge beads. MEH: Bead 1 hole egg-shaped one end good drill mark (not ill), Bead 2 pear-shaped hole at one end (not ill), Bead 3 good drill marks, Bead 7 (not ill) hole egg- and pear-shaped, Bead 50 (not ill) pear-shaped both ends, Bead 56. All with ends abraded and with one end worn flat except no 1, hole bored at both ends 4 and 6, both ends egg-shaped 3 and 56.

tiv) Two medium amber globular beads. MEH: Bead 79 one end abraded flat, (not ill), Bead 88. Both with holes bored from both ends and possibly worn, hole large and egg-shaped.

tv) One large amber slightly faceted irregular globular bead. MEH: Bead 53 one end abraded by wear, facets not deliberate. Hole bored both ends.

tvi) Ten medium amber sized long biconical beads. MEH: Bead 18, Bead 25 hole offcentre, ends not parallel (not ill), Bead 30 hole egg-shaped one end, and off-centre one end (not ill), Bead 35 (not ill), Bead 40 hole egg-shaped both ends (not ill), Bead
46 hole oval one end (not ill), Bead 62 one end chipped before burial (not ill), Bead 66 (not ill), Bead 71 (not ill), Bead 84 (not ill).

All holes bored both ends, and with abraded ends except 71, ends not flat 46, 62, 66, 84, one end flat 18, 30, 35 and 40. Wear facet 25, 66, 71, and 84. String worn slot or caused chipping down side of bead 25, 35, 40, 46, 66.

tvii) One irregular amber medium sized barrel bead. MEH: Bead 59 hole slightly egg-shaped at the one abraded end, string worn down side of bead (not ill).

tviii) One irregular amber short cylinder bead. MEH: Bead 12 hole bored at both ends, offcentre and worn oval both ends.

tix) One medium sized amber standard irregular cylinder bead. MEH: Bead 15 ends worn flat with a large hole.

Cannel coal/lignite/oil shale - five beads. XRF suggests is not jet (SW):

ui) One large square irregular ?unfinished rectangular sectioned wedge shaped bead, four irregular diamond shaped facets on outer edge, with four triangular facets each on the upper and lower edge. MEH: Bead 49 hole egg-shaped, sharp wear edge, and ends worn flat. (No AML no; Xrad A9617.)

uii) One medium ?unfinished rectangular sectioned wedge shaped bead. Originally four diamond and eight triangular facets. MEH: Bead 5 hole egg-shaped both ends, wear facet part round hole one end. (No AML no; Xrad A9617.)

uiii) One medium irregular disc bead. MEH: Bead 11 slightly faceted from working, hole bored one end. (No AML no; Xrad A9617.)

uiv) One medium square facetted bead, four irregular diamond shaped facets on outer edge, with four triangular facets each on the upper and lower edge. MEH: Bead 83 hole countersunk. (No AML no; Xrad A9617.)

uv) One medium sized irregular long cylinder bead; diamond-shaped section, four diamond shaped facets on outer edge, with four triangular facets each on the upper and lower edge. MEH: Bead 13 hole bored both ends. Very worn 5, 49, 83, and unfinished bead 11, 13. (No AML no; Xrad A9617.)

Pewter - one bead:

v) ?One deeply mineralised tin-rich pewter fragmentary bead (JB) (not ill). Too fragmentary to say if it is wound (GE). (Bead 33.)

Copper alloy bead:

w) Copper alloy cylindrical bead, cast grooved sheet wound round into tube (GE). Textile (EC): thread through (GE).

Fused to back of 99/1 (small square-headed brooch), no depth recorded.

99/5 Button brooch, in copper alloy with face mask design surrounded by circle of punchmarks. Gilding largely intact. Face mask with lopsided mouth. Punch mark decoration around the inner part of the rim. Iron pin originally aligned down the
length of the face. Textile (GE): mineral preserved traces on remains of iron pin and spring. (Conserved in BM but no notes found; AML 44; no Xrad; Brooch no 2.)
In lower chest, no depth recorded.

99/6 Button brooch, copper alloy with gilding largely intact Similar to 99/5. Trace of iron from pin, spring and axis bar. Textile: mineral preserved traces on iron spring and pin (GE). (Conserved in BM but no notes found; AML 43; no Xrad; Brooch no 1.)
In lower chest, no depth recorded.

99/7 Spiral silver (GE) finger ring; expanding with overlapping ends and two decorative edge grooves, and vertical grooves at terminals. Now more fragmentary than when drawn. (Conserved in BM but no notes found; AML 39; no Xrad.)
In R pelvic area, originally on R hand?, no depth recorded.

99/8 Composite comb, now consisting of seven small rivets. Three with circular sections, two square sectioned and two with unclear sections. Two complete and double ended (GE). Organic: traces of probably three layers of mineralised bone or antler evident on two rivets (nos 1 and 5) (GE/JW). Two rivets ill with organic remains (Conserved in BM but no notes found; AML 603; Xrads 556 [missing], A9071.)
In pelvic area; four found at 0-0.46m, two sets of three equidistant along the line of the pelvis, with one further to the L.

99/9 Iron knife, straight back with slight curve into tip, cutting edge strongly curved, too corroded to tell if worn (GE), tip missing. Tang central with smooth junction both sides. Butt welded (DS). Organic: remains of horn handle on tang and possible trace of leather sheath on blade (GE). (Conserved in BM but no notes found; AML 557, 559; Xrads 975, 981, A8996.)
To L of waist at 0-0.47m. No info. on where tip was pointing.

99/10 Iron pursmount/firesteel, plain iron with downward curving terminals. No signs of inlay. Small D shaped buckle with incomplete tongue. Pierced figure of eight shaped attachment plate bent over the buckle loop on either side of the tongue and ?soldered on (GE). No rivets visible (GE). Organic: traces of possible leather on front of the mount and over buckle tongue (GE). Textile (EC): lump on the back (c) replaced Z,Z, tablet weave, 3 cords, 4mm, L. 10mm, all cords lie S. (Conserved in BM but no notes found; AML 130; Xrads R510, A9808, Iron K.)
To L of pelvic area, parallel to body, no depth recorded.

99/11 Three oval iron rings. One ring more square sectioned than the others, and one with a thicker loop. Organic: on underside of large ring trace of possible leather (GE). Textile (EC): possible very degraded traces on upper side of large ring and on frs of smaller ring. Two weaves, (a) next to iron, mineralised, spin Z, ?fine tabby; outside this (b) mineralised, coarser, loose Z threads, weave not clear. (Conserved in BM but no notes found; AML 129; Xrads R510, A8996-7, Iron L.)
To L of pelvic area, below 99/10, originally in the purse 99/10?, no depth recorded.
99/12 Iron shears, full-length, with one tip missing. Slightly curved in section. Organic (DDM): possible plant material on reverse of shears, ?grass stem and one wider piece with line in another area, probably straw. Wood (JW): Tiny frs of wood, now unidentifiable, probably from coffin, uncertain which side. Textile (EC): Across head (b) replaced Z/Z, 2/2 twill, 5/6 per 5mm, 6 x 5 coarse, loose twist. All along arms (d) replaced Z/S twill, 55-60mm, even medium twist, damaged. (Conserved in BM but no notes found; AML 131; Xrad R510.)
To one side and partly underneath bowl 99/13, to L of feet at 0-0.48m.

99/13 Glass bowl. Light blue green (equivalent to Mucking translucent pale blue-green), everted rim slightly thickened, squat, globular body and weakly indented base. Ten turns under the rim of a fine white trail which contains large black inclusions. Ring scar of punty 9 x 10 mm. Glossy with small bubbles, lop-sided. Complete. (Conserved in BM but no notes found; AML 34; no Xrad.) To L of feet, base at 0.47m.

100

GRAVE: 1180N x 50W; cut 6795; 2.13 x 0.76 x c 0-0.27 to -0.30m depth, with an area of from 0-0.30 to -0.33m from 2' to 4.6' along grave; oriented WSW (c 245°).
Fill: Bright ginger gravel at head end and clean lighter silver gravel at foot end gives way to loam. Clean gravel outside probable coffin with light brown pebbly silt at grave edge to side of chest. Gravel disappeared by 0-0.15m, grey/brown pebbly silt with ginger brown silt stains at 1' to 2.6' (ie near feet) along at each side of centre line, worm runnels (under skull), and probable animal disturbance at head end on R. Greasy grey brown pebble free silt area at head end, near head. Hard red pan. Yellow sandy and ginger brown silty patches at the foot end.

STRUCTURES: a) Possible dugout coffin, 1.52 x 0.43 x 0.15m (from 0.10 to 0.25m). Head end and R side ?near shoulder fallen in. Straight sided at top, rounded further down. Narrow ginger-brown indistinct stain at foot end, which seemed to merge with the body stain.

BODY: Incomplete body stain, at 0-0.30 to 0-0.41m, ginger-brown pebble free. Skull bone at 0-0.23m, tilted back. Position: supine with extended legs, arms along sides, skull disturbed, in hollow, and to R. Skull and long bone subject to ?animal disturbance.
SM: adult.
Age: adult (bone). Sex: female (artefacts).

FINDS:
100/1 Broken Armbrustfibel. Top and bottom of bow with horizontal bands of incised lines interspersed by opposed triangular nicks. Central lug at bow head. Rest of bow is too corroded to be sure if this was decorated or not. Splayed foot has two pairs of opposing triangular nicks, terminating with widely spaced curved indentations, which appear to be part of original design (GE). Pin, spring, and axis bar missing, but traces of iron present. No trace of catchplate, and ?may be disguised by corrosion (GE). No signs of tinning (GE). Textile (EC): Front; frs textile detached, 15 x 6, 10 x 9mm,
Z.Z, twill, 2/2, regular, count 12/12 (the second taken as 6 on 5mm) HMA ?wool, animal fibres, some of which are pigmented. (AML 312; Xrads R553, R565 [missing], R555a-b.)

To L of waist, in bag, no depth recorded.

100/2 Iron knife, with a fairly straight back with slight concave curve into tip, possible worn cutting edge (GE), with strong convex curve into tip. Tip missing. Tang central and shoulder both sides. Organic: traces of horn handle on the tang and trace of leather sheath on blade (GE). (AML 312; Xrads R553, 555A-B, Iron no. 2.)

To L of waist, below 101/1 (bow brooch) and 101/3 (spindlewhorl), in bag.

100/3 Spindlewhorl? Fossil sponge (SP), conical perforated. (AML312; Xrad R553.)

To R of waist, in bag, no depth recorded.

100/4 Complete D-shaped iron buckle, with no signs of inlay. Straight hingebar narrower than loop. Tongue slightly waisted. (Conserved in BM but no notes found; AML 591; Xrads R553, A8996, Iron no. 1.)

In central pelvic area, direction of tongue unclear, at 0-0.23m.

100/5 Wooden bowl? Black brown stain, roughly circular shape, c 0.13 x 0.09m.

Near neck on L side, no depth recorded.

102

GRAVE: 1190N x 50W; cut 6783; 2.32 x 0.85 x 0-0.30m (0-0.18 to 0.20m already dug); oriented WSW (c 258°).

Fill: pebbly, on R side sandy and soft; soil sample taken. Patches of greasy light brown silt in the centre at 0-0.08 to - 0.10, dark brown sticky loam above the head at 0-0.08, and mixed brown and gravel above the head area.

STRUCTURES: a) Edge stain of coffin, 1.89 x 0.58 x 0.02 (from 0-0.08m to 0.10m), incomplete but regular rectangular stain plotted but photograph shows foot end is probably ?collapsed out. Grey base stain of coffin visible in photographs.

BODY: Complete body stain, head at 0-0.18m, feet 0-0.30m, turned slightly on R side against side of coffin, 0.08m lower than on L side. L rib area black-brown.

Teeth: a few teeth casings in the skull area but missing.

Position: supine, extended legs, arms along side, or hands on pelvis, central head (tilted slightly to R).


FINDS:

102/1 Complete pot. AM: carinated round bellied bowl with flaring rim and rounded base; horizontal incised lines around neck enclosing a horizontal line of stamps; incised chevron decoration on lower body; ext smoothed surfaces. Colour: int and ext: yellow brown (A2). Stamp type: A4ai. Myres Corpus: 3351. Fabric Type: 3A. (No AML no.)

Above head, in R corner of coffin, at 0-0.18m.
102/2 Small square-headed brooch, in mercury gilded copper alloy. Headplate has a plain frame, plain raised second panel and an inner panel with relief cast Style I animal ornament. The median rib of the panelled bow begins on the headplate and is continuous with the median bar of the divided foot. The bow panels bear rather crude cast zigzag decoration. The triangular divided foot has upper headplate borders with a circular motif above a triangular arrangement of transverse bars possibly representing downward biting animal heads. The footplate is divided across into two, rather low down with transverse ribs (?body parts) in the lower panels and further asymmetric zoomorphic ornament in the larger upper panels probably representing a further head, body and limbs on each side. The pointed terminal is also ribbed. Incomplete iron pin, spring and axis bar. CM: EDXRF suggests no niello used, and probably mercury gilded. Textile (EC): on back of spring: mineralised, flattened patch (a) Z-spin broken edges suggest tabby weave. (Conserved in BM but no notes found; AML 40; no Xrad; Brooch no 1.)

At R shoulder, on its side, head pointing in to body towards feet, no depth recorded.

102/3 Small square-headed brooch (similar to 102/2). Damaged headplate and animal motif where bow meets footplate on the L side. No transverse moulding at the tip. Complete catch and hinge in copper alloy with iron pin, spring and axis bar. CM: EDXRF suggests no niello used, and probably mercury gilded. Textile (EC): on back along pin and over spring; (?) mineralised lump, (b) coarse Z-spun threads, (?) from beads. Area of black-brown silt. (Conserved in BM but no notes found; AML 45; no Xrad; Brooch no 2.)

At L shoulder, upright on side, head facing feet and down towards soil, facing into body slightly, no depth recorded.

102/4 Iron pin, probably ball/spherical headed with tip now missing after drawn. Circular section. Possible transverse grooves under the head (GE). Found in four frs. Textile (EC): (?) all along and at tip, mineralised patches, best area 17 x 5mm, spin Z/Z, even thread, weave tabby thread count 6/5 on 5mm. On pinhead and rest of shaft, (?) mineralised traces as above, Z/Z, loose, even, (?) tabby, thread count c 16/16 (8 on 5 mm clear). (Conserved in BM but no notes found; AML 128; Xrads 526, A8997.)

In central chest area, no depth recorded. Labelled as Gr 99, but not correct.

102/5 Beads.
Two polychrome glass and three amber beads. In central chest area. Exact order known. (Conserved in BM but no notes found; AML 37; no Xrad.)

Polychrome glass - two beads:
a) Two large globular beads in translucent dark green glass with three opaque red stripes, one around each end and one around the middle, over an opaque yellow zigzag. (Beads 1 and 2).

Amber - three beads:
b) One very large irregular amber disc bead. MEH: Bead 3 bored from both ends.
c) Two large irregular amber wedge beads. MEH: Bead 4 hole egg-shaped, wedge shape due to wear, Bead 5 hole pear-shaped one end, with large wear facet, hole bored from both ends.

107

GRAVE: 1170N x 110W; cut 9715; c 0.64 (damaged) x 0.64 (damaged) x 0-0.38m; oriented SSW (c 200°); cut by dragline.
Fill: light brown blotchy with some pebbles.

STRUCTURES: Coffin, ginger-brown edge stain. 0.49 (damaged) x 0.49 (damaged) x 0.25m (from 0-0.13 to 0-0.38m). Flat-bottomed and sides narrow towards bottom. Black stain around 107/1 (spear) is probably coffin.

BODY: Skull stain, ginger-brown at 0-0.23m.
Position: unknown.

FINDS:
Near R corner of coffin, at 0-0.13 to -0.23m, at 45°, therefore originally on top of coffin.

108

GRAVE: 1100N x 100W; cut 6759; 1.24 (damaged) x 0.53 (damaged) x 0-0.53m; oriented SSE (c 152°); cut by dragline.
Fill: stained sandy gravel from 0-0.08 m, and clean sandy, thin sandy gravel at 0-0.18 m, hard pan on bottom. Hollow in hard pan near skull.

STRUCTURES:
a) Possible edge stain of coffin or bier (from plan, on L side only). 0.60m long, no width (damaged) at 0-0.20 m. Damaged and patchy.

b) ?Pillow. Greasy grey loam, 'organic' stain, irregular oval shape, 0.30 x 0.23 x 0.20m. Next to and beyond head on L side from 0-0.08 to 0.18m, and area of staining at 0-0.28m.

BODY: Top half body stain. Probable skull stain, yellowish green fine sand at 0-0.18m, plus arms and pelvis at c 0-0.25m.
Bone (SZ): traces seen, now missing.
Teeth (RP): enamel only and encrusted molar crown fr.
Position: supine, on R side?, leg position unknown, arms along sides, head looks R.
Age: adult (teeth). Sex: female (artefacts).
case of the brooch from Grave 589, a scalloped (tongue) border is present. The floriate cross brooches are very fragmentary, but in the case of Grave 992 there is a milled border of the kind commonly found in late Roman ornament (Haseloff 1974, 2). The ten-spiral applied brooch in Grave 355 resembles the spirals on the equal-arm and tutulus brooches (T Dickinson, pers comm; Hirst and Clark forthcoming, b), such as the equal-arm brooch in Grave 90, and has a beaded ring in the centre that is reminiscent of the brooches with star motifs and the Muids Type brooch.

The two Spong Hill Type applied brooches in Grave 249, Mucking I, displaying six human facemasks were placed in this category. Both brooches feature a beaded border that resembles other applied brooches with late Roman motifs. They are, however, somewhat different from each other. Brooch 249/3 is surrounded by a plait border, it possesses an integral upturned rim, and has a centre with linear wavy and circular motifs; brooch 249/4, in contrast, has more stylised masks with a 'spectacle and nose' facemask of a 'Mr Chad' Type, and a beaded centre like that on applied brooches with star, spiral and backward-facing animals. With regard to brooch 249/3, the plait border is usually a feature of Style II ornament, but can also occur in Roman mosaics, and is combined with beading (repoussé dots), characteristic of late Roman metalwork borders (Dickinson 1976, 109). There is also some resemblance to the plait border, but not a great deal of similarity to the facemasks, found on the Muids Type brooches (Evison 1978, pl XLII.c, d; Böhme 1986, Abb 67.6d). The facemasks on brooch 249/4 more closely resemble late Roman facemasks and those on Quoit Brooch Style artefacts, such as the facemasks on the belt set from Grave 117, than those on brooch 249/3. Nevertheless, even the facemasks on brooch 249/3 are closer in style to late Roman motifs than the 'helmet-headed' facemasks found on Style I metalwork, such as those found on button brooches, including the 'Mr Chad' facemasks on Class K or Class E, a variety that is unusually common at Mucking (Avent and Evison 1982, 85, 89).

The equal-arm brooch in Grave 90 was also placed in this group. This brooch is a relief cast Sahlenburg Type example, whose ornament is typical of wide 'official' belt fittings. As the atypical equal-arm brooches found in Graves 637 and 983 in Mucking II both display rudimentary pairs or sets of opposed animal heads with simple punched eyes, rendered in a flat manner that is characteristic of late Roman ornament, they were included in this group on the grounds of their similarity in form to the brooch in Grave 90. The notching, ribbing and grooving, as well as the ring-and-dot motifs on the brooch from Grave 983, and the stamping on the brooch from Grave 637 that resembles the scalloped borders of late Roman metalwork, provided additional reasons to include them in this group. The idiosyncrasies of these brooches are such as to suggest that they were made by the same craftsman.

The second group was largely composed of disc brooches, found in 15 graves, which were combined with two pairs of saucer brooches bearing 'late Roman' motifs (running spirals) which were found in Graves 622 and 639. This combination was decided on for two reasons. Firstly, the disc brooches themselves display what are probably 'late Roman' motifs. Nearly all of them here (as generally) are decorated with ring-and-dot motifs, whilst others are decorated with compass drawn rings or

---

7 It has been argued that the six-point star motifs provide a link to the six facemasks of the Spong Hill type applied brooches (Dickinson 1976, 110).
STRUCTURES: Coffin, 1.87 x 0.45 x 0.26m (from 0-0.20 to 0.46 m) (partly reconstructed from photographs). Head and foot end ?collapsed out. Top of coffin leaning towards L side. At 0-0.20m, a more intense black stain, apparent at head end, but less clear at the foot end. 'Angle support' postulated on R foot side at 0-0.38m but not found. Fill inside is more sandy and ginger. Coffin stain ?black and fibrous.

BODY: Complete body stain.
Position: supine with extended legs, arms along sides, head central, with face R? at c 0-0.38m.
Bone (SM): only R lower leg is bone, but very fragmentary.
Age: adult (size). Sex: male (size).

FINDS: None.

GRAVE: 1190N x 60W; cut 6791; 0.99 (damaged) x 0.61 (0.41) x 0.20m; oriented E/W (c 263°); cut by dragline, and outline affected by rabbit burrow.
Fill: animal burrows, with possibly more running across the grave at the E end (these stains otherwise unidentified).

STRUCTURE: Edge stain of coffin, black brown; 0.91 (damaged) x 0.45 (minimum) x 0.12m (from 0-0.03 to 0.15m). E side and floor only, of a right-angled rectangle. Section suggests that N side of coffin has collapsed in but this was not planned. Section is angular, so possible plank-made coffin.

BODY: None.
Bone: possible femur bone survives. (PVA used for block 0.30m square [AML 690929; Xrad 1123], containing only soil, at 1195N x 65W).
Age: adult (size). Sex: male (artefacts).

FINDS:
114/1 Shield.
a) Boss. Low height, moderate wall height, wide diameter, wide flange, overhanging carination, convex cone, with straight but sloping walls, five disc-headed circular sectioned iron flange rivets (but one is seen only in cross section in Xrad A9304). Rivets have non-ferrous coating, possible silver corrosion visible on two rivets (the other three are seen only in xrad) but this is possibly french chalk (GE). Small disc-headed apex, off-centre and slightly bent. 'Broken in antiquity' according to WTJ. Organic (DDM): possible grain imprint, not identifiable further, on boss. Wood (JW): Board flange: mineral preserved wood could not be identified as there is not enough to take a sample from the boss, although it has an oblique tangential surface (JW). SEM B689 sample taken from boss rivet (JW). Sample taken earlier probably from the PVA wood was identified as Betula sp (birch) by GM. This was probably from flange because of the presence of rivets (as trace of rivet on the wood, powdery copper corrosion and a circular shape, whilst xrad shows circular rivet and shaft)
(GE). Rivets: from three rivets at least the wood is over 9.3mm thick (JW). Possible leather, waxy and compressed by cleaning on top surface on boss and on frs (GE), at least 1.5 mm thick on the front (JW). (AML 214, 217, 510; Xrads A9027, A9030, A9070, A9304).
No depth recorded.

b) Grip. Long and fragmentary. Central section with a flanged central section, widening assymetrically near the disc-headed, untinned (GE) circular sectioned iron rivets at the ends of the grip (GE). From this a narrow, incomplete flat iron strip or bar extends on either side. The expanded rounded terminal of one of these bars is riveted to the board by a small disc-headed, untinned (GE) section iron rivet. The other bar is very incomplete and broken at one end. Iron stain recorded is also probably part of grip, or possibly a fitting. Organic: possible leather (GE). Wood remains but not enough to identify species, probably Betula sp (birch) as identified by GM earlier (JW).
Cannot say how grip inserted (JW). (AML 215; no Xrad.) Mistaken for a spear under shield initially. (AML 216; Xrad A9069.)
Under the boss (114/1a), at a 45° against coffin side, no depth recorded.

c) Shield board stain, black brown, c 0.60m wide.
Over central part of body. No depth given but boss shown on base of grave in section, so probably placed over legs in coffin.
No depth recorded.

115

GRAVE: 1180N x 60W; cut 6785; 0.76 (damaged) x 0.91 (damaged) x 0-0.25 to -0.38m (vertical sides and flat bottom); oriented NNW/SSE (c 151/331°); cut by dragline.
Fill: Peagrit with gravel and loam and runnels. Base of hard orange iron pan layer.

STRUCTURE: Possible coffin/bier stain? on base of grave; c 0.50 (minimum) x 0.50m (minimum), at 0-0.18m. Black brown silt.

Age: uncertain.  Sex: uncertain.

FINDS:
115/1 Iron stain, probably caused by iron object, now missing.

116

GRAVE: 1190W x 60W; cut 6787; 1.43 x 0.45 x c 0-0.20m; oriented SSE (c 165°); cuts Gr 117.
Fill: soil sample taken.

422
STRUCTURE: Organic layer, ?pillow (as suggested by WTJ) or ?coffin, ?dugout. Black/brown curved stain above head. 0.96 (minimum) x c 0.30 x at 0-0.15m. Survives at head end and on R side.


FINDS: 116/1 34 beads. Seven monochrome and 14 polychrome glass beads with 13 amber beads. With area of fibrous material (AML 54; no Xrad.) R chest area at 0-0.09m. Exact order known.

Monochrome glass - seven beads:
- a) One medium annular in opaque yellow. (Bead 1.)
- b) Two medium cylinders in opaque yellow. (Beads 7, 24 (not ill). Both with swirling from inhomogenities (GE).
- c) One medium annular in translucent pale blue. (Bead 6.)
- d) Two medium annular unmarivered wound beads in translucent blue. (Beads 5 (not ill), 34.)
- e) One medium annular with an irregular hole in opaque white; darker streak in white from inhomogeneity (GE). (Bead 2.)

Polychrome glass - 14 beads:
- f) Three long cylinders in opaque red glass with opaque yellow wiredrawn single spiral (scallop). All with faint black lines in opaque red from inhomogeneity. Beads 14 with one flat end, 21 one end flat and one end uneven and 25 also with one flat end (GE).
- g) One large annular in semi-translucent green/black glass with opaque white zigzag. Bead 12.
- h) One medium disc in opaque red glass with opaque white double crossing waves. Bead 33.
- i) One large irregular bicone in opaque yellow glass with opaque red double crossing waves. Bead 15.
- k) One large barrel irregularly wound (not marvered flat) in opaque red glass with opaque yellow warts. Bead 11.
- l) One large barrel in translucent green yellow glass with opaque white stripe and two zigzags. Bead 18.
m) Two medium barrels in opaque red glass with opaque yellow double crossing waves and spots. Beads 9, 27 (irregular). Both with black streaks in red glass due to inhomogeneity (GE).

n) One large barrel in opaque red glass with opaque white double crossing waves and spots. Hole much larger at one end than the other. Bead 32.

o) One medium irregular globular in opaque red glass with opaque white double crossing waves and spots. Bead 4. Black swirling in red glass due to inhomogeneity (GE).

p) One medium cylinder in opaque red glass with opaque white double crossing waves and spots. Bead 29. Blue swirl in waves and spots and black swirl in red body from inhomogeneity (GE).

Amber - 13 beads:
q) Ten irregular medium barrels. MEH: Bead 3 slot at other end due to string (not ill), Bead 8 egg-shaped hole at non-oblique end (not ill), Bead 13 hole egg-shaped at one end (not ill), Bead 16 hole elongated at oblique end, Bead 17 (not ill), Bead 19 (not ill), Bead 22 (not ill), Bead 23 worn egg-shaped hole at each end (not ill), Bead 30 egg-shaped hole at 'flat' end (not ill), 31. All have abraded ends except 22. Oblique wear with elongated holes in 8, 16, and 30. Oval hole at one end 19 (double hole), 22, and 31. Hole bored from both ends 13, 16, 19 and 31. Wear facet 3, 13, and 23.

r) One medium sized irregular short cylinder. MEH: Bead 28 hole worn egg-shaped one end, ends worn and chipped (not ill).

s) Two irregular medium sized, standard cylinders. MEH: Bead 10 irregular hole at dished end, oblique wear with elongated hole, 20 has both ends have curved wear facets (not ill). Both ends worn.

116/2 Copper alloy buckle and lugs.
a) D-shaped buckle, heavy and cast, slightly damaged bevelled loop with hingebar narrower than loop. Tongue missing. Not gilded (GE). (AML 51; no Xrad, Bronze no. 1.) Organic: frs 'wood and leather' taken for sample but proved to be textile (JW). ‘Organic’ area sketched on hinge of loop but uncertain if above or below. ‘Fibrous area’ noted, but no remains now.

b) Two 'shoe-shaped' copper alloy lugs, of which one is broken. Organic: Sample taken from belt. Stain on plan below buckle- it is uncertain what this is, but it could be the leather from the belt. c 10 x c 0.10m seen in photos. Organic: One rivet with bone/antler-possibly a strengthening for the belt, also traces of iron rivets through the lugs (JW). (AML 52, 53; no Xrad, Bronze nos 2 and 3.) To R of waist, at 0-0.08m, tongue pointing R.

c) Frags of iron -possibly remains of iron tongue with probable leather traces from the belt and also traces of textile from a garment, spin and weave not clear (not ill). (No AML no; Xrad A10683).
116/3 Iron knife, parallel sided, long and thin. Very straight back and cutting edge, both curved towards the tip. Possible groove along back of blade (GE). Tang in line with cutting edge; shoulder at junction with back. (DS): Homogenous. Organic: remains of horn handle on tang and of leather sheath at bottom of the blade on one side, which overlaps with the handle (GE). (AML 221; Xrads R509, A9301, Iron no. 1.)
In L pelvic area, unclear which way the tip is pointing, at 0-0.10m. WTJ thought this knife belonged to GH18 but there is no evidence for this.

116/4 Iron loop, with a circular section near the loop, and flatter towards the arms, with ends now probably broken (GE). (AML 126; Xrad A9071, Iron no. 2.)
In L pelvic area, at 0-0.13m.

116/5 Brooch spring. Copper alloy spring around iron axis bar. Organic: Traces replaced threads (GE).
No mention in notes or plan, possibly recovered from teeth.

117

GRAVE: 1180N x 60W; cut 6789; 1.52 (damaged) x 0.48 x 0.36m; oriented W (c 263°); cut by dragline; cut by Gr 116.
Fill: soft, sandier, wetter and lighter than Gr 116, top layer very sandy light brown at 0-0.05m with smaller 'greasy' areas along the length of the grave. Lower layer of brown lenses darker silt with pebbles, hard pan to L of pelvis.

STRUCTURE:
a) Grass/straw bedding (see traces on belt fittings).
b) Possible coffin from wood in 117/1a and d.

BODY: Body stain from below shoulders, ginger brown at 0-0.30m.
Bone: some femur bone preserved; some pelvis bone retrieved with buckle (not analysed).
Position: supine with extended legs, arms along sides.

FINDS:
117/1 Five piece Quoit Brooch Style copper alloy buckle and plates. All decoration (zoomorphic, geometric and vegetal) is relief cast (including beading) unless stated otherwise. There are, however, some other types of decoration: silver foil, silver wire inlay, and punchmarks (some described as hatching). (A metallurgy report by CM, with help from NM and SL is found in Appendix 2).

a) Buckle plate. Copper alloy plate, square at one end and triangular at the other. With one thicker edge, a zoomorphic loop, central panels with cross, and cross and spiral motifs, and an end panel of key design. This is surrounded by light punchmarks and
heart shapes, bordered by an egg motif. The triangular end area is tendril-filled, bordered by quadrupeds pointing to a human face. The square end near the loop is thick and heavily ridged, with signs of having been filed (CM). An oval hole was cast (CM) in the plate and an oval buckle loop attached to the rim of this hole by four rivets. Each rivet forms the eye of an animal head, with an ear, curving open jaws and a finely hatched outer edge. One pair flanks the base and a second pair flanks the point of the tongue. The loop between the animal heads consists of a punched wave and dot design with a finely hatched outer edge, and is covered in silver foil. The tongue is transversely grooved at the base and has a rudimentary animal-headed point.

The middle of the plate is occupied by two square panels, the one nearest the loop being divided by a large cross with smaller cross motifs arranged diagonally. The other square is divided into four with a cross motif in the middle and two spirals in each quarter and a stepped square in the corner. The tops of the ridges of these designs are emphasized by inlaid silver wires. A narrow panel with a key design separates this panel from the triangular end panel.

On each side of these more deeply contoured panels is a plainer zone decorated only by light punch marks of semicircular shape, triple dots, and tendril scrolls. Outside this is another border covered in silver foil, with punched running spirals with a dotted background, and at three points this extends inwards in a heart shape containing a leaf with dots and hatching. Outside this is a line of hatching, and then an egg motif that is probably cast (CM).

The triangular end panel contains a double spiral and tendril design divided centrally, emphasised in silver wire with two silver inlaid dots surrounded by a border covered in silver foil containing wave and dot punch marks. This points towards a full face human head, outlined by four bands, of which one with hatching may represent hair. On each side of the head (facing the head unlike the other animals) are two limbed border quadrupeds largely covered in silver foil with curving open jaws of which the lower jaw is obscured by a rivet. There is a rudimentary ear on each and the tail is short and curls upwards. A pellet occupies the space below the jaw and neck and the body is covered with herring-bone hatching, suggesting fur, with a double curved line at the front joint. At the triangular tip two minute birds' heads are back to back. Rivets for fastening to the belt are in each corner of the rectangle and one at the mouth of each border animal. The mount has a slight convex curve, as have all the other pieces. Organic: (AML 58) unidentifiable wood (CK), none now remaining. Uncertain if on top or bottom. Textile (EC): Front of buckle: traces, Z threads, and along one edge a few flax fibres undyed presumably from plain weave on 117/1e (?b). Back: possible traces of leather. (Conserved at BM but no notes found; AML 46; Xrad R589, Bronze no. 1.)

In L centre of pelvic area, at front originally, with pelvic bone (not analysed), and much staining underneath. Tongue points L, presumably at 0-0.30m.

b) Counter plate. Five-sided with one thick edge and heavily ridged, a swastika panel, and a tendril-filled triangle bordered by animals, pointing to a human face. One edge is thicker and heavily ridged. Parallel to this is a rectangular panel of five swastikas inlaid with silver wire. The layout of the rest of the triangle is the same as on the triangular end of 117/1a (buckle plate) except that it is slightly larger. The human face
is now embellished by two tendril scrolls (forming nostrils). The border animals are also similar except that both jaws are clear, the hatching is in curved strokes in a vertical direction and a tendril scroll appears at each joint, and now the tail is long and flowing around the human head. Animals run down from rather than up to the apex. Textile (EC): Front: traces flax and replaced coarse Z threads. Back: traces of leather. (Conserved at BM but no notes found; AML 48; Xrads R589, R580, Bronze no. 2.) In L in pelvic area, at front originally, face up, with triangular part pointing in towards body. Some stain under textile, probably grass/straw bedding, presumably at 0-0.30m.

c) Triangular plate. Similar to 117/le but without the swastika border. The straight edge is beaded. Nose askew with eyes formed by scroll-like terminals. There are differences in the arrangement of the hatching in the bodies of the animals and both have a double spiral at the first joint. The middle panels also differ slightly. Animals run down from rather than up to the apex. Organic: none noted. (Conserved at BM but no notes found; AML 47; Xrads R574, R589, Bronze no. 3.) To L of 117/1d, R waist area, 0.03 to 0.04m lower than 117/1a or 1b, at the back, stained sand of black or brown underneath. Probably face up because of better preservation on this side, but should have been face down as this was originally worn on the back.

d) Rectangular plate. EDX (CM): Brass. Middle circular field of cross motifs set in a square, surrounded by a key pattern on the short sides and quadrupeds on all sides. Circle filled with diagonal cross motifs within a narrow hatched and plain border. Traces of silver around this appear to be applied in a foil-like manner (ie pushed down a narrow slot (CM), but although it is uncertain whether this is foil or wire, it seems less probable that it was foil because of the deep contours (CM), and especially as the corresponding areas on 117/1a (buckle plate) were wire inlaid. The near triangles between the square and circle, with two other near triangular areas are covered with silver sheet and ornamented by two pellet-in-triangle punch marks. On two sides of the square is a key pattern border inlaid with silver wire.

The borders on all sides consist of pairs of quadrupeds (largely covered in silver sheet) as on the other plates, except that tails are turned upwards, and there is a single spiral at the first joint and a ring at the hind joint. Between the jaws is a ring-and-dot punch mark with a triangle below. The animals on the end borders are less elongated, otherwise they are similar with spiral first joints and tails above the body. The heads, however, are lowered and the jaws more curving. The lens shaped ears are turned forward to touch each other. On each head there are two dots instead of one in the eye position, giving a full-face effect. There is a rivet in each corner. The edges of the counter plate are beaded, heavily at the top and bottom and lightly at the sides. Textile (EC): Front; textile (a) firs and replaced traces of linen, tabby, undyed, Z, Z, plain weave count c 16 x 14 per 10mm. Some coarser threads. Back; fibres, probably leather. Loose; two weaves, pressed closely together, on layer of vegetable matter (see below); next to copper alloy, textile (b) area c 25 x 20mm linen, undyed, Z, Z, plain weave, open and badly pulled, count cannot be taken accurately, but in present condition c 8 x 8 per mm, similar to linen on 117/1e but coarser. On the back of this, and above it, when separated, (c) area of long Z (?) threads packed closely together were visible on the back of the linen, 8 threads per 2.5mm, might be selvedge. Above
this, areas of twill, overall measurement 50 x 40mm, wool?, dark brown, Z, Z, surface damaged, 2.2, count c 10 x 10 per 10mm. Fine and medium fibres. (MLR): No pigment or dye. (PWR): no dye. Organic (DDM): (AML 57) leather, fern remains and unidentified wood (CK), uncertain if top or bottom, but re-identified as possible frs of straw, and one strand of grass on a separate fr. The loose fibres were unidentified twigs (JW), straw and some leaves between the twigs and textile. One piece of textile had some leaf stems and frs of leaves attached, probably from the Polygonaceae (dock or knotweed) or Chenopodiaceae (goosefoot and orache) families (both include many weeds). (Conserved at BM but no notes found; AML 55; Xrads R581, R589, Bronze no. 4.)

To R of waist area, 0.03 to 0.04m lower than 117/la or b, at the back, face down (corroborated by poor preservation), over unidentified bone.

e) Triangular plate (see description for 117/1c, as they are almost identical). Textile (EC): Front: areas covering surface, undyed linen, tabby, Z, Z, rather loose open weave (plain). Textile (b) no selvedge, count 1.2 x 0.9 per mm, partly replaced, coarser than weave on 117/1d (4). Back: a few traces Z threads, also leather marks.

Loose: in sand, scraps of leather. (Conserved at BM but no notes found; AML 49; no Xrad, Bronze no. 5.)

At the back, with stained sand black brown underneath, to R of 117/1d, 0.03 to 0.04m lower than 117/1a or b. Triangular part facing towards head, but should face to the side. Uncertain which side up, but probably face down as this side is poorly preserved.

f) Copper alloy fitting, square sectioned at one end where not degraded, with both ends broken. Cannot tell if wire or cast (GE). (AML 793150; no Xrad.)

Found in AML 50, under 117/1a, no depth recorded.

g) Belt stiffener. Thin copper alloy strip, now fragmentary, with a round section copper alloy rivet, one rectangular washer with rivet hole (AML 56; Xrad A9052.)

From under 117/1a, no depth recorded.

h) Two curved frs (now joined) that cannot be joined to the rest (GE). (AML 56; Xrad A9052.)

From under 117/1a, no depth recorded.

i) ?Thin and narrow copper alloy fr of ?wire, with a thicker rounder fr, and one wider fr of very degraded sheet. Fragmentary and half embedded in PVA, and seen in Xrad only (not ill). (AML 50; Xrads A9071, A10068.)

From under 117/1a, no depth recorded.

117/2 Wooden bowl? Grey/brown greasy silty patch. 0.20 x 0.13m.

Between feet, no depth recorded.

119

GRAVE: 1240N x 70W; cut 6917; 1.86 x 0.69 x 0.46m; oriented SW (c 230°).
Fill: very blotchy, sandy with lenses of greyish fawn loam. At 0-0.13m at foot end, fill becomes darker, ie fawn-grey greasy loam. Sandy natural gravel had collapsed into the grave in antiquity. Animal burrows and ? machine disturbance. Hard pan and orange sand on the coffin bottom.

STRUCTURE: Organic stain, ?hide. 1.46 (minimum) x 0.69m x irregular in depth. Very thin layer of brown stain, sometimes intense black. One rounded edge near head, and sketch shows this is curved up round head end in section. Clearest over greyish white sandy gravel but less so over orangey yellow sandy gravel and hard pan below the waist. Also probably part of this feature are the following: deposit c 0.35 x 0.15m, covers and extends over the lower legs, no depth recorded. Oval shaped 'greasy grey fawn' loam deposit, 0.18 x 0.13m, 0.05m thick, in an empty area to R of flexed legs, against the grave edge at 0-0.10m. From R of head and elbow, under body especially.

n.b. Apparent shelf at head end is discrepancy in length of two grave plans. There is no more information, but one plan appears to be inaccurate.

BODY: Complete body stain at 0-0.15 to 0.30m skull and knees found. Bone (SZ): frs seen. Tibia and fibia bone preserved (now missing), plus bone on buckle that is too small to be analysed (GE). Shoulders at 0-0.43 and feet at 0-0.36m. Teeth (RP): at 0-0.30m onwards, six tooth caps, with fr of lower jaw with three teeth in situ, two frs from the temple area. Piece of mandible in matrix with the two rear molars still in place showing wear down to tips of dentine on cusps. Wear stage 3. R lower jaw fr. Tooth cap a premolar probably lower, probably off same jaw by wear, three toothcaps, indeterminate frs, toothcap (6) very small frs, clearly of tooth enamel, sectioned, toothcap (5), about half of what is probably a premolar cap. Position: supine with semiflexed legs to the L, arms to the side, head slightly L and looking down, ankles together. Age: young adult (RP). Sex: uncertain.

FINDS:
   In R waist area, estimated at c 0-0.41m. No information on direction of tongue.

119/2 Iron knife, tip broken, long thin, slightly curved back, cutting edge irregular and slightly corroded, but curves in towards the tip. Tang central, with smooth junction with both sides. (DS) Butt welded. Organic: trace of leather sheath on blade (GE). (AML 509; Xrads A9070-1.)
   In waist area, tip pointing R (according to WTJ), estimated at c 0-0.41m.

120

GRAVE: 1250N x 70W; cut 6920; 2.04 x 0.84 x 0.31m; oriented SW (c 218°); cut by dragline. Fill: very little fill in L foot end, and only c 0.15-0.18m thick at R head end (Kinnes 1968, 192). Area at foot end of grey brown silt, and to the R, very hard 'organic' grey
silt, compacted on top by machinery; greasy grey brown silt and medium brown patches at 0-0.08 to 0.15m outside coffin at head end and R side- probable turves. ?Hard pan of orange stain, 0.13 x 0.10m, irregular circular shape, at R shoulder level, at 0-0.20m.

STRUCTURE:
a) Edge stain of ?rectangular coffin. 1.75 x 0.43 x at c 0-0.30m on the R side. Brown. Black brown stain along grave bottom is probably coffin bottom, 2' to 5' along, ie c two thirds of the way along the grave from the head end. May have sheared over towards the R side at the foot end. Sketch plan at higher level suggests that the head end may have collapsed in.

BODY: Head stain and possible leg stain (light brown) recorded in notes. Leg and pelvis stain suggested in photographs only (but not illustrated). Position: supine with ?legs extended, arms unknown, head central, only seen in photographs. Age: adult (size). Sex: male (artefacts).

FINDS:
120/1 Medium iron spearhead; leaf-shaped blade, lentoid section with short solid neck, and long broadly cleft socket. Organic: mineral preserved wood in socket, Fraxinus sp (ash) from mature timber (JW). Textile (EC): area 35 x 15mm replaced textile, Z,Z, coarse twill, count c 7 x 8 threads per 10mm. The spinning is uneven, with very coarse threads in one system (other smaller areas of the same weave on the same face of the blade). (Conserved at BM but no notes found; AML 122; Xrads R500, R504, A9042-3, Iron no. 2.) At L shoulder, higher than 120/2 (knife) on L side, at angle sloping towards the grave edge. Above brown stain (probable coffin), at 0-0.20m.

120/2 Iron knife, broad parallel sided at base, cutting edge slightly worn, and curving in to the tip, back fairly straight, tip missing. Tang in line with cutting edge, with shoulder at junction with back. Stained sand underneath knife may be textile. Organic: traces horn handle on tang and small trace of leather sheath on one side of blade (GE). (DS) Homogenous. Textile (EC): traces mineralised, both sides of tang, one small clear patch, c 10 x 9mm, spin Z/Z, weave 2/2 twill, thread count 8/9 on 10mm; too little left to see if pattern, only one S thread clear in ?warp. One very deteriorated scrap from the scabbard ?same (GE). Over leather on one side of blade or tip (GE). (Conserved at BM but no notes found; AML 121; Xrads R509, A9070-1, Iron no. 3.) On L side of chest or arm?, tip pointing R, at 0-0.25m.

120/3 Complete D-shaped iron buckle. Straight hinge bar narrower than loop. Very fragmentary iron buckle plate (not ill). Organic: remains of leather belt with tongue passing through it, considerable area where visible finished edges on both sides on underside of buckle, 12mm wide (GE/EC). Another detached fr with two possible pupae cases (GE). Organic (DDM/EC): Cereal straw overlying textile, uncertain which side (GE). Wood (JW): Two frs of twigs, unidentifiable. Textile (EC): under straw, on plate fr mineralised lump of textile and Z threads, weave not clear. (No AML no; Xrad A9052, Iron no. 4.)
In L waist area, at 0-0.15m. Originally labelled as Gr 121, but there is no evidence to support this. No information on direction of tongue.

120/4 Shield.
a) Iron boss. Average height, high walls, medium diameter, wide flange, no overhanging carination, slightly convex cone, and straight walls, five disc-headed rivets originally (because of the spacing) on a fairly intact boss, but only four were recovered. As they cannot be seen on the object but only on the xrad, it is only possible to state that they appear to be made of a non-ferrous metal which is possibly just a coating (GE); apex now missing, although this would be expected to be broad and disc headed. Other frs cannot be joined. Organic: under flange large area of leather with grain side against iron so not identifiable. Appears to be shaped or embossed at one point, but this may be accidental (GE). Considerable area of wood under flange of Tilia sp (lime) or Acer sp (maple) SEM B644 with a tangential surface and would have been 8.5mm thick at the boss flange. Grain is parallel with the axis of the grip, and perpendicular to the grain of the shield board (JW). (Conserved at BM but no notes found; AML 209, 210; Xrads 524-5, 915, A9054, Iron no. 1, Copper alloy nos 2 and 3.)
Beneath boss (120/4a). The notes show one bar bent up from the grip and presumably broken off at the time of retrieval, with the other bar continuing in a straight line, at 0-0.30m.

b) Grip. Long flat, strap-like, with two disc-headed rectangular-sectioned iron rivets (one of which is broken) at each end. The ends, which are both broken, appear to be assymetrical. Middle area missing. Two narrow strips or bars c 0.40m in length are now missing, but have been reconstructed from the plan. The ends of these bars are recorded as having one iron rivet towards the head, and one 'bronze' one towards the foot end. Organic: leather between iron and wood in places (GE). Wooden portion of the grip, presumably Tilia sp (lime) or Acer sp (maple) was inserted into the front of the shield board (JW). (Conserved at BM but no notes found; AML 211, 212; Xrad A9054, Copper alloy no. 1.)

Beneath boss (120/4a). The notes show one bar bent up from the grip and presumably broken off at the time of retrieval, with the other bar continuing in a straight line, at 0-0.30m.

121

GRAVE: 1220N x 70W; cut 6853; 1.60 (damaged) x 1.27m x 0.31m; oriented WSW (c 240°); cut by dragline.
Fill: patch of grey brown silt at 0-0.23m to R of foot end, 0.38 x 0.15m (not ill). Large CH frs of Salix sp (willow) or Populus sp (poplar) (JW) that is very unlikely to be the shield board, or coffin/cover, that is probably residual or deliberate grave fill (JW). One fr with bronze staining on both sides, ?from a partially burnt artefact? (LB).
STRUCTURE: a) Coffin/ bier. 1.30 (damaged) x 0.41 at 0-0.20m. Black brown stain along length of grave probably bottom of coffin but is more fragmentary towards the foot end.
b) Possible cover. Wood remains on top of boss could derive from a cover.

BODY: Pelvic area and leg stains probably present, ginger brown.
Position: supine with extended legs (upper body destroyed).
Age: adult (size). Sex: male (artefacts).

FINDS:
121/1 Shield.
a) Iron boss. Average height, tall walls, large diameter, moderate flange width, with overhanging carination, slightly convex cone and straight walls, five iron disc-headed circular sectioned flange rivets covered in a non-ferrous metal (GE), apex disc headed. Organic: leather on underside of flange (GE). Fraxinus sp (ash) with a radial surface is remains of shield board. Top of cone Quercus sp (oak) with a radial surface, that must be the coffin or grave cover (JW). (AML 60, 62; Xrads 977A-B, A9068, A9070.) Above lower legs, towards L side, no depth recorded.

b) Iron grip. Long with flanged central section terminated by iron disc-headed circular- sectioned rivets that are covered in a non-ferrous metal (GE). From this a strip or bar extends either side, ending in iron disc-headed rivets that are also coated in a non-ferrous metal (GE) and are smaller than the flange ones. Both have broken shafts and are circular sectioned. Organic: traces presumably of Fraxinus sp (ash) (JW) on underside, depth of wood unknown, overlying very waxy (GE) leather strips c 11-12mm wide covering the grip on outer side of central portion (JW). No information on how inserted, axis of grain. Textile (EC): small area mineralised textile, fine deteriorated Z threads on bar, ?twill, probably from wrapping overlying leather at one point (GE). (AML 59, 61; Xrad A9063.) Under 121/1a (boss), no depth recorded.

c) One circular section, untinned rivet (GE) with a broken shaft through a double layer of iron, one of which has a broken extension. Does not appear to be part of the grip (GE), but probably part of shield. Organic: leather (JW). (AML 61; Xrad A9063.) No location or depth recorded.

d) Shield stain. Circular dark stain. Suggestion of such on photographs only, and not recorded or planned. c 0.60m diameter.
Over legs, no depth recorded.

122

GRAVE: 1210N x 70W; cut 6832; 1.65 (damaged) x 0.61m x 0-0.33 to 0.36m; oriented SW (c 235°); cut by dragline at head end and ditch 5530 (enclosure ditch) at foot end.
Fill: Grey brown greasy silt c 0.30 x 0.05m in a wide curved rectangular shape, in central area at 0-0.25m.
STRUCTURE: Coffin dugout stain; 1.52 (damaged) x 0.40 x at 0-0.15m, very black, rectangular, irregular at base, destroyed at one end, bottom very black but more diffused at 0-0.25m. E end is rounded, suggesting collapse or rounded base.

BODY: Some bone on 122/1b (grip).
Position: uncertain.
Age: adult (size). Sex: male (artefacts).

FINDS:
122/1 iron shield.
a) Boss, of medium height, short wall height, medium diameter, medium flange width, carinated, convex cone, straight walls, very thick walled, with four slightly unevenly placed pairs of small, iron probably circular-sectioned rivets (GE) with a possible non-ferrous metal covering (GE), of which one is missing. There are two rivet holes but no rivets, and one further possible rivet hole (GE). Disc-headed apex. Organic: Board of Salix sp (willow) or Populus sp (poplar), with a radial surface. Grain running vertically, thickness cannot be established. Thin layer of leather preserved between the iron flange and the shield board (JW). Textile (EC): from back of boss, traces of replaced textile, Z threads, now missing. (AML 218; Xrads 576, 976, A9421.)
   Probably over legs, if assume head to SW. Tilted 30° to R, apex at 0-0.15m.

b) Grip. Appears to consist wholly of wood, ie no remains of iron (JW). Organic: over textile wood (on back of boss flange) is probably same species as shield board, but with tangential surface. Wooden portion of grip inserted into the front of the shield board, and the grain of both components is clearly aligned in different directions. Grain running horizontally (JW). Under 122/1a (boss), so therefore at c 0-0.24m.

c) Two plain iron decorative zoomorphic fittings. One with a rivet and one with two or three rivets, all circular sectioned with broken shafts, circular corrosion in centre is not real (GE). No inlay or ribbing discernable, but possible non-ferrous coating (GE). Organic: mineralised wood Salix sp (willow) or Populus sp (poplar). Grain not running in identical direction (JW). Leather present (JW). (No AML no; Xrad A9614.)
   Above boss (122/1a), one towards the head end and one towards the foot end. No depth recorded.

d) Stain of board. Circular depression (3-4mm thick x 0.36m wide). Strip of greasy grey silt, c 0.08m long and 0.01m wide over shield flange is probably shield board. Probably over bottom of coffin, as lower coffin stain at least, ?at c 0-0.24m as under 122/1a (boss).

e) Fragment of twill, leather frs, wood and bone. Organic (JW): Probably Salix sp (willow) or Populus sp (poplar). Under textile: bone (not analysed) that appears to be part of the body but not the hand, under the grip (JW). Textile (EC): replaced Z/Z, S, 2/2 twill 8 x 8 per 10mm, area 40 x 35mm, two layers, even spin and weave, 1 S thread near edge, ie possibly patterned. (AML 218; no Xrad).
No position recorded.

122/2 Iron stain, probably caused by an iron object, now missing.
At edge of quarry face on the coffin base, at 0-0.25m.

123A

GRAVE: 1200N x 60W; cut 6827; 1.96 x 0.54 x 0-0.25m; oriented WSW (c 253°). Photographs show that the ridge between is clean, and appears to be the natural, so Grs 123A and B may not be contemporaneous. They are aligned closely to each other, however, so they must be nearly contemporary. The R arm in Gr 123A could impinge over this ridge, so WTJ thought that Gr 123A could be later than Gr 123B.
Fill: cleanish orange brown sandy with pebbles in centre of grave, rodent hole? near lower leg. Soil sample taken. ?Turf of greasy fawn greasy loam inside coffin, to L of chest area (not ill), c 0.20 x 0.10m, from 0-0.10 to 0.20m. Circular dark area outside coffin on L side at head end, seen in photographs, c 0.15 x 0.15m. This appears to be a later posthole or disturbance.

STRUCTURE:
a) Coffin, ?dugout. Very incomplete and rectangular edge stain; 1.75 x 0.46 x 0.05 (from 0.15 to 0.20m) (where ?black traces at head, L shoulder and under body, perhaps the coffin base).

b) Slope in grave bottom from waist to head. c 60 x 0.46m. Head tilted slightly forward.

BODY: Complete body stain. Skull at 0-0.10 to 0.13m, feet at 0-0.15m, rib cage and pelvis at 0-0.20m, confused with coffin as legs and femur are a red-brown stain but also described as very dark and similar to coffin at 0-0.15m. Coccyx is black brown stain.
Bone: Bone present at pelvic joint of R femur (not recovered) and shoulder area under brooches, skull and lower jaw?
Teeth (RP): 15 tooth caps, at 0-0.20m, missing.
Position: supine with legs extended, arms to side, position of teeth suggests head central.

FINDS:
123A/1 Disc brooch, in (leaded) bronze (EDXRF MH) and front tinned. A central depression in the centre of wide double incised rings, surrounded by an asymmetrical quincunx of dot and circles. Lugs cast in one. Broken iron pin, spring and axis bar.
Textile (EC): (d) Front; coarse Z threads, ?twill. Back; round pin head, replaced, coarse twill, Z,Z and confused finer threads. Possible skin found over spring area (GE). (AML 308; no Xrad, Brooch no.1.)
In neck area, at 0-0.15m.
123A/2 Disc brooch, same as 123A/1, but more symmetrical with a central hole and not a depression, and with a complete iron pin, spring and axis bar. Bronze (EDXRF MH). Cannot tell if tinned as has been chemically stripped (GE). Textile (EC):

(b) layers that may be deteriorated textile, showing traces of Z spinning. MLR: very coarse fibres that do not appear to be of animal origin.

(c) Loose fr c 25 x 12mm overall, woollen textile in two shades of naturally pigmented wool, light and dark brown (as on brooch); spinning Z throughout, the dark thread being finer and harder spun than the light, plain weave, count 10 x 8 per 10mm. Tabby check pattern formed by two dark, four light threads in the (10) system, and two dark, two light in the other. Four other tiny scraps have deteriorated layers of (c) and (d). (MLR): both yarns have similar fine and medium fibres, but whereas A I (light) has only a few medium fibres with pigment, all the medium fibres in A 2 (dark) are pigmented (Hirst and Clark forthcoming, a, fig 218.ii).

(c) Back; on pin scrap of weave with two distinct shades of brown thread, light and dark, both Z spun. On pinhead; coarse twill, mostly replaced, Z, Z, and a mass of fibres, possibly a pile? Under pinhead; confused Z threads, again two colours visible.

(c) Scrap 2-colour check plain weave, Z,Z, light (undyed?).

(c) On the pinhead, a mass of loose fibres suggesting those replaced could be from a pile, or simply a badly unravelled edge; they are similar to the lighter wool of the two-colour plain weave c). MLR: they too have non-pigmented fine fibres and pigmented medium ones.

(d) On back of two colour piece, some loose scraps similar, are certainly twill, 2/2, 22 x 12mm overall. (AML 309; no Xrad, Brooch no. 2.)

On R shoulder, at 0-0.20m.

123A/3 String of 29 Beads.
Thirteen monochrome, one gold-in-glass bead and one polychrome bead with 14 amber beads. (AML 311; no Xrad.)
In upper chest area, probably originally strung between 123A/1 and 123A/2, numbers 23-7 were found in the skull area, rolled down as did no 22, with a cluster near brooch 1 of 8-20, 29 and 30 (123A/1), and 9 and 10 rolled from elsewhere over 29 and 30, string 1-7 under brooch 2. Exact order known, no depth recorded.

Monochrome glass - 13 beads:
a) One medium irregular disc with oval hole in opaque red with accidental greenish discolouration (GE). (Bead 20.)

b) Two medium short cylinders in opaque red. (Bead 18 with a darker area and bead 25 with a darker swirl, both accidental (GE).

c) Three medium disc beads in opaque yellow. (Beads 22, 27 (not ill), 29.) Textile (EC): b) thread fibres inside, loose layers that may be deteriorated textile showing
traces of Z spinning. (MLR): very coarse fibres that do not appear to be of animal origin. (not ill).

d) One medium irregular clearly wound long disc in semi-opaque green, with a darker accidental swirl (GE). (Bead 28.)

e) Four medium annulars in translucent blue. Bead 9 (not ill), 16, 17 fragmentary (not ill), 24 (not ill.) Max dimensions: D- 1.0cm, L- 0.5cm, perf D- 0.5cm, min dimensions: D- 0.6cm, L- 0.3cm, perf D- 0.4cm.

f) Two medium discs in opaque blue white. (Bead 23, 19 (not ill).

'Gold-in-glass' type - one bead:

g) One small double segmented. (Bead 8.) JB: silver between glass layers.

Polychrome glass - one bead:

h) One medium cylinder with spiral design in red opaque glass with twisted rod of opaque yellow and semi-opaque green applied in a spiral S-twist. Ends in an area where poorly applied, and appears marbled, possibly damaged when marvered. Organic: Bead 11, pupae case preserved in iron corrosion (GE). Textile (EC): coarse thread inside pupae case on detached textile.

Amber - 14 beads:
i) Two large flat irregular discs. MEH: Bead 2 hole bored both ends (not ill), Bead 10 oval hole. Textile (EC): on surface, small patch detached textile, fairly fine, S and Z threads.

j) Three large amber wedge beads. MEH: Bead 12 holes rounded each end. Organic: insect case impressions (EC), but no longer present (GE). Textile (EC): coarse thread inside (not ill). 14 hole egg- shaped each end (not ill), 15 hole egg-shaped both ends which are abraded.

k) Three medium irregular long biconical beads. MEH: Bead 1 one end abraded, Bead 3 hole bored both ends (not ill), Bead 4 (not ill) fr when found. Wear facet due to string wear on beads 1 and 3.

l) Four small irregular barrel beads. MEH: Bead 5 (not ill), Bead 6 worn angular (not ill), Bead 7 hole bored both ends (not ill), Bead 26. One end abraded on beads 5, and 26.

m) One medium sized short irregular cylinder. MEH: Bead 21 very worn.

n) One large standard length irregular cylinder. Bead 13. Textile (EC): on surface, traces S and Z thread. Organic: insects cases (EC), with only a possible trace now (GE). Dark brown organic stain near head, over beads, probably textile, at 0-0.20m.

123A/4 Three iron rings or loops:
a) Larger iron ring, either penannular or was once lap jointed or a loop (GE). Near complete, and both ends appear to be tapering, but one end is not complete. Squarish
section (GE). Textile (EC): (a) Front: clear patch 10 x 6mm, replaced Z,Z 2/2 twill, 11/10 (5 on 5mm) Back: thread like traces, corrosion only. (AML 220B; Xrads R511, 1623, A9838.)
To L of pelvic area, further up body than smaller iron ring or loop (123A/4b), over key (123A/5) in a bag, at 0-0.20m.

b) Smaller iron ring or loop (GE). Almost D shaped, frs not now joining, squarish section (GE). Textile (EC): (a) Front: over area 30 x 30mm at longest point, at least three layers replaced fabric, Z,Z, twill, 2/2 c 12/10 on middle layer, and similar count on 5mm fr of top layer, ie, folds of same weave. Underneath: areas replaced textile, at least two thicknesses, best fr 15 x 10mm, the threads look slightly coarser, but this is probably the same weave as on the front. (AML 220A; Xrads R511, 1623, A9838.)
To L of pelvic area, lower down body than larger iron ring or loop (123A/4a), over key (123A/5) in a bag, at 0-0.20m.

c) Small iron ring, almost D shaped, lap jointed (GE), for suspension. Organic: possible leather (GE). Textile (EC): replaced fine twisted string or cord, probably S spun, two threads pleyed Z, passing through ring, fr c 10mm long. (AML 220C; Xrads R511, 1623, A9838.)
To L of pelvic area, in a bag. Not in notes or plan, but from Xrad R511 it appears to be near smaller ring or loop (123A/4b), key (123A/5), coin (123A/6) and knife (123A/11) in a bag, at 0-0.20m.

123A/5 Large iron padlock key. Complete with two wards and looped over at the end (GE). Textile (EC): Underneath: areas replaced textile, at least two thicknesses, best fr 15 x 10mm, the threads look slightly coarser, but this is probably the same weave as on the front. (AML 220A-B; Xrads R511, 1623, A9838, Iron no. 2.)
To L of pelvic area, lying over and under the iron rings or loops (123A/4a-b), in a bag, at 0-0.20m.

123A/6 Romano-British coin; dupondius or as, pierced (RB). Textile (EC): Textile (b) One side; vegetable Z,Z tabby, estimated 8 x 8 per 10mm, area 7 x 6mm, brittle, stained dark brown. WIRA/HMA is probably vegetable, ie, most likely flax, plain weave, slightly open. (AML 220; Xrads 1623, R511, Coin no.86.)
To L of pelvic area, with a body stain over it -originally the hand?, in a bag, at 0-0.20m.

123A/7 Iron knife, once extant but now missing. Complete, with both cutting edge and back largely straight, then gently curving into the tip. Central tang with shoulder both sides. (AML 220?; Xrad R511, Iron no. 1.)
To L of pelvic area, in a bag. Shown on xrad with smaller ring or loop (123A/4b), small loop (123A/4c), key (123A/5) and coin (123A/6), at 0-0.20m.

123A/8 RB brooch, EDXRF (MH) leaded bronze. Perforated catchplate, foot knob, top of bow with rib, wings semi-cylindrical with vertical grooves. Axis bar held by pierced circular plate at wing tips. Pierced but fragmentary lug. No signs of tinning (GE). Pin missing, and broken at the head, no spring. (AML 125; Xrads R508, A9301, A9304.)
Below pelvic area, in a bag, over iron rings (123A/9), at 0-0.20m. One plan puts it to L of pelvic area, but this is probably a misnumbering.

123A/9 Two iron rings:
a) Larger iron ring. Unclear if complete rings or lap jointed and section unclear (GE).
b) Smaller ring. Textile (EC): replaced textile in folds over rings ?(b), replaced, Z/Z, tabby, est. 11/10, 30 x 45, even yarn, light twist and appearance of flax. (GE): leather present below textile (AML 125; Xrads R508, A9301-4.)
Amalgamated together underneath RB brooch (123A/8). Larger ring on bottom, and smaller on top. Below pelvic area, in a bag, at 0-0.20m.

123A/10 Iron loop, of wide flat section. Textile (EC): replaced textile in folds over rings ?(b), replaced, Z/Z, tabby, est. 11/10, 30 x 45, even yarn, light twist and appearance of flax. (AML 125; Xrads R508, A9301, A9304.)
Loop underneath iron rings (123A/9). Below pelvic area, in a bag, at 0-0.20m.

123A/11 Copper alloy tweezers. Complete, very slightly tapering, unclear proximal loop and distal ends. Once extant but now missing. Seen only in Xrad. (AML 220; Xrad R511).
To L of pelvic area, in a bag. Near tang of knife, at 0-0.20m.

123B

GRAVE: 1200N x 60W; cut 6827; c 1.75 x 0.50 (from 0.25 at W to 0.46m at E end); oriented WSW (c 253°); ?earlier than Gr 123A (see above).
Fill: disturbed sandy gravel, dirty brown ginger, with nebulous line of darker material. Soft pebbly sand in W. At E end orange gravel at 0-0.20m and hard pan. There are two plans; one shows a narrowing end with no coffin (and is therefore presumed to be earlier) and the other shows a rounded ?coffin. Greenish-ginger stain thought to possibly be the head by WTJ, but does not match the usual colour for body stains. At 0-0.25m, is probably in the hollow in the SE corner.

STRUCTURE: a) Edge stain of probable slightly rounded ?dugout coffin. 0.30 (minimum) x 0.43 x 0.10m (from 0-0.10 to 0.20m). ?Black stain noted but patchy. 'Charcoal' frag at 0-0.15m on line of coffin at head end, not recovered. Organic grey fawn loam towards the NW and dark stain towards the head end at 0-0.25m. c 0.30 x 0.23m, probably part of coffin.

b) Cover? Black stain, probably above body stain.

c) Ledge from waist to head sloping upwards, with head in hollow in grave cut, 0.60 x 0.25m.

BODY: Very incomplete. Stain reddish brown, head and upper part of body and arm and leg stains? at 0-0.20m. Body stain at 0-0.25 to 0-0.28m. ?On L side, ?semi-flexed. Age: adolescent (size). Sex: uncertain.

FINDS: None.
GRAVE: 1210N x 60W; cut 6829; 1.63 (damaged) x 0.54 x from 0-0.05 to 0.15m; oriented ENE/WSW (c 68/248°); cut by dragline.  
Fill: disturbed by animal runs. Four soil samples taken, two outside.  

STRUCTURE: Slight edge stain of ?rectangular black brown coffin/bier; 0.66 (damaged) x 0.15 (damaged) x at 0-0.06m.  

BODY: Unclear dark ginger brown stains of indeterminate shape on bottom is a possible body at 0-0.05m.  
Age: infant (size). Sex: uncertain.  

FINDS: None.  

GRAVE: 1180N x 50W; cut 6773; 1.37 (0.91) x 0.66 (0.25) x from 0.28 to 0.30m; oriented ENE/WSW (c 70/250°).  
Fill: much humus and many pebbles at 0-0.05m.  

STRUCTURE: Edge and base stain of dugout coffin; 1.22 (0.66) x 0.43 (0.25) x 0.17 (0-0.10 to 0.27m), max of 0.05m thick on section. Probably a dugout from rounded outline and hollow profile. With two iron staples, probably across splits (125/2).  

BODY: No evidence.  
Position: uncertain.  
Age: infant (size). Sex: female (artefacts).  

FINDS:  
125/1 String of six beads.  
Five monochrome glass and one amber bead. Five in a row (and one separate) in what was probably the chest area (if follow predominant orientation), at 0-0.25 to -0.28m. Exact order known.  
Monochrome glass - five beads:  
Amber - one bead:  
e) One irregular large disc. Bead 1.  
125/2 Two iron staples. The smaller one is three sides of a rectangle, with one end intact and one where it is impossible to tell (GE). Sections square, and flattened to the side (GE). The larger has four sides, with intact ends and sections circular or subcircular (GE). Organic (JW): mineral preserved wood on both that gives the
appearance of flattened sides. The smaller staple was mounted on the end grain surface, which was possibly curved or angled as the wood grain on the points is almost diagonally orientated. The larger staple is mounted on a radial surface board, 37.3mm thick. From the grain preserved on these staples it is unlikely that they were mounted on the same piece of wood and certainly not in the same plane. Probably across crack at top edge and one across crack lower down the side (AML 555; Xrad A9027.)

At 0-0.18 to 0-0.20m on the stain at ?foot end (if follows predominant orientation).

126

GRAVE: 1230N x 70W; cut 6857; 1.93 x 0.61 x 0.33m, oriented SW (c 231°).
Fill: dug in two stages. Blotchy for 0-0.08m, many lenses of clean gravel, orange 'loam' and grey silt- turves? Much greyish brown loam especially at head end- turves? Many dark brown-black horizontal lines appeared in the loamy fill ?root or worm hole. Tongues and lenses occurred especially at foot end from c 0-0.13m. Heat cracked FL. Sandy lenses, with the smaller one at the head end and the larger patch along the centre from waist to the foot.
Patches in fill: two patches of greasy grey ?organic stain, at 0-0.20m, and purple-grey greasy loam at 0-0.15m. Oval patch of 'light cream brown greasy silt', c 0.10 x 0.08m, near upper R leg, at 0-0.26m. Area of grey brown greasy silt and cream brown, with very few pebbles, between pelvis and legs and the grave side and between the waist to feet, from 0-0.26 to 0.36m.

STRUCTURE:
No evidence.

BODY: Head stain, greenish ginger, looked at under UV light, at 0-0.23m, body stain at 0-0.36m, ginger brown.
Position: body on L side, semiflexed legs, arms irregular, head on L side.
Teeth: at 0-0.22 to 0.28m, not analysed.

FINDS:
126/1 Copper alloy staples, both flat sectioned.
a) Two right angled frs, one fr larger with some of the third side, and the other is probably the third and fourth side. (AML 404; Xrad 1267 [missing], Bronze no. 1.) Once extant but now missing since mid 1980s.
   Repair near L ear, at 0-0.33m.

b) Two sides of a rectangle with the turning of a third side. (AML 405; Xrad 1267 [missing], Bronze no. 2.). Once extant but now missing since mid 1980s.
   Repair on R ear, at 0-0.33m.
?Remains of one or two wooden vessels.
127A

GRAVE: 1220N x 60W; 1.60 x 0.76 x 0.23m; oriented WSW (c 240°); ?cuts 127B. Fill: IA shs found at 0-0.03, 0.10, 0.20 and 0.23m, along centre.

STRUCTURE: Edge stain of coffin, c 1.70 x 0.56 x 0-0.16m. Appears to have rounded corners, probable dugout.

BODY: Complete body stain, head stain at 0-0.15m (tested by UV light at 0-0.18 to -0.20m but it did not show up). Position: supine with extended legs, one arm along sides, one arm on pelvis?, head to the R, body appears to be slightly tilted to the R. Age: older child (size). Sex: uncertain.

FINDS: None.

127B

GRAVE: 1220N x 60W; cut 6849; 1.90 (1.73) x 0.85 x 0.33m; oriented WSW (c 240°); ?cut by 127A. Fill: a few soft sandy patches, a red hard pan all over.

STRUCTURE: None.

BODY: Complete body stain (tested by UV light), head at 0-0.15 to -0.30m. Bone (SZ): traces leg bone at 0-0.30m, now missing. Teeth (RP): enamel shell much encrusted very fragile, several probable molars, none complete at c 0-0.30m. Position: supine with extended legs, arms along sides, head central, upper part of body slightly tilted to the L. Age: adult (RP). Sex: uncertain.

FINDS:
127B/1 Iron knife. Xrad shows a complete, narrow, parallel sided knife. Back has convex curve to point, cutting edge concave curve. Possible wear on cutting edge near tip (GE). Tang central with shoulder both sides. (DS) Homogenous. Organic: unidentified wood recorded on conservation card, and leather sheath mentioned by WTJ but both were probably horn if on tang (GE). Once extant but now missing. (AML 406; Xrad 559.) In waist area, with tip pointing R at 0-0.30m.

127B/2 Iron pin, hooked head, circular section and broken shaft (GE). Textile (EC): area c. 23 x 9mm, mineralised around neck especially, diagonally along length, spin Z/Z, medium twist, weave 2/2 twill, thread count est c 7-8/8 on 10mm, surface damaged. (AML uncertain [not 352 or 127]; Xrads R559, A9052.) No location or depth recorded.
GRAVE: 1190N x 50W; cut 6793; 1.68 x 0.66 x 0-0.23m (0.08m already excavated); oriented WNW (c 285°); cuts posthole at L side of the foot end possibly confused with animal run in the same area, or a possible marker post.

Fill: silty fill outside coffin along the sides. Very sandy beyond coffin at head end, a long sandy strip of fill running length ways near the foot end. Silty medium brown inside the coffin. Oval patch of 'greasy grey brown silt' c 0.19 x 0.15m of roughly circular shape, in neck area, at 0-0.23m- probably part of body or textile.

STRUCTURE: Stain of sides and base of ?dugout coffin, 1.57 (1.42) x 0.36 x 0-0.10m (from 0-0.10 to 0.20 m), initially straight at head end at 0-0.15m, then curved lower down at 0-0.20m. Straight at bottom end. Incomplete on R side, blacker lower down and very black at bottom, black brown on R side, slightly irregular rectangular. Two ginger-brown stains where coffin collapsed out, or possible stabiliser or handle. Hollow where the head stain is. Possible stabilisers or handles.

BODY: Skull, indicated by a hollow and teeth.
Bone (SZ): traces, now missing.
Teeth (RP): at least 12 teeth caps (two minute shelly frs found only).
Position: uncertain, but head to ?R.
Age: older child/adolescent (size). Sex: male (artefacts).

FINDS:
128/1 Large iron spearhead; leaf-shaped narrow ovoid blade with lentoid section taking up about two fifths of the total length; blade separated from the socket by a short length of solid neck, cleft socket, with a binding ring at the socket mouth (GE). Rivet in socket (GE). (DS) Homogenous. Organic: mineral preserved wood in socket, possibly Juglans sp (walnut) (SEM B670) (JW). Textile (EC): lumps of replaced deteriorated textile, no details obtainable and now missing. (AML 119; Xrads R507, A9302-3.)
   Tip buried in natural, on R side, outside coffin, at 0-0.17m.

128/2 Iron knife; slightly curved back, the cutting edge slopes into the tip and is worn (GE). Differential corrosion seen in Xrad appears to show that the end of the handle was curved. Incomplete tang is central, with shoulder both sides. (DS) Homogenous. Organic: Trace of horn handle on tang. Considerable remains of leather sheath, especially where there is no textile. Yellowy with some form of embossing. Scalloped along blade edge, no stitching visible. Rectangular cut out, towards tip, possibly deliberate for a thong. Although leather goes right around the blade, cannot find a seam which fastens it (GE). Straw? cereal, on top of textile (DDM). Textile (EC): On blade; areas of replaced textile c 6 x 28mm, very coarse twill, Z,Z, 2 x 2 regular count c 5-6 c 8 per 10mm. (AML 120; Xrads R333 [missing], R532, A9027.)
   In the chest area on L side, on bottom of coffin, no depth recorded.
129

GRAVE: 1220N x 60W; cut 6845; 1.85 x 0.63 x 0.15 to 0.18m; oriented SW (c 235°).

Fill: lenticular pebbly sand, with yellow sand predominating, at 0-0.05m at the foot end, with area of hard pan on grave bottom, much animal disturbance at the foot end and between the head and pelvis.

STRUCTURE: No evidence.

BODY: Very incomplete stain. Head stain at 0-0.13m, light brown stain in a hollow, with animal disturbance; and pelvic stains, yellow brown stain in a slight hollow, with a red brown area harder than fill at 0-0.05m.

Bone (SZ): traces, now missing.

Position: uncertain, but probably ?supine, and head central.


FINDS: None.

130

GRAVE: 1240N x 60W; cut 6913; 1.19 (0.76) x 0.46 (0.30) x 0.15 to 0.18m (sides of grave sloping to smaller base); oriented SW (c 230°).

Fill: lenticular, much animal disturbance, at head end.

STRUCTURE: Edge stain of L side of ?dugout coffin, 0.63m (incomplete) x c 0.30 (if follows bottom of grave) x 0-0.03m (where first found), patchy black stain on L side.

BODY: Areas of ginger brown staining, probably the body, at 0-0.18m.

Position: body uncertain but on ?R side, ?semiflexed legs, arms unknown, and head ?looking R.

Age: infant (size). Sex: uncertain.

FINDS: None.

131

GRAVE: 1250N x 60W, in clearing near Grs 119 and 120, iron boss beneath conveyor belt in 1967, but no trace of grave when belt removed in 1969; no dimensions (no info). No plan made.

STRUCTURE: ?Cover, surmised from wood on shield boss (131/1a).

BODY (SZ): traces seen. No bone found at present, but two bags recorded in notebook 9, 43.

FINDS:
131/1 Iron shield:
a) Boss. Medium height, moderate wall height, medium diameter, moderate flange width, flange damaged, slight carination, slightly convex cone, straight sloping wall, five copper alloy large disc-headed rivets with circular sections, and disc-headed apex with two holes in it (GE). Traces of white metal (GE). Organic: leather under flange (GE). Wood under flange and all rivets showing wood grain except one shows Tilia sp (lime) with a radial surface at this point (SEM B645). 10.8mm thick, wood 6.6mm, front leather 1.9mm, back 2.2mm, wood 4.8mm (JW). On one rivet, much resinous-like material between rivet head and wood and leather (JW). Quercus sp (oak) with a radial surface on upper surface of cone is probably from coffin or cover (JW). Textile (EC): trace under flange of replaced Z/S ?twill, c 20 x 14m per 10mm, surface deteriorated (AML 731257; Xrads A9029, A9046.)

b) No grip found, but light-coloured area on the flange may be all that remains of an inserted antler or bone grip. Grain of board is horizontal with the axis of the grip, cf shield from 950/3a (JW).

c) Pair of larger copper alloy disc-headed round complete sectioned rivets, slightly larger, from grip, or decorative rivets. Traces of white metal (GE). Organic: rivets 8.5mm thick (JW). (AML 731257; Xrads A9029, A9046.)

159

GRAVE: 1210N x 40W; cut 6836; 2.16 (1.85) x 0.69 x 0.43m; oriented WSW (245°); cut by pit (uncontexted) to 0-0.41m in centre of grave. Animal disturbance at 0-0.15m in centre of grave. Covered by conveyor belt.

Fill: At 0-0.08m very fine darkish and light brown and grey sand and loam with some large stones and pebbles. At 0-0.08m at head end, very fine blackish brown loam, with flecks and lumps of 'CH'. At 0-0.08 to -0.15m general fill is very fine light grey sandy loam with some stone and coarse grit. In central area, a darker brown loam with fine sand and pockets of grit. Some concentrations of 'CH', often in large lumps. At 0-0.15 to -0.23m mostly a light grey sandy loam with pockets of gravel and isolated stones. Soil sample taken. At head end, a darker loam fill, flecks and large frs of 'CH' although becoming grittier. At 0-0.23m in central area is filled with dark loam, with fairly large stones and large and small frs 'CH'. Hawthorn type twigs with bark attached (CK) now missing, found near decorative ?shield rivets but probably not part of shield (JW)-?part of fill.

STRUCTURE:
a) Edge stain of ?dugout coffin. 1.70 (incomplete) x 0.42 x 0.10 (from 0-0.20 to -0.30m and definite at 0-0.23m) (not a bier as WTJ thought), rectangular stain, incomplete on L side in the centre, and above head disturbed by pit? Slightly curved at the foot end.

b) ?Cover. 1.22 x no width (no info) x 0-0.20m (from 0.20m thick). Traces of dark fill with 'CH' frs found towards head end, and appears to be disturbed/collapsed and at various levels (see fill description). Not planned. At 0-0.08m a concentration of 'CH' 0.03m thick near head end.
BODY: Fairly complete stain found, of head stain at 0-0.23m and leg stains at 0-0.38m. Bone on 159/3b (grip) but too little to be analysed.
Position: supine with extended legs, arms unknown, head central.
Age: adult (size). Sex: male (artefacts).

FINDS:
159/1
a) Medium iron spearhead; badly corroded especially along the side of the blade (GE), leaf-shaped with lentoid section, short solid neck which separates the blade from the broadly cleft broken socket with a rivet. (DS) possible composite structure. Organic: \textit{Fraxinus} sp (ash) mature timber in socket (JW). (No AML no; Xrad A9605.)
To R of head at 0-0.03m, sloping down, under conveyor belt, outside coffin. Tip of spear found when clearing under the conveyor belt. Shaft fr found at c 1260N x 35W in a spoil heap, but joins match this spear. Possibly laid on cover and subsiding with it (see section).

b) Spearhaft stain (initially confused with the shield stain), 1.07m long.
Above coffin and cover, originally on R side at 0-0.13.

159/2 Iron knife; straight cutting edge curves into the tip, but the back angles into the tip (GE). Tip missing and tang 'broken in antiquity'. Tang in line with cutting edge, with shoulder at junction with back (GE). Textile (GO): at L of handle, no details available as now gone (GE). (AML 715026; Xrad 1624.)
Outside coffin on L side, pointing into head a little, at 0-0.03m, probably laid on cover with 159/1 and 159/3.

159/3 Shield.
a) Boss. Average height, moderate wall height, moderate diameter, moderate flange width, overhanging carination, slightly convex cone, very slightly concave wall, with five disc-headed copper alloy rivets, three with signs of white non-ferrous metal (GE), no signs now (GE) plain iron disc-headed apex. One rivet appears from illustration to have been complete at the time of excavation. Organic: board of \textit{Tilia} sp (lime) with tangential surface (JW). Thickness c 10mm. \textit{Crategus} sp (hawthorn type) wood also on apex, ?from twigs, ?could be an inclusion (JW). Six large frs of fern adhering to outer surface (DDM). Leather under flange, overlain by wood (GE). (AML 715057; Xrad A9028; Iron no. 3.)
Top edge of flange and apex above R chest area. Above coffin, and on ?cover and tipped sideways when the ?cover collapsed, at 0-0.20m.

b) Short, flat, very slightly splayed (GE) iron grip with two disc-headed square-sectioned rivets (GE). Probably not covered in non-ferrous metal (GE). Ends unclear but probably very slightly splayed (GE). Found in fragments slightly offcentre to the boss. Organic: PVA used on 'wood' insert (this appears to be highly degraded bone (CK) if so, could be part of shoulder blade (JW). Grip insert of \textit{Tilia} sp (lime) (SEM B646) with grain on same orientation, grain perpendicular to the axis of the grip, which is probably cut-out type (JW). (AML 776352; no Xrad.) Possibly leather under wood on other side from textile (GE). Textile (EC): replaced on iron over wood, Z,Z,
2,2 twill, three frs, 5 x 23, 33 x 23, 17 x 16mm, even spin and weave, 9/9 per 10mm.
(AML 715058; Xrad A9301.)
Underneath boss at 0-0.33m.

c) Two pairs of rivets, all circular sectioned (GE).
   ci) Pair of disc-headed copper alloy rivets, one with a broken shaft (GE). Organic: both in a large fr of mineralised wood (60 x 25mm) estimated 11mm thick. Area of leather above wood (GE) estimated c 1-2mm thick. Covered in white metal surface (GE). (AML 715025; no Xrad; Bronze no. 2; Notes nos 3 and 4.) Outside and above coffin on R side, at 0-0.15m.

   cii) Pair of disc-headed copper alloy rivets. With a white metal surface, shafts complete (GE). Organic: None now found but wood and leather originally recorded (JW). *Crategus* sp (hawthorn type) twigs found here (see fill description). (AML 715025; no Xrad; Bronze no. 1.) To L of shield boss, ?collapsed into coffin, at 0-0.35m.

---

**240**

GRAVE: 1170N x 40 W; cut 6771; 1.63+ (1.63) x 0.70 (0.58) x 0.43m (only cross-section recorded); oriented W (265°); cut by two postholes (uncontexted) and a pit (whose edges are not clear).
Fill: at 0-0.08m fine dark brown loam coarse grey sand with some small stones, with pocket of very dark brown loam with small grit, in centre of grave. At 0-0.08 to -0.15m dark brown loam very fine in places with small pebbles. At 0-0.15m on L, area of slight pockets of light grey sticky clay with some patches of dark loam and ginger sand. Dark patch at 0-0.13m in centre. At 0-0.15m to -0.23m dark brown loam with pockets of coarse ginger brown sand and large stones, no line of distinction between other fill of coarse and fine light greyish brown sand with small pebbles and grit. At 0-0.23 to -0.30m light and dark brown loam with pockets of sand and small stones, but towards head end was clean but coarse very ginger sand with few small pebbles. Bottom of natural of very hard packed sand with some gravel, mostly a reddish sandy hard pan. Irregular base.

STRUCTURE: Shelf in bottom of grave upon which the head rests, 0-0.36m x 0.70m.

BODY: Very clear body stain, dark fibrous, head stain at 0-0.33m, thick well defined line of dark material, pelvis and shoulder at 0-0.38m, feet at 0-0.43 to -0.46m.
Teeth (RP): traces at 0-0.39m.
Position: body leaning on L side, legs semi-flexed, arms irregular, head looking L.

FINDS: None.

---

**241**

GRAVE: 1230N x 40W; cut 6899; 2.18 (1.93) x 1.12 (0.71) x 0.38m; oriented SW (216°).
Fill: brown sandy loam overall, large animal hole to L of and above head, IA rims. At 0-0.08m very pebbly mixture of clay and dirty gravel, clay ridge on upper R hand side of grave edge. At 0-0.15m clay strip on R hand side of grave edge, top and bottom. At 0-0.23m clay strip on bottom R hand side of grave edge.

STRUCTURE: Coffin, ?dugout, 1.87 (1.56) x 0.58 (0.33) x 0.13 (from 0-0.25 to -0.38), rounded at head end, very black. R side collapsed or slopes out at bottom and tapers markedly as gets lower.

BODY: Complete bodystain, at 0-0.33 to -0.39m. Teeth: not kept. Position: supine with legs extended and very slightly semiflexed to R, arms to side, head central. Age: adolescent/adult (size). Sex: uncertain.

FINDS:
241/1 Lathe-turned wood vessel with two copper alloy repair clips. a) Larger repair, now more fragmentary than the photo or drawing, once with two small copper alloy circular sectioned rivets and incised linear decoration at right angles on at least two sides. Organic: wood inside when found identified as Betula sp (birch) (GM), but now missing (JW). (AML 690932; no Xrad; Bronze no. 2.)

b) Smaller repair clip, once with two small circular copper alloy sectioned rivets, at least one seen on the photo, now very fragmentary. Organic: wood inside when found, originally identified as Fagus sp (beech) (GM), but now missing (JW). (not ill) (AML 690931; no Xrad; Bronze no. 1.)

Both above head, to R, inside coffin at 0-0.30m.

242

GRAVE: 1160N x 30W; F6956; 1.98 x 1.02m x no depth (not fully excavated); cut by posthole c 0-0.18m; oriented SE/NW (134/314°).
Fill: At 0 to 0-0.08m, brown fill varying from loamy to very pebbly, at W end, light brown compacted fill including many gravel pebbles, with a possible posthole of greyish fill with traces of 'CH', patch of red sand; light brown sandy gravelly fill with fine stones at E end, sh (missing). At 0-0.08 to -0.15m grey brown fill of ph, with a gravelly fill. At 0-0.20 to -0.23m fill becomes sandier with gravel pebbles, and some reddish sand-clay patches. At 0-0.23 to -0.33m, sandy with many pebbles, more pebbles at W end. At 0-0.33 to -0.41m hard pan; a few specks of 'CH'. At 0-0.41 to -0.56m 'CH'; then very clean sand.

STRUCTURE: No evidence.

GRAVE: 1230N x 40W; cut 6895; 1.96 (1.78) x 0.76 x 0.20m; oriented SW (222°).
Fill: soft sandy fill, dirty dull brown, fairly fine, not many pebbles, finer towards the bottom, animal disturbance, some hard pan, very uneven bottom.

STRUCTURE: ?Cover, surmised from wood on 243/4 shield boss.

BODY: Complete body stain, but poor because of animal disturbance; sinkage in chest area due to animal disturbance; lower legs a good stain; at 0-0.25m (brown).
Position: supine body, one leg extended, one leg flexed, arms uncertain, head probably central.
Age: adult (size). Sex: male (artefacts).

FINDS:
243/1 Iron spearhead; slightly asymmetrical leaf-shaped but parallel-sided blade with lentoid section; short solid neck and broadly cleft socket with rivet. Much of blade and tip missing. (DS) Homogenous. Organic: mineral preserved wood in socket, *Acer* sp (maple) or *Betula* sp (birch) SEM B671 (JW). (AML 690940; Xrads 911, A9051-2, Iron no. 11.)
To R of head at 0-0.15m.

243/2 Iron knife; fragmentary blade with circular rivet in shoulder. Very straight back with cutting edge curving in to tip. Tang incomplete and central with shoulder both sides. (DS) Homogenous. Lost since the mid 1980s. (AML 690941; Xrad 908, Iron nos 3, 4, and 8.)
On L arm at 0-0.18 to 0.20m, Iron nos 3 and 4 are edge up.

243/3 ?Iron pin fr, or ?cord end to tie knife to costume. Possibly folded sheet, with one broken end (GE). (AML 690948; Xrad A1796.)
Attached to 243/2 (knife), therefore on L arm at 0-0.18 to 0.20m.

243/4 Shield.
  a) Boss. Low height, moderate wall height, large diameter, moderate to large flange and straight cone, overhanging carination and concave wall, five disc-headed untinned (GE) iron rivets, broad plain iron disc-headed apex. Organic (JW): wood under flange. *Tilia* sp (lime) or *Acer* sp (maple) SEM B647 identified on one of the rivets. A complete rivet on flange had wood 9.2mm thick. Wood over cone is probably from the cover but is unidentifiable. Textile (EC): a few threads, replaced Z,Z, area 3 x 5mm, insufficient to identify weave, now missing (not ill). (AML 690939, 690947; Xrads A9869-70, Iron no. 10.)
  On L side over knee with apex at 0-0.15m.

  b) Grip. Long with slightly splayed flat central section terminating with one iron fragmentary flat-headed rivet with a circular section. The other rivet is missing. From this a narrow iron strip or bar extends either side, with both ends broken and one beginning to splay (GE). Parts missing because of animal burrowing. Organic: Leather on both sides (GE), preserved on outer side of the grip in strips c 12-13mm wide, and wrapped round. On the inside there appears to be a shaped strip of leather
along its length and underneath the wood from the board (JW). No sign of wood in central portion of grip (JW). (AML 690939; Xrads 1623, A9051-2, Iron nos 1, 6, 9, 12).

Over legs at 0-0.18 to -0.23m under boss (Iron no 6) and two frs moved by ?animal disturbance to near feet (Iron nos 1, 9, 12), at 0-0.23m.

c) Two pairs of rivets. Four disc-headed plain iron rivets with circular-sectioned shafts and no signs of tinning (GE):

ci) AML 690944 is slightly smaller than AML 690945. Both have broken shafts. Organic: *Betula* sp (birch). Grain is parallel to body (GM). (AML 690944, 690945; Xrads 1341, A9839, Iron nos 5a and b.)

In original position to R centre of grip at 0-0.20m.

cii) AML 690942 has a broken shaft and is much smaller than AML 690943, which is complete and has an iron washer. Organic: AML 690943 is 11.6mm thick with leather on front and back of wood (JW). (AML 690942, 690943; Xrads 1341, A9838, Iron nos 2a and b.)

Disturbed by animals to R of R foot at 0-0.18m.

d) Rectangular iron mount with two probably intact integral rivets of circular section (GE). Short sides are broken (GE). Thought to be a knife when excavated. Organic: on one side, possible leather, but very deteriorated (GE). (AML 690946; Xrad A1796, Iron no 7.)

On R hip due to animal disturbance at c 0-0.26m.

e) Shield stain. Fine grained light grey/brown silty loam stain 0.61m wide, but there does not seem to be quite enough room for the full width of the shield to fit in flat, some animal disturbance, boss sunk in centre. Stain from 1 to 3mm thick but this is shallower than depth of wood on flange rivets due to compaction.

On L side over knee at 0-0.20m.

243/5 Eight small frs thin copper alloy sheet found. One large and four medium, one of which is folded over, and three small. No intact or common edges (not ill). (No AML no: no Xrad.)

Location not recorded.

244

GRAVE: 1210N x 40W; cut 6869; 1.75 (1.57) x 0.69 x 0.46m; oriented WSW (248°); cut by Gr 245.

Fill: loose, dirty sand with few pebbles, animal holes in bottom, head end lower than foot end, and hollow under pelvis. Soil sample taken (x 2).

STRUCTURE: Edge stain of coffin; 1.52 x 0.61 x 0.36 (from 0-0.10m to 0.46m), thin dark stain, disturbed on R side with only a line of grey loam, head and foot end taper in, at head end some wood found- soil sample no. 1 taken from bag area (244/2 spear and 244/3 tweezers) contained large amounts of *Quercus* sp (oak), surface unclear,
from coffin (JW). Coffin bottom showed as a thin dark stain, masking the silhouette. Rounded rectangular shape—a dugout.

BODY: Near complete body stain, skull stain central light sandy, arms and legs faint (leg at 0-0.43m).
SM: preserved L arm bone found adhering to 244/4 (knife) and R leg bone. SZ saw ‘traces’.
Position: supine, with semiflexed legs, arms crossed at pelvis or waist, head central.

FINDS:
244/1 Copper alloy rectangular repair/stiffener. Now fragmentary thin copper alloy strip with a slightly domed non-integral circular sectioned copper alloy rivet at each end, with broken shafts. One fr appears to be a rivet but this is corrosion (GE). (AML 691133; no Xrad.)
Between spearhead and edge of grave, at between 0-0.18m to -0.25m.

244/2 Small iron spearhead; broad leaf-shaped profile, slightly stepped with short neck and cleft socket. (DS) Homogenous, fragmented. Organic: mineral preserved wood from the socket which was the shaft, too degraded to identify SEM B672 (JW). On blade probably Quercus sp (oak), with a radial surface from the blade which is coffin (JW). Soil sample no. 2 taken. (AML 691106; Xrad A9056.)
Probably originally laid on coffin lid, now tilted in upright position in upper R corner at 0-0.15m.

244/3 Tweezers, copper alloy, incomplete. Clear proximal loop and sharply inturned distal ends. Incised groove along length along each side ending in a 'V' shape at the loop. Scratched along length. At top of arm is a lump of iron from the knife. Organic: possible leather remains on the outside (GE). Textile (GE): on inside at the bottom fibrous traces not spun. (AML 691132; no Xrad.)
On L arm, in bag at 0-0.43m.

244/4 Iron knife; nearly straight back, worn cutting edge (GE). Both cutting edge and back curve into the point, tip missing now. Tang central, with marked shoulder both sides. Original xrad shows small area of non-ferrous sheath on junction of tang and blade, but no longer present—this does not appear to be bone (GE). Organic: Horn handle on tang. Wood on blade recorded by WTJ, but no longer present (JW), either from coffin, awl or misidentification of horn. Sheath of leather (GE) 4mm thick, but leather once identified on tang by WTJ is now missing (GE). Bone ?from body adhering (GE). Textile (EC): on fr of iron adhering to tweezers ?(a) mineralised frs scattered along c 40 x 5mm, 13/9 x 5mm, spin Z/Z, fine, weave tabby, traces whiteish ?not quite mineralised, appearance fine flax, attached replaced fine Z threads. (AML 691109; Xrads 1133, A9055, 10068.)
On L arm/chest area, under 244/3 (tweezers), blade pointing down, in ?bag, at 0-0.43m.

244/5 Leather bag/pouch. Probably calf from grain pattern (GE). Curved rectangular sectioned iron frs, ?possibly part of the frame. Two frs shows the marks of stitching
fastening leather over the iron frame. Organic (GE): Traces of wood from awl on back of leather confirm awl was contained in bag (No AML no: Xrad A10013).

On L arm/chest area, extracted from soil sample no. 1.

244/6 Iron tapering shaft with probable square section. Organic: leather at one end originally, but not now clear (GE). Textile (EC): (a) all over, 27 x c 10mm width round piece, Z/Z spin, even medium twist, weave tabby, one system count c 8 on 5mm mineralised, fine. (AML 691110; Xrads 1022 [missing], A9052, A9838, Iron no. 7.)

In L arm/chest area, near 244/4 (knife) and 244/3 (tweezers), in bag at 0-0.43m.

244/7 Complete D-shaped iron buckle, for holding bag. Straight hingebar narrower than loop. Organic: patch of possible leather on back of tongue (GE). Textile (EC): (b) all along loop, c 40 x 10 (at widest) mm, mineralised, Z/Z spin, loose twist, weave 2/2 twill, thread count 5/5-6. Underneath: ?(a) small patch, 8 x 4mm, Z/Z, even, tabby, thread count est. 11/10 on 5mm. (AML 691108; Xrad 1133, Iron no. 3.)

In L waist area at 0-0.48m, with no info on direction of tongue.

244/8 Complete circular iron buckle. Organic: scraps of leather identified by AM lab but not now clear (GE). (AML 691107; Xrad 1623, Iron no. 4, Iron no 1019.)

On R hip at 0-0.48m, tongue pointing L.

244/9 Awl. Two iron fragments. Handle section is circular. Too fragmentary to be drawn. Wood (JW): fr of Corylus sp (hazel) from handle (SEM B746). Textile (JW): plyed thread, possibly wound below handle. (No AML no; Xrad A10013.)

In L arm/chest area, in bag, extracted from soil sample no. 1.

245

GRAVE: 1210N x 40W; cut 6872; 2.36 (1.88) x 0.97 x 0.53m; oriented SW (231°); cuts Gr 244 and 13340 (pit). Fill: fairly loose dirty sand or gravel mixture, fairly pebbly, some small clay patches. L foot edge has smear of very light grey clay, although it is usually sand or gravel. Dark backfill between side and coffin on upper R side. Large clay patch between side and coffin on upper R side at 0-0.30m. More gravel and fewer clay patches at 0-0.36m. Fill inside coffin greyish brown at 0-0.41m and ginger sandy at head end at 0-0.41m. Clay fill with 'CH' at foot end on R side; IA sh.

STRUCTURE: Coffin, tapering; 1.80 x 0.48 x 0.20 (from 0-0.35 to 0.55m), rectangular head end, and rounded foot end, thin dark brown line from 0-0.36m and at 0-0.46m two stains on the L lower side showed-the inner dark brown and the outer of grey clay. Small fr of wood recorded on plan on L side, but not analysed and now missing, at 0-0.40m, which was probably part of coffin.

BODY: headstain, pelvis and lower L leg.
Position: supine with extended legs, unknown arms, head towards L.
Age: adult (size). Sex: male (artefacts).
FINDS:
245/1 Spear

a) Medium iron spearhead; found in two parts, leaf-shaped blade with tip missing, lentoid section, short solid neck, broadly cleft socket. (DS) Homogenous, very corroded. Organic: mineral preserved wood in socket, too consolidated to identify species (JW), but originally identified as *Fraxinus* sp (ash). Textile: fabric noted by WTJ but none now. (AML 715023; Xrads 1336, A9042-3.)

To L of head, inside coffin at 0-0.41m.

b) Shaftline stain, 1.32m long. (Shaft stain also postulated on L side, but not planned, and this was probably confused with a lower level of coffin).

Outside coffin on R side, sloping down towards feet from 0-0.36 to -0.48m.

c) Broken iron ferrule. Cannot tell if cleft (GE). Textile (EC): round top, patches under, replaced textile, Z/Z, 2/2 twill, c 10/8, 15 x 22 per 10mm open weave, yarns very loose (AML 715114: Xrad A7963.)

To R of coffin, towards foot end at 0-0.48m. Originally believed to be found in Crem 152, and Gr 626, but there is no evidence for this.

245/2 Shield.

a) Boss. Average height, moderate wall height, moderate diameter, moderate flange width, very slight carination, very slightly convex cone, straight walls, five iron circular-sectioned disc-headed flange rivets, with a non-ferrous coating (GE). Apex small and disc headed. The three U-shaped marks on boss are probably corrosion (not ill) (GE). Organic: leather under flange (GE). Wood under flange, *Salix* sp (willow) or *Populus* sp (poplar), grain orientation of wood varies from piece to piece, but board has a tangential surface on the boss flange and a radial one on the rivets. Textile (EC): Front; replaced 95 x 45mm overall, and other smaller patches, Z/Z twill, 2/2 spinning and weaving both very regular count 12/11 per 10mm. Coming from under the twill is what appears to be a piece of the edge of the textile, curved round and folded under, the twill threads seem to join onto the edge which is 7mm wide, six lines which may represent the thicker warps of a selvedge, or six rows of tablet-twists. There is a possible trace of another piece of edge under the opposite corner of the large piece of twill. (AML 715000A; Xrad 1344.)

Over L neck, apex at an angle at 0-0.45m. Probably collapsed in from top of coffin.

b) Grip. Long iron flanged, tinned copper alloy disc-headed rivets at either end of central section. Also long thin iron extensions with expanded terminals, flat sectioned. Organic: Wooden portion inserted into front of shield board. *Salix* sp (willow) or *Populus* sp (poplar), SEM B648 with radial surface (JW). On the front, remains of a large piece of leather and then underneath the wood is a strip of leather along its length c 12mm wide (GE). Longest rivet is 12.5mm. Textile: (EC) Areas of replaced textile, best 35 x 14mm other smaller deteriorated pieces; twill Z,S, spin may mean chevron, count 12/10 per 10mm surface deteriorated, but no reverses visible. Because of the different spinning this cannot be the same fabric as on the boss. GE: on grip extension. At either end of the handle are the remains of some fibrous material which appears to have been used as a binding. (AML 715000D; Xrad A9069.)

Underneath boss, and although depth was not recorded, it must have been at c 0-0.56m, and sloping.
c) Two pairs of slightly damaged disc-headed tinned copper alloy rivets, with round-sectioned shafts (GE).

i) Two rivets that appear to have been complete, but now more fragmentary than when drawn. Organic: traces of wood, also *Salix* sp (willow) or *Populus* sp (poplar) (JW). Very faint leather traces (GE). Textile (EC): replaced, Z/Sply, threads 3mm long, wound round shaft. (AML 715000B; Xrad 1341.)
To R of chest at 0-0.53m.

ii) Two rivets, one with a broken end, and the other complete (GE). Slightly larger than rivets 245/2ci). Organic: Both surrounded by wood frs also *Salix* sp (willow) or *Populus* sp (poplar) (JW). Wood with leather between it and the rivet head (GE). 11.6mm thick. No textile (GE). (AML 715000C; Xrad 1341.)
To L of head at 0-0.43m.

d) Stain of board.
c 0.61m wide from the stain outside the rivets and the position of the rivets.
Over chest and head at 0-0.41m.

245/3 Iron knife. Back and cutting edge parallel until near tip where cutting edge curves in and back has longer concave curve in towards tip. Tang in line with cutting edge with shoulder at junction with back. (DS) Homogenous. Organic: traces on tang of horn handle. No clear remains of leather on blade (GE). Textile (GO): ?binding frs for handle on tang noted but this appears no longer to be present (GE). (AML 715114; Xrads A6511, A7963-4.)
To L of waist at 0-0.46m. Originally believed to be from Gr 626, but there is no evidence for this.

245/4 Complete D-shaped iron buckle. Hingebar narrower than loop. Part of iron plate now fragmentary and exists only around the hingebar (GE). Organic: large area of leather belt over the tongue (GE). *Fraxinus* sp (ash) (CK) probably from spear, but no traces remain (JW). Textile (EC): Replaced on top, two folds of textile, Z/Z, 2/2 twill broken diamond, 9/10mm, c 23 x 30mm per 10mm. (AML 715023; Xrad 1151.)
In pelvic area at 0-0.50m, tongue pointing R.

246

GRAVE: 1180N x 40W; cut 6781; 1.98 (1.88) x 0.64 x 0.38m; oriented WSW (252°).
Fill: Red-brown pebbly at 0-0.08m with dark loam fill in centre and gravelly fill at foot end at 0-0.13m. Dark sandy fill at 0-0.15m, clayey loamy at 0-0.15 to 0.30m.

STRUCTURE: Edge stain of coffin, rounded traces at R head end and on L side. 1.88 x 0.61 x 0.30m (from 0-0.08m to -0.38m).

BODY: Full silhouette, with bone preserved on R hip and thigh, some bone (not recovered) in skull at 0-0.33m, L shoulder blade, R hip at 0-0.36 to -0.38m and thigh at 0-0.38m, L foot at 0-0.36 to -0.41, R foot at 0-0.30 to -0.36m.
Position: supine with legs extended, arms crossed at waist, and head facing L? head at 0-0.28m.

FINDS:
246/1 Wooden stave-built stoup tapering at bottom, with three repoussé decorated copper alloy bands riveted together. A photograph and a schematic diagram shows that the stoup was buried with the profile wider at the top than the bottom. The diagram does not fit the remaining fragments, however. It has been assumed that it was buried the right way up. A definitive reconstruction is impossible, however, as the remains are now more fragmentary and there are few joins. The order of the bands is based as far as possible on the decorative scheme in Gr 998.

a) Upper? band frag with a continuous arcade and groups of three small repoussé dots in a triangle along the bottom of each intersection, with a continuous line of repoussé dots along the top and bottom. Holes for rivet to join band.

b) ?Middle band frag with an arcade interspersed with a vertical motif of bead and reel. This central reel is flanked by two beads, the outer bead being smaller than the inner. There is also a continuous row of closely spaced small repoussé dots along one edge, an arcade with groups of three repoussé dots in a triangle along the bottom of each arcade intersection (the top area is missing), and one dot above and between downward arcs of arcade. There are possibly groups of three repoussé dots between and below the arcades. c) ?Middle band frag with a vertical motif of bead and reel, with a central reel flanked by two beads, the outer bead being smaller than the inner. With a continuous line of repoussé dots along top and bottom. Other repoussé dots are placed irregularly. Rivet holes do not match b) but there may have been more than one rivet per band.

d) ?Lower band with a wave design with groups of three small repoussé dots interspersed with a groups of four small repoussé dots. Possible line of repoussé dots along the top edge.

e) Originally at least three copper alloy split pins (two loops with attachment pins that are broken, and one split pin with a looped head that was probably for the attachment of another ring, now missing). Once attached to wood between the top and middle band, and presumably placed equidistantly around the vessel. These seem to have been big enough for attachments or possibly for suspension, although not by a chain (JC). There appears to be no evidence for plates. Organic: Taxus baccata sp (yew) identified by CK but no longer exists (JW). An estimated eight staves from the photograph. (AML 690928; no Xrad.)

To L of head, with top at 0-0.23m.

246/2 Broad-band annular brooch (leaded) bronze (EDXRF MH). Outer edge fairly regular, but the centre is roughly cut and offcentre with two deep incisions (cut-out marks) crossing at one point. Irregular semi-circular punching around the inner and outer boundaries. Hole for iron pin which has left traces in the hole and on the other side but is now missing. What is now an area of corrosion was originally photographed as an iron strip, probably a cruder replacement pin. No evidence of
stopknobs. No evidence ever tinned (GE). Textile (EC): at the front; deteriorated replaced textile preserved by copper alloy, Z,S threads, weave not clear. (AML 690933; Xrad 904.) Soil from beneath brooch; fine fibres weave not clear, but probably Z,Z scraps dark replaced leather/skin (GE). (AML 690953; no Xrad.)

In lower central chest area, at 0-0.36m.

246/3 D-shaped iron buckle, near complete when found, but now deteriorated. Straight hingebar narrower than loop, section unclear. No signs of inlay (AML 690949; Xrads 906, A9421.)

Over L hip ?in a bag, at 0-0.36m, tongue pointing R.

246/4 Tweezers, fairly complete in bronze (EDXRF MH). Two double incised lines near the loop with two round sectioned copper alloy rivets on each side of these lines which may indicate repair. Clear but fragmentary proximal loop and sharply interred distal ends. Around the arms is a fr of iron from 246/5 (key) covered in textile. (AML 690934; Xrads 910, A9864-5, 9883.)

Over L hip ?in a bag, at 0-0.36m.

246/5 Complete padlock key with two wards, and loop. Textile (EC): fr 18 x 14mm and smaller piece round edge. Frs 25 x 9mm, 11 x 14mm, originally stuck to 246/4 (tweezers) some tiny frs detached. Z,Z, twill weave, regular 2,2 as far as can be seen, count estimated c 14 by 12 threads per 10mm. All the pieces could come from the same textile. One fr of thread was examined by WIRA and could not be identified but their appearance and weave suggests they were probably wool. (AML 690950; Xrads 907, A9864-5.)

Over L hip ?in a bag, at 0-0.36m.

246/6 Fr of iron knife, primarily tang. Tang central with shoulder both sides. WTJ mentions rivets, but none found. Organic: horn (GE). Organic: A small amount of 'wood' remains 'over the rivet remaining', but insufficient to take an sample (WTJ notes). None remaining (JW) and was probably horn (GE). (AML 690950; Xrad A9864-5.)

Presumably over L hip ?in a bag, at 0-0.36m.

247

GRAVE: 1240N x 40W; cut 6903; 2.03 (1.78) x 0.69 x 0.30m; oriented SW (215°).

Fill: extremely pebbly and containing much clay, derived from natural clay patch through which grave was partly cut. Containing some hard pan lumps and the bottom of the grave coincided with a layer of pan at the L end. At head end sand was very soft and much disturbed by animals. Top 0.15m quite dark.

STRUCTURE: Edge stain of coffin, 1.83m x 0.22 (minimum) x 0.05 (from 0-0.23 to 0.28m). Found only on R side. Disturbed by animals, slightly rounded.

BODY: Mainly upper part of body found, at 0-0.30m.


FINDS: None, but much animal disturbance.

248

GRAVE: 1170N x 30W; cut 6777; 2.06 (1.60) x 0.71 (0.56) x 0.63m; oriented WSW (244°).
Fill: dirty gravel and clay mixture, with high pebble content, densely packed. From about 0-0.25m fill much looser, sandier and less grey clay. At 0-0.31m no large patches of clay- loose fairly clear gravel. At 0-0.36m the rounded end shows as a thin grey line, dirty sand under silhouette; IA shs. Grey stain, above upper legs, at 0-0.48m to -0.51m. Patch of 'CH' 0.10 x 0.06m, over R foot, at 0-0.56m.

STRUCTURE:

a) Edge stain of coffin, uncertain in upper fill, but collapsed in on sides. At 0-0.30m firm black stain at head end. 1.65 x 0.41 x 0.40m (from 0-0.20 to 0.60m). Rectangular but tapering at head end and rounded but upright at foot end.

b) Cover, 1.93 x 0.48 x at 0-0.20m black stain primarily at head end, with greyish clay line (WTJ thought that the cover was only at the head end, but what was believed to be a part of the coffin at the foot end may be part of cover, as the angle in the section does not suggest a coffin).

BODY: Silhouette fairly clear (but some animal disturbance), merges with coffin. Samples taken x 2.
SM: Some bone in legs (sampled) and arm. Body stain dark brown, leg at 0-0.56m, skull at 0-0.51m, but poor and merges with coffin.
Position: supine with extended legs, R arm crossed on pelvis, L arm ?to side, head central.
Age: adolescent (size). Sex: male (artefacts).

FINDS:
248/1 Spear.

a) Medium iron spearhead; angular blade with concave sides and cleft socket with rivet in situ (appears to be two, but is one (GE)), deteriorated since drawn, tip missing. (DS) Probably pattern welded. Organic: area of plant material near rim of straw (DDM) on one side of blade. Extensive mineral preserved wood remains in socket, probably Fraxinus sp (ash) SEM B673 (JW). (AML 691112; Xrads A7745-6, R1118-20).
Tilted up through cover to L of head, with tip at 0-0.15m and bottom at 0-0.30m, originally over cover.

b) Iron conical ferrule, plain closed. Organic: mineral preserved wood in socket, Fraxinus sp (ash) (JW). Textile (EC): fibres around socket mouth, replaced Z or Zply threads, depth 12mm, wound closely around. (AML 691113; Xrad 1342.)
Below feet, originally just below top of cover, at 0-0.23m.

c) Shaft stain. 0.68m x 0.03m x 0.03m.
On R side originally over cover, sloping down and in towards foot end of body, from 0.0.30 to 0.33m.

248/2 Shield.

a) Boss. Low height, moderate wall height, large diameter, moderate to large flange width, convex cone, pronounced carination, straight but sloping wall, five disc-headed copper alloy rivets with white metal (cannot be subjected to xrf) with copper alloy circular washers at the end of the shank (GE). Disc-headed apex. Organic: *Salix* sp (willow) or *Populus* sp (poplar) with a tangential surface. 4mm thick where grip meets board (JW). Board 10.0mm thick. Leather under the flange (GE). (AML 691111; Xrads A9050-1, A9300, A9304.)

Over R hip, at 0-0.51m. Probably originally laid on the cover, and then collapsed in.

b) Grip. Iron short flanged, with slightly expanded and curved terminals. Iron disc-headed round-sectioned rivets at each end (GE), remaining one has non-ferrous coating and traces of copper alloy corrosion on the shaft (GE). Grip broken at one end, but complete at the other, and now more fragmentary than when drawn. Organic: leather (GE). Wooden part of grip rebated into the front of the shield board, 4mm thick where grip meets the board, grain horizontal in relation to the axis (JW). Unclear if is the same species (JW). (AML 691111; Xrads A9050, A9300.)

Apparently under 248/2a (boss) as not seen on plan, no depth recorded.

2ci) Flat iron decorative strip(s) in four frs. Frs cannot be joined and there appear to be no unbroken ends (GE). All have circular sectioned rivets apart from AML 691117 and 691119, which are square sectioned (GE). Organic: Possible leather on the back of AML 691115 (CK). All originally had wood (AML 691118) but could not be identified by CK. Now it appears that wood is present only around rivet shafts on AML 691122 (GE). Grain is along long axis of studs (JW). (AML 691115, 691117, 6911119, 691122; Xrads 1135, A9055.)

All lying along line of coffin, a) AML 691115, Iron no. 2 at 0-0.43m, near feet, 'lying flat', b) AML 691117, Iron no. 5 at 0-0.45m, near feet 'up on end', c) AML 691119, Iron no. 7 at 0-0.45m, to R of and below shield boss, 'lying on end', d) AML 691122, Iron no. 10 at 0-0.56m near boss.

2cii) Seven decorative lozenge-shaped fittings, each originally with two rivets. Two smaller than the rest (AML 691114, 691126). Dome shape in the centre of many is corrosion (GE). Sections all circular. Organic: all with wood (AML 691118) unidentified on back (CK) now it appears only on rivet shafts of AML 691123-7 and there is too little to be identified (JW). Leather on underside of 14 (probably), 23 (possibly) and 28 (GE). AML 691127 is at least 10mm thick. Species asumed to be the same (JW). Grain is along long axis of studs (JW). (AML 691114, 691123-8; Xrads 1131-2, 1135.)

At e) AML 691114 Iron no. 1 at 0-0.48m to R of boss, 'lying on edge', f) AML 691123, Iron no. 11 at 0-0.61m to L of boss, g) AML 691124, Iron no. 12 at 0-0.61m to L of boss, h) AML 691125, Iron no. 13 at 0-0.58m to R of and below boss, i) AML 691126, Iron no. 14 at 0-0.58m to L of boss, j) AML 691127, Iron no. 15 at 0-0.58m to R of and below boss, k) AML 691128, Iron no. 16 at 0-0.58m above boss.
Wood samples, unidentified, and now missing, believed at time of excavation to be iron rivets. (AML 691116, 691120-1; No Xrad.)

At 1) Iron no. 3 at 0-0.46m to R of boss, m) Iron no. 6 at 0-0.46m near feet, just outside coffin, n) Iron no. 8 at 0-0.46m near feet, on coffin line, o) Iron no. 9 at 0-0.53m to R of boss, p) at 0-0.56 to R of boss.

249

GRAVE: 1220N x 50W; cut 6860; 2.26 (2.14) x 0.84 (0.69) x 0.43m; oriented SW (234°); cut by 6930 ('Gr 254').

Fill: root stain near legs, pebbles above head, at 0-0.08m brown loamy fill with pebbles, at 0-0.23m much sandier, but darker loamy patches persist especially at the head end on the R side, tiny grit. At 0-0.30m very sandy, at 0-0.33m much sandier, but darker loamy patches persist, tiny grit. Some AB.

STRUCTURE: Coffin, 1.88 x 0.43 x 0.23m (from 0-0.15 to 0.38m). At 0-0.31m extensions to the lower part of the coffin stain at two diagonally opposite corners suggested the possibility of stabilisers or handles at the corners either to make the rounded coffin base more stable or actually to function as handles, though if integral these would have to be very substantial to take the weight. The stain is clear only at upper L end, very black, sometimes a little blurred in more clayey patches. At 0-0.33m whole coffin stain clear. Sub-rectangular coffin rounded head end straighter at foot; ?dugout as curved up at the ends and sides (section drawn both ways). Wood on 249/6 buckle may be from base of coffin.

BODY: Head stain at 0-0.38m.
Bone (SM): thigh and lower R leg bone found.
Position: supine with extended legs, unknown arms, central head.

FINDS:
249/1 U-shaped repair clip for lathe-turned wooden vessel. (Leaded) bronze sheet with two circular-sectioned copper alloy rivets (EDXRF MH). Organic: mineral preserved Acer sp (maple) (JW). (AML 691134; no Xrad.)

Outside coffin edge at L of and above head at 0-0.30m, amongst animal disturbance? irregular dark staining 0.15 x 0.08m.

249/2 Cosmetic brush. Tapering, now in two frs of (leaded) bronze sheet (EDXRF MH). One intact edge on each fr (GE). Textile (EC): PVA used. On outside (GE), frs replaced Z/Z, 2/2 twill, 5 x 5, even spin and weave, some Z threads pairs, over two warps- decoration and threads missing. Fr detached, replaced Z/Z, 2/2 twill, 5 x 4mm, thread count 7/5 on piece, very even, medium twist. (AML 691139; no Xrad.)

In waist area slightly above and to side of 249/3 and 239/4 (applied brooches), ?in a bag, at 0-0.32m.

249/3 Applied brooch. Bronze (EDXRF MH) and fragmentary. The repoussé front plate must have projected beyond the back plate to a diameter similar to that of the other brooch. Six human masks but slightly different to the other applied brooch of
the pair (249/4) with fr decorated with smaller beading and a damaged plait outer border. Ring-and-dot in centre, with loose zig-zag surrounding it. No sign of white metal on top plate (GE). Flat back plate with upper side tinned to take solder, and some of this remaining with impression of patterned front plate. Two strips punched through former clips for the pin attachment. Hammered up rim. Trace only of iron from pin, spring and axis bar. Long slender pin catch. (AML 691137; no Xrad, Brooch no. 2.)

In the central waist area, nearer the head end at 0-0.33m.

249/4 Applied brooch. Bronze front and back (EDXRF MH). Repoussé front plate showing six human masks, more stylised than 249/3, with beaded borders, no sign of tinning (GE). Upper side of flat back plate tinned to take solder (GE), with two strips punched through former clips for the pin attachment. Separate applied vertical rim. Iron pin, spring and axis bar (GE). Now fragmentary but complete when found. Textile (EC): Front; ?(a) area 36 x 26mm, Z,Z, fine 2,2 twill, count 14/14 per 10mm. HMA: animal fibres, wool, some pigmented. Pinhead; area 20 x 15mm three folds of fabrics. (a) on top ie furthest from pin, 18 x 8mm, two layers of woollen twill with similar count but the clearest showing centre of broken diamond; possibly same twill as on front, ie a spaced diamond. Underneath (b) 15 x 8mm part of woollen tablet-weave band or border, seven rows twists, Z spun warp, weft Z, Sply, 13 per 10mm, twists lie one Z, four S, two Z, one S with what may be remains of a pattern run on the surface in coarse Sply thread (Hirst and Clark forthcoming, a, fig 219.iv). (AML 691136; Xrad A10382, Brooch no. 3.)

In the central waist area, nearer the foot end at 0-0.33m.

249/5 Iron knife. Complete, rivet in tang; straight back and cutting edge both curve into the point. Tang central with smooth junction both sides. (DS) Homogenous. Organic: horn handle on tang and leather sheath on both sides of blade (GE). Textile (EC): ?(a) On edge; replaced textile, areas 18 x 14mm and smaller fr round edge, Z,Z, 2,2 twill, count c 12/12 but surface deteriorated. This could be the same material as a) brooch material. (AML 691131; Xrad A9055.)

In L waist area at 0-0.33m, ?in a bag.

249/6 Near complete bronze (EDXRF MH) kidney-shaped buckle. Cast loop with transverse grooves, not inlaid (GE). Narrower hingebar. Iron tongue now slightly fragmentary. No sign of white metal (GE). Organic: tongue with ?traces of leather which were removed when conserved (GE). Wood recorded to the side when excavated, 0.05 x 0.03m, but no traces now (JW). This was probably part of the coffin with grain parallel to body. (AML 691138; Xrad A9055, Bronze no. 5.)

In waist area, on R side, presumably just over body stain therefore at 0-0.33m, tongue pointing L.

249/7 Complete small (leaded) bronze (EDXRF MH) penannular brooch. The stylized zoomorphic terminals, with nostrils suggested by triangular shape at ends and raised rear part suggesting ears or eyes were made separately from the loop to which they are attached by ?soldering. The almost rectangular section hoop bears cast (GE) decoration in the form of groups of transverse ribs alternating with plain areas with cross. The expanded pin head is also decorated with transverse ribs on the top flat part and longitudinal ribs along the edges of the curved part. Leaded bronze pin (EDXRF
MH). Shiny grey patina suggests possible tinning, but no sign of white metal (GE). (AML 691135; no Xrad.)
In central pelvic area, at 0-0.33m.

250

GRAVE: 1210N x 50 W; cut 6840; 1.22 (0.97) x 0.56 x 0-0.20m; oriented WSW (244°).
Fill: At 0-0.0m slightly sandier area at head end, brown loamy fill with pebbles elsewhere. At 0-0.10m natural sand at foot end, and sandier fill at head end. At 0-0.17m very sandy with gingery pan at head end, natural sand at foot end. At 0-0.18m animal disturbance at head end, brown loam fill in centre becoming sandier, outside natural sand and gravel.

STRUCTURE: Stain of round-ended ?dugout coffin, 1.19 x 0.36 x 0-0.10m (ie from 0-0.08 to 0.18). At 0-0.10m rounded stain at head L side and foot end, bottom at 0-0.20m.

BODY: Head at 0-0.15m.
Position: supine with extended legs, arms unknown, head central.

FINDS:
250/1 Copper alloy wire circular-sectioned bracelet. Now more fragmentary than when found. The ends (now broken) overlap and were fastened off forming an expanding joint. Near an area of brown and yellow staining (AML 691140; no Xrad.)
To L of wrist, at 0-0.15m, on top of 250/2 (knife).

250/2 Iron knife; complete, with a straight back and cutting edge, slightly worn (GE) cutting edge angles in at the tip. Back curves into tip. Tang in line with cutting edge, with shoulder between, and smooth junction with back. Near and area of brown and yellow staining. Organic: horn handle remains on tang with straight edge across on both sides indicating its extent. Remains of leather sheath on blade (GE). (AML 691130; Xrads 1136, A9606.)
To L of wrist, at 0-0.15m, tip pointing to head.

250/3 Complete small circular iron buckle. Section unclear. Textile: not visible now but originally noted on end of pin. (AML 691129; Xrad 1133.)
In the centre of the stomach, at 0-0.18m, tongue pointing R.

251

GRAVE: 1230N x 50W; cut 6887; 1.22 (0.99) x 0.74 (0.54) x -0.24m; oriented SW (223°).
Fill: At 0-0.0m grey silty sand with a few small stones, orange sandy dirty gravel at foot end. At 0-0.18m light brown sandy with lots of pebbles at foot end. At 0-0.20m in centre grey sandy fill with pebbles, to L side orange sandy gravel. Stain to R of hips planned but no further information.
STRUCTURE: Dugout coffin, c 1.07 x 0.51 x 0.11m (from 0-0.13 to -0.24m).

BODY: Head stain at 0-0.13m, arm and leg stain at 0-0.18m.
Position: supine body, extended legs, arms along sides, head looking L?
Age: infant/younger child (size). Sex: uncertain.

FINDS:
251/1 Possible lathe-turned wooden vessel. Circular dark brown stain 0.09 to 0.13m wide.
Outside coffin, above head in R corner at 0-0.15m.

252

GRAVE: 1230N x 50W; cut 6883; 2.06 (1.83) x 0.89 (0.69) x -0.33m; oriented SW (233°).
Fill: At 0-0.0m dark at head end and light brown stony with patches of orange sand.
At 0-0.13m light gravelly fill at head end, light brown silty at foot end. At 0-0.18 to -0.23m orange sandy gravel at head end, light brown pebbly silt at foot end. At 0-0.25m orange sandy gravel at head end, and light brown sandy elsewhere, with animal disturbance at foot R end. At bottom of gravel patches of orange sandy gravel and ginger compacted sand.

STRUCTURE: a) Coffin, tapering square ended at head end and ?parallel sides. 1.70 (minimum) x 0.48 x 0.25m (from 0-0.08 to -0.33m).

b) Cover? Suggested by mineral preservation above 252/1 (disc brooch) and on 252/2 (pin), that shows that the grain on the coffin is parallel to the body.

BODY: Complete body. Head at 0-0.23m.
Position: supine with legs extended, arms along sides, head central.

FINDS:
252/1 Copper alloy disc brooch with punched quincunx of dots and circles. Circular compass mark between this and the border of semi-circular punchmarks inside linear radiating incised nicks. Surface does appear to have been tinned (GE). Lugs for catchplate and pinholder cast in one. Broken iron pin, spring and axis bar. Organic: wood from coffin on top of brooch recorded by WTJ but none remains now (JW). Textile (EC): underside, pin attachment, replaced Z,Z and S ?twill threads, a few threads only, very light twist? wound round. (No AML no; no Xrad.)
On R shoulder at 0-0.25m.

252/2 Re-used copper alloy barrel-shaped pin head from Iron Age penannular brooch. Cast grooved sheet bent over into a cylinder and poorly joined near the shaft, which is broken (GE). Probable trace non-ferrous coating (GE). 'Wood from coffin' in WTJ notes but none remains now (JW). (No AML no; no Xrad, Bronze no. 2.)
In central chest area, at 0-0.27m, with pin point pointing up towards L shoulder.
252/3 Iron buckle and buckle plate with a near complete circular loop. Hingebar narrower than loop. Square fragmentary buckleplate bent over into double thickness with four (originally five) round-sectioned copper alloy rivets. One rivet is protruding. Organic: Bone above plate is now missing. Leather between the plate and above the loop. Pupae cases on textile on one side at buckle loop (GE). Textile (EC): Front of loop; frs replaced textile, tabby best area 22 x 24mm. On back of plate, on the bone; a few small frs, Z,Z, close plain weave, count estimated c 8/8 per 10mm (taken as 4/4 on 5mm) (AML 715018; Xrad 1167.) In R pelvic area at 0-0.25m, tongue pointing R.

253

GRAVE: 1240N x 50W; cut 6910; 1.90 (1.78) x 0.81 (0.71) x 0.38m; oriented SW (224°).
Fill: light sandy gravel, with patches of clean sandy gravel, and very patchy drying mark. At 0-0.30m ginger sandy gravel, patches of hard pan with soft brown soil at L foot end dark brown loamy soil. Bottom of natural orange sandy gravel, with patches of compacted sand.

STRUCTURE:
a) Dark organic stain under/around/close to outline of body 0.94 x 0.56m at 0-0.36m. ?Leather.

BODY: Complete body stain, at 0-0.30m, and clearer at 0-0.36m.
Position: crouched, flexed legs, arms irregular (resting on knees), head looking L.
Age: adult (size). Sex: unknown.

FINDS: None.

255

GRAVE: 1250N x 40W; cut 6926; 2.24 (2.06) x 0.69 x 0.15m; oriented SSW (197°).
Fill: At 0-0.0 light brown sandy with small pebbles. At 0-0.10m hard pan at head end, with centre of light brown sandy and gravel at foot. At 0-0.13m hard pan at head end and on L side, foot end has natural gravel, R side very soft sand with many animal holes.

STRUCTURE:
a) Dark area under and around body outline; 1.19 x 0.48m at 0-0.14m. Leather?

BODY: Spine is a dark brown stain at 0-0.10m.
Position: body on R side, with legs semiflexed, arms irregular, head looking R.

FINDS:
None.
GRAVE: 1250N x 50W; cut 6923; 1.22 (damaged) x 0.60 x 0.13m; oriented SW (222°) foot end obscured by 1967 quarry ramp.
Fill: At 0-0.0m stony brown sandy soil. At 0-0.15m natural mainly compacted sand.

STRUCTURE: Possible edge stain of coffin with black fragmentary stains on the R side, 0.38m (min) x no width or depth recorded. Wood from 256/2 beads from coffin?

BODY: Stain at 0-0.13m, unclear, but possible head, upper body and pelvis.
Position: ?supine, head ?central or towards L, arms and legs unclear.

FINDS:
256/1 Two copper alloy implements, including one ear scoop.
a) A fragmentary oval attachment loop of flat section.
b) A fragmentary attachment ring of loosely twisted copper alloy wire of circular section. Organic (GE): possible leather.
c) Implement with circular sectioned shank, one end broken, and the other ending in a fragmentary flattened spatulate shape. Organic (GE): leather.
d) One implement with a subcircular section shank and a pierced (GE) flattened end? (now broken), and a near complete scoop at the other end. Shorter than c). Organic (GE): leather on scoop.
e) A few small frs (not ill). (AML 715173; Xrad 1625.)
Estimated to be to around neck, at 0-0.20m, leather possibly from a bag.

256/2 144 Beads.
Fifteen gold-in-glass and 129 amber beads. Scattered on front chest area, with location of beads recorded (Groups 2/1-5), but position of Collections 3 and 4 unclear. (No AML no; no Xrad.) In chest area, presumably above body at 0-0.18m.

'Gold-in-glass' - 15 beads:
a) 12 drawn globular 'gold-in-glass' (two fragmentary). Three in Collection 1. JB: One is silver, one no metal, one no metal but outer layer yellow tinged to give a gold-like appearance. Nine in Collection 2. JB: two gold, one silver, six with no metal but a top layer of glass in yellow translucent giving an impression of gold.
b) Three double drawn globular 'gold-in-glass'.
All in Collection 1. JB: all silver. Organic (JW): Quercus sp (oak).

Amber - 129 beads: (MEH nos)
c) One large irregular wedge (fragmentary). Collection 4: 67a. MEH: ends abraded, one end of hole flared, other end has a notch ?from wear, and hole bored both ends.


g) One medium fragmentary standard cylinder. Collection 2: 29. MEH: both ends worn flat, hole bored both ends (cannot be ill).


257

GRAVE: 1170N x 30W; cut 6775; 2.29 (2.29) x 0.86 (0.58) x 0.36m; oriented WSW (247°).
Fill: 0.0m some clay, foot end very clean. Under cover ie 0-0.05m, dirty gravel fill, clearer at 0-0.23m. At 0-0.18m at foot end yellow sandy gravel bottom. At 0-0.10m in centre orange sandy with larger stones at the foot end. At 0-0.18m hard pan at head end, c 0.60 to 0.38m wide, at foot end hard pan c 0.45 x 0.40m. At 0-0.25m one sh (missing). The hard pan suggests that the grave cut is much larger than the body because of the difficulties of digging the grave, or it is a child's grave cutting an adult grave.

STRUCTURE:
a) Coffin, ?dugout. 1.23 x 0.60 x 0.25 (from 0-0.05 to 0.30m). Brown pebbly fill at head end. Rounded at foot end. Shape at head end straight at top, but rounded underneath.
b) Cover. Light brown silty with few pebbles. 1.45 x 0.60 x at 0-0.05m (0.03 thick). Exact length is unclear as foot end was believed to be a coffin by WTJ but section suggests this is the cover, and is incomplete.

BODY: Very incomplete stain, pelvis and legs at 0-0.30m.
Position: supine with legs extended, arms and head unknown.
Age: child 1 (size). Sex: unknown.

FINDS: None.

258

GRAVE: 1190N x 5W; cut 6779; 1.52 (1.07) x 0.71 (0.56) x 0.69m; oriented NE (42°).
Fill: Upper most fill of dark brown with very hard with many pebbles. At 0-0.05m patches of orange sand at foot end, very compressed dark brown pebbly loam in centre, gone by 0-0.08m, some lighter patches. At 0-0.30m orange gravelly sand at foot end, and dark brown pebbly sandy soil with hard pan at head and L end, dark stain at the foot end (this once thought to be the head stain). At 0-0.30 to -0.38m patch of darker fill, brown fine sand at head end- probably a posthole or animal disturbance, still hard pan present. At 0-0.38m fine sand outside coffin, hard pan at foot end. Bottom of compacted sand.

STRUCTURE: Dugout coffin with rounded ends. No length (no info) x c 0.63 x 0.38m (min). At 0-0.38m found only at sides and foot end.

BODY: Stain fairly complete, head stain of light brown fine sand at 0-0.50m, body at 0-0.58m, but not very clear.
Position: body on R side with legs semi-flexed, arms unknown, head facing R.
Age: unknown. Sex: unknown.

FINDS:
258/1 Iron fr, broken curved sectioned. One broken edge, but it is difficult to establish whether the other edges are intact or not (GE). Possible bell fr? (LW) or ?spoon bit. Textile (EC): replaced Z,Z, basket weave, 9 prs/10 prs area c 30 x 30mm. (AML 715014; Xrad A9055.)
In ?pelvic area, at 0-0.60m.

259

GRAVE: 1250N x 30W; cut 1169; c 2.03 x c 0.75 x 0.15m; oriented ENE/WSW (57/237°).
Fill: very clean light brown clayey silt irregular bottom.

STRUCTURE: No evidence.

BONE: No evidence.
Age: adult /adolescent (size). Sex: unknown.
GRAVE: 1220N x 40W; cut 6879; 1.83 (1.68) x 0.71 (0.61) x 0.38m; oriented SW (236°).
Fill: At 0-0.005m dark patch with finer stones at head end. At 0-0.08m light brown 'dirty' gravelly fill at head end, and light brown stony silt fill with few pebbles at foot end, with some animal disturbance.

STRUCTURE: No evidence.

BODY: Stain complete, light brown fine sand, dark ginger stain on L rib cage, all at 0-0.30m, head at 0-0.23m.
Bone: some leg bone preserved (not recorded).
Position: supine with legs extended, arms to the sides, head central or to the L.

FINDS: 264/1 Iron knife; slightly curved back; near the tip the back and cutting edge curve into the tip (GE). Tang central with shoulder both sides. Possibly butt welded (DS).
Organic: remains of horn handle on tang with straight edge across at the top on one side. Traces of leather sheath on blade (GE). (AML 715028; Xrads 1624, A9055.)
In ?waist area, no depth recorded but must have been at 0-0.30m.

265

GRAVE: 1210N x 40W; cut 6865; 1.38 (1.17) x 0.63 (0.51) x 0.38m; oriented WSW (246°); cut by posthole.
Fill: At 0-0.15 to -0.20m ginger sandy fill. At 0-0.33m large pebbles at bottom. Some 'CH' at feet at 0-0.33m.

STRUCTURE:
a) Cover. Overall soil mark in central part of the grave in light brown gravelly material. Irregularly shaped 0.66 x 0.56 x 0.02m thick, at 0-0.13 in centre.

b) ?Pillow. Soil sample shows a black organic soil, but unidentifiable (GE), 0.51 x 0.25 x 0.03m (from 0-0.35 to 0.38) behind and below head, roughly rectangular (WTJ thought was 'CH', but none found). Contains fuel ash slag (LB).

c) Stain around and under trunk of body- leather cloak? Around body at 0-0.33m.

BODY: Complete ginger brown stain, body at 0-0.33m, head stain of fine yellow sand at 0-0.25m, unclear around thighs, pelvis dark ginger.
Bone (SZ): traces seen, now missing.
Position: supine body slightly on its R side, semiflexed legs, arms along sides, head central.
Age: adult (teeth). Sex: uncertain.
FINDS: None. (Metal object on arm leaving a ginger stain was decided by WTJ to be hardpan).

266

GRAVE: 1230N x 50W; cut 6907; 1.67 (1.52) x 0.56 x 0.36m; oriented SW (232°); cut by possible posthole near head of loamy fill.
Fill: At 0-0.05 to -0.13m mottled sandy fill orange sand with brown loamy patches. 'Loamy patches' towards foot end.

STRUCTURE: No evidence. (Metal object on arm creating a ginger stain was decided by WTJ to be hardpan).

BODY: Complete stain. Head stain of yellow fine sand at 0-0.15m, body stain at 0-0.30m.
Bone (SZ): traces seen, now missing.
Teeth (RP): Hollow enamel crown of molars, both encrusted and very fragile. Two joined together appear to be uppers and the rest include lowers. Not much apparent wear.
Position: supine and tipped over on R side with legs extended, arms irregular and head central, and to ?L resting on edge of grave.
Age: adult (teeth). Sex: uncertain.

FINDS:
266/1 Probable iron pin, now in frs. Hooked end fr and one fr both now missing and only seen in xrad (not ill). Round sectioned tapering iron shank, broken at both ends, with a possible wire wrapped around it. Textile (EC): On shaft: faint traces of plain weave detached fr of replaced two rows of 4 Z spun threads in one direction only. (AML 715004; Xrads 1176, A9843.)
In pelvic area, to L side at 0-0.30m.

266/2 D-shaped iron buckle, fragmentary. Hingebar narrower than loop. Textile (EC): Back; fr very deteriorated replaced textile, Z,Z, 2,2, probably twill of usual type, c 10 x 10mm. (AML 715029; Xrad 1624.)
In centre of pelvis at 0-0.33m, tongue pointing L.

266/3 Probable bag. Stain, dark brown, oval 0.28 x 15m. Suggested by WTJ to be a ?baby.
To R of pelvis, at 0-0.28m.

271

GRAVE: 1220N x 40W; cut 6842; 1.18 x 0.46 x 0.13m; oriented ENE/WSW (62/242°).
Fill: At 0-0.05m light brown sandy loam fill with patches of ginger sand. Yellow sandy gravel bottom.

STRUCTURE: No evidence.
BODY: No evidence.  
Position: no evidence.  
Age: infant/young child/older child (size). Sex: uncertain.

FINDS:  
271/1 Iron knife; curved back, back and cutting edge curve in at tip. Cutting edge nearly straight. Tang central, smooth junction both sides. Homogenous (DS). Organic: trace of horn handle on tang with straight edge across at top, but leather sheath appears to cover whole knife. On one side traces of fibres possibly sheath formed from sheepskin/pelt with hair side against the blade (GE). (AML 715279; Xrad 1178.)  
In centre, at 0-0.05m, on hips if follow predominant orientation.

272/101  
GRAVE: 1190N x 50W; cut 6797; 1.75 (1.75) x 0.81 (0.81) x 0.41m; oriented WSW (251°).  
Fill: dug in two stages; partially in 1967 when obscured by conveyor belt (labelled as Gr 101) and 1969 (labelled as Gr 272). At 0-0.0m loamy orange sand with no loam at foot end. At 0-0.23m ginger gravelly sand with some patches of grey-brown loam—suggested to be turves by WTJ. At 0-0.33m gravelly ginger sand with patches of loam. Dark fill with sandy patches becoming lighter and more pebbly with depth.

STRUCTURES: Cover or base for structure? Apparent ledge on L side to 0-0.30m was seen by WTJ as ‘overcutting’. On R side another ledge at 0-0.24m (and in some areas to 0.28m) seen as being due to ‘hardpan’ and packed sand. 1.44 x 0.24m.

BODY: Body stain complete, very pale brown, and poor although legs and arms well defined. Head stain of light brown sand at 0-0.41m.  
Position: supine with legs extended, arms by side, head to the R?  
Age: adult (size). Sex: male (artefacts).

FINDS:  
272/1 Small iron spearhead; near complete and very well preserved, with angular blade, and very stepped section, very short neck and closed socket. DS: Homogenous. (AML 731258, Xrads A1132, B2183.)  
Above and to L of head, protruding from edge of grave, pointing upwards with tip at c 0-0.08m. Found in 1967. The coordinates on the plans do not match, as the grid had shifted by 1969, however the position is confirmed by plotting the 1967 nails onto the 1969 plan.

272/2 Shield.  
a) Boss. Tall overall height, low straight wall, narrow diameter, narrow flange, concave, conical dome, with four small holes in flange, with probably three rivets missing. No apex. Iron repair plate fixed inside boss by two small iron disc-headed rivets. Organic: leather between iron flange and wood, that would have covered front of board (JW). Wood under flange with radial surface of a possible ring of porous wood. (AML 715008-9; Xrad A1864.)
In neck or chest area, over body at 0-0.30m.

aii) Iron rivet probably from shield (originally called a nail by WTJ) with a oval flat head, curved at end, square sectioned, with end probably broken 'in antiquity' (GE). Organic: a ring porous wood, c 10.8mm thick (JW). (AML 715027; Xrad B7, Iron no. 3.)
To L of feet, at 0-0.43m, pointing down.

b) Species and type of grip unknown as not found.

c) Stain planned. Irregular circular shape c 0.62m wide.
In chest area, at 0-0.43m.

In L pelvic area, at 0-0.41 to -0.43m.

272/4 Iron buckle, with a kidney-shaped loop. Plano-convex loop with narrower hingebar. Thick inlaid criss-cross strips of contrasting copper alloys. The yellow strips are brass (Cu and Zn in 'gold') and those in pink/brown are copper (Cu in 'bronze') (MH) EDXRF, Milliprobe (EF). Thick iron tongue. Probably missing a plate (AML 715107; Xrads 1624, 1728, B305-6.)
In central pelvic area at 0-0.48m, tongue pointing L.

272/5 Two iron rods/tools. Called pins by WTJ, but not obviously a pin (GE). They do not join (GE). One straight rod with one broken and one complete end, and a square section (GE). One rod thinner and slightly curved, with an unclear section, broken at both ends. Organic (JW): leather - originally in pouch or case or more probably on belt (AML 715109; Xrad 1625.) Only one put on plan, but two were registered slightly later.
To L of buckle (272/4) in central pelvic area, no depth recorded, but probably c 0-0.41m.

276

GRAVE: 1230N x 30W; cut 6890; 2.01 (1.75) x 0.69 x 0.33m; oriented WSW (246°).
Fill: At 0-0.0m stony light brown clay silt in centre, light brown loamy gravel at head end. At 0-0.20m sandy gravel. Fill on surface same as natural feature cut by grave (ie light brown clay silt) but with more pebbles.

STRUCTURE:
a) Edge stain of coffin 1.57 x 0.53 x 0.08m (from 0-0.10 to -0.18m). Straight ended. Section shows ?sloping out at head end, and vertical at foot end. Head and end present only.

b) ?Cover; line of stain at head at 0-0.20m, collapsed down, dark brown. No complete dimensions.
BODY: Shoulders, upper arms, chest and possible leg stain found at 0-0.23, pelvic area at 0-0.28m.  
Position: supine with extended legs, arms to the side, head unknown.  
Age: adolescent (size). Sex: male (artefacts).  

FINDS:  
276/1 Spear.  
a) Small iron spearhead; leaf-shaped blade with lentoid section, short solid neck and broadly cleft socket. Possible rivet, but very uncertain (GE). DS: homogenous. Organic: mineral preserved wood in socket (SEM B674) but too degraded to identify (JW). (AML 715016; Xrad 1337.)  
Above R shoulder at 0-0.13m, probably outside coffin, and pointing upwards slightly.  
b) Shaft stain, described as ginger brown. Only 0.15m survives.  
To R of upper body at 0-0.23m.  

276/2 Iron knife. Straight back which angles into the tip (GE); cutting edge curves into the tip, tang broken. Tang line with cutting edge, and shoulder at junction with the back. Homogenous (DS). Organic: traces horn handle on tang and possible leather sheath traces on blade (GE). Textile traces recorded by WTJ but probably this is sheath (GE). (AML 715015; Xrad A9055.)  
In L waist area at 0-0.30m.  

276/3 Buckle with oval, flat sectioned iron loop and tongue. Copper alloy slightly fragmentary square-ended plate with one complete flat-headed oval sectioned iron rivet, looped over with cut-out for the tongue. Organic: remains of well preserved leather belt passes through buckle loop (thickness of belt can be seen at one point), pierced by tongue and also preserved between the copper alloy plates. Textile (EC): on leather belt; Z,Z, 2,2, twill 10 x 10, e 20 x 10mm smaller patches, replaced. (AML 715016; Xrad 1151.)  
In central pelvic area at 0-0.30m, no info. on which way the tongue was pointing.  

283  
GRAVE: 1220N x 40W; cut 6876; 2.01 (1.93) x 0.76 x 0.33m (min); oriented WSW (242°).  
Fill: At 0-0.13m chalk and 'CH' lumps above head. Outside coffin light brown gravelly fill. Inside and outside coffin, dark brown compact loam with many pebbles. Lump of 'CH' 0.10 x 0.08m on head at 0-0.25m. Wood on 283/2 from coffin?  

STRUCTURE:  
a) Coffin 1.65 x 0.53 x 0.15m (from 0-0.15 to -0.30m). Vertical sided at head end and slightly sloping at foot end. Near ?rectangular or ?slightly tapering at foot end.
b) Foot rest? Slightly curved organic stain. Area seen as turf by WTJ, but this is unlikely as it was within the coffin, at foot end at 0-0.28m. 0.48 x 0.23m, and 0.005m thick.

BODY: Near complete body stain at 0-0.30m.
Position: supine with legs extended, arms unknown, head central.

FINDS:
283/1 String of 17 beads.
16 amber and one faience bead. (No AML no; no Xrad.) Around neck in two strings at 0-0.28m (exact order known).

Amber - 16 beads:
a) One medium irregular globular. MEH: Bead 14, ends abraded, one flat, hole irregular both ends through wear.

b) Four medium irregular barrels. MEH: Bead 1 one end abraded flat, 2 ends abraded flat, not parallel, hole egg-shaped both ends (not ill), Bead 5 worn (not ill), 13 worn (not ill). All holes bored at both ends, except 13 where it is unclear.


d) One medium sized medium length square-sectioned cylinder. MEH: Bead 8 both ends 'dished' through wear.

Faience - one bead:
e) One very large melon, opaque green blue, worn. Bead 9.

283/2 Silver finger ring (GE), spiral expanding, with two decorative grooves and tapered terminals, not zoomorphic. Vertical groove on end. Now more fragmentary. Organic: Quercus sp (oak) (CK) but now not found (JW). (AML 715264; no Xrad.) In L waist/lower chest, originally on L finger?, at 0-0.28m.

283/3 Complete oval iron buckle. Hingebar narrower than loop. Organic: no wood visible. Possible traces of leather (GE).(AML 715006; Xrads 1154 [missing], 1170.) In central lower waist area at 0-0.30m, tongue pointing L.

1131

GRAVE: 1230N x 20W; cut 3999; c 2.49 x c 1.02m x no depth (no info); oriented NE/SW (48/228°).
Fill: fine orange sand with patches of gravel and clay silt from natural feature.
STRUCTURE: No evidence.
BONE: No evidence.

1133

GRAVE: 1190N x 60W; cut 5000; c 2.29 (damaged) x c 0.69m x no depth (no info); oriented E/W (c 85/265°); cut by quarry.
Fill: no info.
STRUCTURE: No evidence.
BONE: No evidence.
Age: adult /adolescent (grave size). Sex: unknown.

1134

GRAVE: 1220N x 60W; cut 6934; c 1.70 x c 0.91m x no depth (no info); oriented ENE/WSW (c 60/240°).
Fill: no info.
STRUCTURE: No evidence.
BONE: No evidence.

1135

GRAVE: 1210N x 60W; cut 6935; c 0.91 (damaged) x c 0.91m (damaged) x no depth (no info); oriented ENE/WSW (c 73/253°); ?cut by dragline.
Fill: no info.
STRUCTURE: No evidence.
BONE: No evidence.
Age: unknown. Sex: unknown.

1136

GRAVE: 1200N x 50W; cut 6936; c 1.52 (but fades out) x c 0.76m x no depth (no info); oriented E/W (c 85/265°).
Fill: no info.
STRUCTURE: No evidence.
BONE: No evidence.
Age: unknown. Sex: unknown.

1137

GRAVE: 1220N x 50W; cut 6937; c 1.83 x c 0.76m x no depth (no info); oriented ENE/WSW (c 65/245°).
Fill: no info.
STRUCTURE: No evidence.
BONE: No evidence.

1138

GRAVE: 1230N x 60W; cut 6938; c 2.29 x c 0.91m x no depth (no info); oriented ENE/WSW (c 60/240°).
Fill: no info.
STRUCTURE: No evidence.
BONE: No evidence.

1139

GRAVE: 1150N x 50W; cut 6979; c 1.82 x c 0.76m x no depth (no info); oriented ENE/WSW (c 70/250°).
Fill: no info.
STRUCTURE: No evidence.
BONE: No evidence.

Unstratified material in the Cemetery I area

Axe

1) Iron axe. Almost equally splayed upper edge and lower edge, with the vertex nearer the shaft. Upper edge may originally have been thicker, but some has been lost through corrosion (GE). Central axis of the blade is at right angles to the shaft. Oval socket. Back of axe rectangular and flat ?slightly tapering towards the bottom. Unburnt (GE). Organic: mineral preserved wood in socket, Prunus sp Cherry/Blackthorn SEM B669 (JW). Textile (EC): Corner of blade and traces both sides, 30 x 20mm, replaced, Z/Z, ?twill, thread count 8/8, yams loose twist, surface damaged. (AML 271; Xrad A9057.)
At c 1260N x 85W in quarry.

Spearheads

2) Medium iron spearhead; angular blade with concave curved sides, tip missing, with probable lozengiform cross section, short neck, broken shaft but probably cleft (GE). Not burnt (GE). Organic: only traces of crushed mineral preserved wood from socket, but not enough to identify species (JW), but originally identified as Hawthorn type (CK). Textile (EC): Some traces of replaced Z threads, now missing. (AML 124; Xrad A9041.)
At c 1170N x 68W in quarry.

4) Large iron spearhead; needle-like blade, tip missing, slightly lozengiform section, no clear neck. What appears to be a rivet in socket can only be seen on xrad, so it must be non-ferrous decoration (GE). Cannot tell if cleft socket or not as is broken (GE). Unburnt (GE). (DS) Possible weld lines. Organic: wood in socket cannot be identified (JW). Textile (EC): Some fine Z threads identifiable in a lump of deteriorated and replaced textile, now missing. (AML 123; Xrad A9045.) At c 1170N x 70W in quarry.


**Sword**

6) Six iron sword blade frs; pattern welding visible, triple pattern welded with herringbone pattern in central portion. Unburnt (GE). Two edged parallel sided, but edges damaged (GE). Organic: traces of scabbard with fleece lining. Some of flesh side of skin with hairs aligned across the blade (JW/GE) underneath this against the blade (GE). Traces of wood (SEM B688) with tangential surface too degraded to ID (JW). (AML 112-3, 115, 118; Xrads 4814 [missing], A9044, A9633.) At c 1170N x 70W and c 1170 x 68W in quarry.

**Shields**

7) Shield boss fr with convex cone, carination, and some flange. Object appears to have rivets, but does not (GE). Cannot say if burnt (GE). Organic: none (GE). (AML 116; Xrads 4814 [missing], A9633.) At c 1170N x 68W in quarry. From near Gr 93, but cannot be from it. Does not fit any of the other shields from Cemetery I.

**Pursemount/firesteel**

8) Iron pursemount/strike-a-light, fragmentary. Upturned ends, with trace of buckle attachment (GE), now missing, originally attached at the curved top side, plain iron, with no inlay. Unburnt, no organic (GE). (AML 114; Xrad A9606.)
Near Gr 90 'on quarry floor'.

**Copper alloy sheet**

9) Two small frs copper alloy sheet, once one fr, no intact edges (not ill). (AML 396; no Xrad.)  
   At 1175N x 76W in quarry.

10) Large fr copper alloy sheet, no intact edges. Textile (EC): traces replaced fine Z spun threads. Bronze (EDXRF MH). (AML 313; no Xrad.)  
   At 1179N x 68W in quarry. Allocated by WTJ to Gr 123A but no evidence for this.
THE CRUCIFORM BROOCHES by Catherine Mortimer

The pair of cruciform brooches in Grave 92 are a Mortimer Type D5c (1990), Åberg IV (1926, 42-9) and (probably) Reichstein’s Typ Holywell Row (his sub-Typ with lappets (1975, 43, Tafel 99, 3-5). Type D is defined as having lappets and an expanded foot (animal head) parts, but the expansion in this case is not very great. Type D5 has zoomorphic detail in the lappets and D5c has a lappet design with a ‘descending animal.’ In some of the examples the end of the lappet descends significantly further into a sort of curly tail, such as the example from Lakenheath (CUM 97.137), and two from Morning Thorpe Graves 96 and 129. Type D5b has two ‘eyes’ inside its lappets. On the basis of the lappet style, this brooch should be D5c and not D5b, although the three collars are classic D5b features. It is probably sixth century in date, but based purely on the stage of ‘development’ of the brooches.

A TECHNICAL ANALYSIS OF THE BELT SET FROM GRAVE 117 by Catherine Mortimer

Casting

Much of the decorative detail was achieved by casting. Visual examination of the surface, using low-powered binocular microscopes, shows that many areas were cleaned after casting, and that further refinement and clarification of areas of decorative detail were also carried out after casting, probably using files and other sharp tools. For instance, the rounded beading on the shortest edge of the buckle plate (A on Fig App 2/1) has several areas of undercut, and scrape marks can be seen in the troughs of the geometric designs on this plate (B). It seems unlikely that the oval hole for the buckle area (C) was cut after casting (contra Evison 1968, 242), although there are some straight incised lines on the back of this area. These could have been part of the tidying-up after casting.

Traditionally commentators on early Anglo-Saxon decoration frequently use the term ‘chip-carved’, but this is misleading when applied to metalwork. Chip-carved style decoration on metalwork was achieved on a model which was then used to make a clay mould for casting, not by chip-carving the metal itself.

Decoration added after casting

Fine decoration on the belt set was accomplished using a set of punches, applied in combination mainly to produce vegetal designs. For instance, the heart shapes in triangles going towards the centre of the buckle (D) are hachured using a short

---

1 I wish to thank Nigel Meeks and Susan La Niece (Department of Scientific Research, British Museum), who helped me carry out these investigations.

2 No surface preparation was possible. Surfaces for analysis were chosen from clear, flat regions but it is still likely that corrosion, conservation and surface irregularities will have made a significant contribution to the values attained by this analysis.
straight-edged punch. The spirals alongside these (E) are also achieved by applying several different curved punches. The total number of punch tools used has not been established, as this would take several hours, if not days, and might require advanced and time-consuming techniques, such as the examination of silicon rubber impressions taken from the surface.

In the case of those areas overlaid with white metal foil (shown below to be silver) the punchwork would be applied to the foil, after it had been laid onto the surface (rather than punching on the copper alloy surface first). It would be difficult to achieve a satisfactory impression of underlying marks by burnishing the foil once it was laid because the marks are so fine. Some punchmarks (admittedly not part of the more complicated decorative schemes) can be seen to overlap areas of silver foil (F), which supports this argument. The edges of the foil were kept in place by being pushed into fine cuts in the surface, without the use of soldering.

There is no evidence for silver inlay of any type having been present on the lines of the buckle 'tongue' (G), nor on the heads of the animals on either side of the buckle tongue (H). There is likely to be some corrosion and other debris in the deeper cuts, which may have caused some confusion during visual examination.

The white metal used on the belt set was analysed using quantitative energy-dispersive X-ray analysis (EDX) in the scanning electron microscope (SEM). All the areas analysed were silver alloy. It had been hoped that the compositions of the silver wires and of the silver foil might prove to be different, and hence that it would be possible to deduce whether the central circular panel on the rectangular plate (labelled I on Fig Appendix 2/1 and outlined with dashed line) had been decorated with foil or just with wire, by comparing 'known' foil and wire compositions (from the buckle plate (J-N) and the rectangular plate (O-P) with the composition of the remaining traces of silver found on the periphery of the design (Q). However, both the wires and foils on the buckle plate proved to have similar compositions, ie silver alloyed with c 5% copper, with small amounts (1% or less) of gold, tin and lead present (see Table Appendix 2/1) and thus it was not possible to differentiate chemically between the alloys used for the foils and those used for wire.

Visually, the silver around the peripheral 'rim' (Q) seems to be applied in a foil-like manner (ie pushed down a narrow slot or cut). There was good contrast in brightness in the backscattered electron image between the metal in area Q and the inlaid wires in the vicinity (the wires appeared brighter). Since analysis showed that the composition of the silver at Q was not significantly different to other silver alloys on the artefact, the contrast in brightness is not easily explained, but the same patterning could be observed for foil and wire on other areas of the belt set. There is no direct visual evidence for silver wires being inlaid into area I; although furrows are present along the tops of the 'chip-carved style' decoration in this area, they seem much shallower than those on the buckle plate and therefore may not have been adequate to hold silver wire. However, it should be remembered that corrosion and conservation together may have had the effect of making the furrows more shallow than they were originally.

As the use of foil to 'outline' a feature is not seen elsewhere on the belt set, evidence for the use of silver to cover the whole of area I was evaluated. The surface
of the circular panel I was surveyed using the backscatter detector but the small number of areas discovered in this way to have high atomic numbers were shown by EDX to have copper alloy compositions with relatively high levels of lead (ie they were not silver-enriched, relative to the copper alloy base metal). Silver was not detected at elevated levels anywhere over area I. Although some lead is present within the copper alloy, the fact that some of these high atomic number areas detected by backscattered imaging were present as distinct, separate particles lying on the surface is not easily explained. For instance, as mechanical means were used to attach both the wires and the foil to the copper alloy surface elsewhere on the belt set, lead is unlikely to have been present (in the form of a lead-tin rich solder), on this piece. Contamination from outside sources (eg debris from other artefacts) may be a possibility; although this would have to have happened after conservation, if the severe conservation treatments suggested above had indeed taken place.

Thus there is still no concrete proof for either foil or wire decoration being used in area I and it is necessary to return to arguments based on the 'logic' of the design, whilst allowing the metalworker some irregularities and inconsistencies in execution. It seems curious that foil should have been applied over the entire area, firstly because it would have been difficult to achieve a satisfactory cover of the deep 'chip-carved' style decoration and secondly because the corresponding areas on the buckle plate were inlaid with wires, not overlain with sheet. Evison (1968, 243) suggested that the wires were inlaid in the ‘chip-carved’ style design and only the outside rim was decorated with foil. The wire inlay does seem likely, although it is surprising that none of it has survived in area I. If the rim was decorated using foil, this would presumably have been applied by cutting a piece of foil to shape and pushing it into a cut, although the foil could have been pushed into the cut first and then cut to shape. However the effect was achieved, this technique is not in evidence elsewhere and it would have been difficult to carry out in a tidy fashion; the extant foil at Q is rather untidy and flaps of the foil overlie the copper alloy surfaces on both sides of the cut. It is important to note that the foil could not have been laid between two parallel and closely-spaced cuts, as seen on other artefacts of the period (eg Grave 51, Orpington, Kent discussed in Evison 1968, 243), as there are no suitable parallel cuts. Given the excellence and design cohesion of the metalworking techniques throughout the buckle set, for instance the meticulous placing of the punchmarks and the uniformity of the motifs used, it is surprising that a unique and less than competent method was used in area I. It is of course possible that the metalworker did not have suitable wire to inlay the rim Q, or for some reason, did not think it was appropriate to inlay this area with wire. There is no evidence for this inlay being a repair. Further sources of information on the methods utilised at this time could perhaps be found in contemporary artefacts such as those discussed by Evison (1968).

THE KNIVES
The sheaths and handles by Glynis Edwards
Thirteen knives had the remains of handles, all of which were horn. A further knife (244), which is now missing, was described as having a wooden handle, but this was also probably horn. Four had straight edges parallel to the blade indicating the extent
of the horn and therefore of the handle, in all cases on the blade. This is not a large enough group to identify any patterns relating to the knife types; however, three were Type 1 and one was Type 7. In two cases the form of the tang was a and the other two were b and d. In one case, 128/2, a possible guard can be seen on the x-radiograph.

Thirteen had the remains of leather on the blades, in most cases representing evidence for sheaths, in one case (116/3) overlapping the handle, and in another (271/1) covering the whole knife. The latter was possibly made of a pelt with the fibres against the blade. Examples of pelts used as sheaths have been found in Mucking II and at Castledyke, Barton-on-Humber (Drinkall 1998). One was decorated (128/2) with possible embossing and the scalloped appearance of the leather indicates a possible seam although there was no sign of stitching.

**Metallurgy of the knives** by David Starley

David Starley (Starley forthcoming, a) concluded that the knives were generally of poor quality, based on the visual examination of X-radiographs. Three knives are butt welded (99, 119 and ?264), and nine are homogenous (116, 120, 127, 128, 243, 245, 249, 271 and 276). The remaining knives are too degraded for any structure to be discernible.

**THE BAGS** by Glynis Edwards

There appear to be the remains of six bags: in Graves 99, 100, 123A, 244, 246 and 256. They were recognised by a cluster of artefacts which would have been contained in bags, in conjunction with stains observed in the ground during excavation, and sometimes with traces of leather or textile. Grave 99 has an iron purse mount on which traces of the leather bag were seen. Textile remains were observed on the rings from the purse so it may have been lined with textile. Grave 100 was observed on site to have had some artefacts enclosed in a bag, including a spindlewhorl. A bag was also recorded in Grave 123A where there are traces of leather on the iron rings which were contained in it, along with keys, a Roman brooch, tweezers and a knife, although the latter is now lost. There were traces of leather on the toilet set in Grave 256, found at the neck. Textile was preserved on the tweezers, key and knife in Grave 246, and may represent the lining of a bag.

In Grave 244 there were remains of an iron frame covered with leather, which from the surviving grain pattern is probably calf. The stitches fastening the leather over the metal can be seen. It contained an awl with a wooden handle, tweezers, and probably also a knife, as the leather on the blade extends away from the back of the blade and there is also a possible trace of leather on the handle as well. An iron buckle (244/7) was close to the purse group and may have been fastening it, while another was diagonally opposite, suggesting that there was a strap for the purse.

**GLASS VESSELS** by Vera Evison

Two glass vessels were found in Mucking I. The bowl in Grave 99 (Fig 1/19), with a globular body and constricted neck, belongs to a group first erroneously regarded by
Harden (1956, 158, Adiii) as a Roman survival, although he later accepted that they belonged to the Anglo-Saxon period (Harden 1978, 4-5). In England they occur in graves of the late fifth to sixth century, in Alfriston Grave 28 (Harden 1956, fig 6), Howletts Grave 27 (ibid, pl XV, h), and also in the Mucking Grave 99. They were no doubt imported from the Rhineland or northern France, where they mostly occurred in contexts of the first half of the fifth century (Koch 1987, I, Abb 19). In addition to the bowls previously listed there is one from Westbere, Kent with vertical ribbing, said to have been found with a cremation urn and beads (Evison forthcoming b, fig 1/10).

The light green-brown (equivalent to Mucking translucent yellow) claw beaker from Grave 92 (Fig 1/20) has most of the characteristics of Type 3c (Evison 1982, 67, no 33, fig 11a), basically a stemmed beaker with two zones of horizontal trails and two rows of four claws each applied in the plain area in the middle. Each claw is decorated with a vertical indented trail which, on the lower row only, is curled over in a loop at the top, this trait harking back to a loop on the head of dolphins in the Roman period (ibid, pl V, a, b). These loops occur on a sub-group of the type which amounts to ten beakers (ibid, 48, table 1). Type 3c beakers are mostly efficiently made, and some appear to have been exported to the Continent (ibid, fig 8). This Mucking beaker differs from others of the type because, while the claws were usually applied at two levels so that sometimes even five could be positioned in each row, here the two rows have been applied very close together. They are also drawn downwards into a longer tail than usual. In spite of the accomplished workmanship, the craftsman seems to have misapplied a vertical trail, a fault he tried to minimise by flattening. There are more of Type 3c than any of the other claw beaker types and a smaller proportion of them were found in Kent. This example was probably made in Anglian territory.

Finds of this type made subsequent to those published in 1982 are as follows. Examination of the glass fragments from cremations at Spong Hill, Norfolk, established three definite examples of Type 3c and six probable, and from Loveden, Lincs, five definite examples with one probable (Evison forthcoming, a). There are also examples at Whithorn (E Campbell, pers comm). A fragment of a brown claw beaker with indented trail from Breach Down, Kent (BM OA 4982) has not been noted before. Fragments of a brown claw with vertical indented trail come from GH 166/2 at Mucking (Evison 1982, 64, no 25, fig 10f; Hamerow 1993a, 159, fig 163) and there is another possible example from Mucking Cremation 367 (Hirst and Clark forthcoming,b).

The total of Type 3c claw beakers found in England therefore now amounts to a minimum of 34. While only three of these were found in Kent, the rest were mainly on the periphery of the Wash, so that it seems highly likely that a craftsman was operating in this area. The dating of the mid sixth century for the type suggested earlier still stands (Evison 1982, 48-9).

THE STOUP by Jean Cook
Only small pieces of the copper alloy hoops from a stave-built vessel remain. Excavation records show that this was a tapering vessel, with a wider diameter at the top (measurements made by the excavator at the time were height = 111mm, top diameter = 95mm, bottom diameter = 80mm). There is no surviving evidence for a handle or any metal uprights and it seems likely that the vessel was a stoup.

It is not possible to be certain about the precise detail of the decorative motifs on the hoops, but there are pieces that show:

a) A repoussé arcade, with small arches, with groups of three repoussé dots at the base of the intersection and with a row of repoussé dots along the top and bottom edges of the strip.

b) A repoussé arcade, with groups of three repoussé dots at the base of the intersection. There is also a bead and reel motif, and a possible group of dots between the arcades. There is a row of repoussé dots along one edge, and perhaps both edges of the strip, but the surviving piece is too damaged along its edges to be sure.

c) A vertical repoussé motif of central reel flanked by two beads top and bottom, the outer beads smaller than the inner ones, with a row of repoussé dots along the top and bottom edges of the strip.

d) A repoussé wave design, with alternating groups of three and four repoussé dots. There is a line of repoussé dots along one edge.

There were three hoops originally (Fig 1/21). Usually hoops were made from a single strip of metal, cut from a cast sheet and with a single overlapping join held in place by a rivet, possibly with the additional use of solder. It looks as if this was true for the hoops on this stoup, since one join and the rivet hole for another are preserved, but the fragments are too small to be sure.

At least three copper alloy split pins, with looped heads for the attachment of rings, were positioned around the stoup between the top and middle hoops.

Stoups of this tapering form are less common than straight-sided vessels without handles. Decoration is sometimes elaborate as with the examples from Mucking II, Grave 998 and Long Wittenham, Oxon, Grave 93 (Evison 1965, 23, fig 13.c). Split pins with ring attachments are found on handled buckets from Haslingfield, Cambs (MacGregor and Bolick 1993, 251) and Mill Hill, Deal, Kent (Parfitt and Brugmann 1997). Both buckets are larger, elaborate vessels with decorative handle mounts, and do not provide close parallels for the present example. A stave-built vessel, without a handle, from Rainham, Essex (Evison 1955b, fig 4.11) has split pins with loop heads attached to each of the three uprights just below the rim. Suspended from each is a copper alloy Klapperschmuck decorated with repoussé dots. The two uprights on the handled vessel from Higham, Kent (Payne 1909, xci, pl 1) were each attached by three split pin rivets with looped heads, from each of which hung a circular copper alloy disc.

Split pins were often used in the construction of stave-built vessels to hold the copper alloy framework of hoops and uprights together; the looped head was usually closed up and covered by a separate copper alloy dome, held in place with solder. When spangles were attached to the split pins instead of domed heads this was
presumably for a reason. Six pendant metal discs would rattle when moved, as would the *Klapperschmuck* on the Rainham vessel. The present Mucking example does not seem to have had the split pin attachments as functional fittings, unless the rings were to allow for suspension. If so, then it is more likely to have been attached by organic material rather than by any kind of chain.

What exact significance the stoup had is not clear. It may have been a cup for drinking, its tapering profile perhaps making it easier to make it watertight, or it may have been a container for other objects. It seems likely to have been a personal possession. The decorative motifs on the hoops suggest that it could belong to the late fifth- to early sixth-century group of stave-built vessels from northern Gaul (Evison 1965, map 8), such as that from Grave 998, Mucking II.

THE SPEARS

**Metallurgy of the spears** by David Starley

The full details of the metallurgical investigation of the spears are found elsewhere (Starley forthcoming), but a summary of his results is given here. In Mucking I, six spears were classed as homogenous (128, 243-5, 272, 276), two showed weld lines (US/4 and US/5), two were thought to be possibly composite (107, 159), and one was pattern welded (248). No spearheads were identified as butt welded or piled.

Swanton (1974, 20, 22) described fullering (i.e. a ?blood-letting groove) beaten out of the spears from Graves 244 and 272, but there is no evidence for this although they are clearly stepped. Rivets were occasionally used to hold the shaft in place, as were binding rings in two cases (128 and US/4). A possible hole with no clear purpose was found in the socket of an unstratified spear (US/5).

**The spear shafts** by Dido Clark and Jacqui Watson

Shaft stains were preserved in only three cases, in Graves 159, 245 and 248. Where traces were found in the sockets, the spears were hafted with the following woods: seven in ash, one in maple or birch and one in ?walnut. In five cases the wood was unidentifiable. The majority thus were hafted with ash, and several of these were made from mature timber rather than coppiced saplings. Ash is the traditional wood for this purpose and is commonly found in the archaeological record.

Walnut would have been an unusual choice for the spear hafting in Grave 128, but this is not a definite identification. There is some uncertainty as to whether it was naturalised in Britain by this date. It is supposed to have been introduced by the Romans, yet according to Godwin (1975, 248) walnuts found in Norman levels are suspected of being imports. This spear could be a continental import, but is not found with any other imported artefacts. Walnut bottles were found at Sutton Hoo (Bruce-Mitford 1975, 205), Taplow (East and Webster forthcoming) and Snape (Filmer-Sankey and Pestell forthcoming) and walnut amulets in West Heslerton (Powlesland forthcoming).
THE SHIELDS

**Shield construction** by Dido Clark and Jacqui Watson

The wood used for the shield board in Grave 272/101 was a ring-porous species, which was possibly ash, but could also have been oak, elm or chestnut. Of those with Group 1.1 bosses, one was of lime or maple (Grave 243) and one in willow or poplar (Grave 248) (these cannot be distinguished on microscopic grounds). Of those with Group 3 bosses, two were constructed of lime (131 and 159), two were in willow or poplar (122, 245), one in lime or maple (120), one in ash (121), and one in ?birch (114). Thus, there would appear to be no correlation between boss typology and the choice of wood used. The majority of the shields were made of lime or maple, or willow/poplar, which reflects an overall popularity of these species for this purpose (Watson 1994, 37), and represent the woods used predominantly in the region. All these woods are light weight and remained popular in the Anglo-Saxon period.³

All the shield boards were covered in leather, as they would not have been functional without such a covering; traces (or probable traces) of this were found in all cases, except for the stratified fragment (US/7), which had no organic remains at all. Leather covers are discussed further in Watson (1994, 38).

Of the handles, ie the organic part of a grip, the most common type by far was the lap-jointed one fitted from the front of the board, indeed this was the most common type generally. There were five ‘complex’ handles (ie of wood), which were rebated. These, which were Type II.A1 (Dickinson and Härke 1992, 36, fig 24), were found in Graves 120, 122, 131, 245 and 248. In two cases, although the handles were inserted in similar ways, there was an absence of the metal element. Handles such as these are not unique, but cannot be classified (Dickinson and Härke 1992, 36). The handle in Grave 122 consisted solely of wood, and that in Grave 131 is of bone or antler, which is unusual.

Only the handle from Grave 159 was a Type II.D2, ie a one piece cut-out, integral type, with the flat grip riveted against the handle. There was also only one case (in Grave 243) of a simple handle (Type I) in iron alone without any wood. Handles were missing or unknown in the case of Graves 114, 121 and 272.

The wood of the handles appears to be the same as that used for the boards, as is usually the case (Dickinson and Härke 1992, 38). Handles in general often have a binding of leather or textile (Dickinson and Härke 1992, 36). Leather was present in most cases (except Graves 131 and 272) and textile was less common (in Graves 121, 122, 159 and 245). There is no evidence, however, that where textile was present, it was intended specifically for the grip, as opposed to coming from clothing, but the leather was probably part of the binding, in the absence of any alternative explanation (G Edwards, pers comm).

Long grips were found in five out of the seven cases where the grips survived, and this was much higher incidence than usual (at 15%). The long grips may have

³ *Contra* Dickinson and Härke (1992, 48-9), who state that maple was a surprising choice as this was a shrub.
been intended to fix the planks of the board more securely (Dickinson and Härke 1992, 51).

Possible resin was found on the boss of Grave 131, between one rivethead, the wood and the leather. This was probably intended to secure the leather to the boards, and not the boards to each other, as may have been the case elsewhere (Dickinson and Härke 1992, 51; Watson 1994, 38).

There were seven cases where shields appear to have been decorated. Most of the rivets, whether purely decorative or on the flange (in both copper alloy and iron), were covered with a white metal coating, thus possibly tinned. In four cases (131, 159, 243, 245) two pairs of decorative rivets were found, these probably being placed towards the edge of the board (only one pair was found in 131, but this shield boss was damaged). The leather under the flange of the shield in Grave 120 was possibly embossed. Seven iron lozenges were found in Grave 248 of which two were smaller than the others.  

This grave also also contained four broken fragments of iron strip, which were aligned with the wood grain.

Zoomorphic iron shield appliqués were found in Grave 122, with possible non-ferrous coating. They were probably not intended to mend splits in the wood as they ran along the length of the grain. They could, however, have mended breaks within planks or anchored together the junction of a leather cover.

The lozenges and strips in Grave 248 were asymmetrical and of different sizes; their function is uncertain (Dickinson and Härke 1992, 52). In both the case of Graves 122 and 248, there is no evidence for repairs in the wood or any folds of leather near the seam. The board is more likely to have been replaced than repaired, or else the mounts were remounted onto a new board, which might explain the variety of woods and thickness of leather used with each shield boss type. Only the rivets in Grave 248 had copper alloy washers. The purpose of the 'square fitting' in Grave 243 (Dickinson and Härke 1992, appendix 4) is not clear, but it could be a strap handle (Dickinson and Härke 1992, 60). The purpose of the extra rivet in Grave 121 is also uncertain.

4 There are not six, contra Dickinson and Härke (1992, appendix 4).
APPENDIX 3. A SURVEY OF REGIONAL ANGLO-SAXON CEMETERY MATERIAL

Overall more than 5500 individuals were accounted for from the Saxon area. Where the number of individuals was 20 or more, such cemeteries are presented in Table Appendix 3/1. The smallest number for a cemetery to be included in analysing palaeodemographic trends was, however, set at 50, which is, considered to be a statistically meaningful minimum (Chapter 6.2). When analysing aspects of age-diagnostic and age-related cultural trends, however, such as frequencies of weapon and brooch-bearing graves within a cemetery, grouped by regions (Chapter 7.2), 20 or more individuals was considered to be a minimum. This was because the statistical units of study were now regions and not individual cemeteries.

It was also decided to investigate a selection of large inhumation cemeteries from culturally Anglian and Kentish areas in order to establish whether such patterns were truly ‘Saxon’, or merely Anglo-Saxon (Table Appendix 3/2, Table Appendix 3/3). Over 2700 individuals were identified in the Anglian areas, while the total of individuals from the ‘Kentish’ cultural area was 1500.

It was further decided to divide these three main areas into regions (10 in number), in order to enable closer investigation of the data. The geographic divisions of cultural material by Härke (1992b) were followed wherever possible. This was because it was decided to use his regional data on the percentages of weapon burials within cemeteries (especially amongst adult males) to assess whether the results using the methodology devised here for establishing age in the absence of bone material appeared to be correct (Chapter 7.2, Table 7/8). This also makes possible the comparison of the relative frequencies of weapon-bearing adult males and brooch-bearing female adults, which can be used in a similar manner. The regional division of material was also necessary in order to address the many other questions, chronological, palaeodemographic and social, at Mucking for which comparative material was needed. Unfortunately, the precise geographical boundaries of Härke’s divisions were never explicity described, making the much-needed updating of his data difficult (Härke 1992b, 67-73). (See Table Appendix 3/1, with the addition, to name but a few sites, of Lechlade, Gloucs, Alton, Hants, and Apple Down, Sussex, Table Appendix 3/2 where Great Chesterford, Essex, Beckford B, Hereford and Wores, Broughton Lodge, Notts and Morning Thorpe, Norfolk were added, and Table Appendix 3/3 where data from St Peter’s Tip has been incorporated. Note that ND denotes ‘no data’.)

In creating regional divisions in the present survey, the geographical differences in brooch types were central. Nevertheless, these regions largely coincide with the heartlands of what constituted the Heptarchy: the seventh- to eighth-century kingdoms of Wessex, Essex, Sussex, Kent, Mercia, East Anglia and Northumbria. There are problems, however, in determining whether some at least of these political units were kingdoms or merely sub-kingdoms at different times (Dumville 1989, 126), and further difficulties also arise. Firstly, recorded kingdoms need not reflect the ‘areas of commonality’ of the late fifth and sixth centuries, as they were defined not by specific geographical boundaries, nor even necessarily by particular folk groups, but by sphere of influence of the particular ruling ruler. A plethora of folk groups are best known from the Tribal

1 The number of ‘individuals’ denotes the maximum of a combination of the number of actual individuals for which there is some bone evidence, and the number of grave cuts.
Hidage in an area that is largely now the south and east Midlands, and folk names are also recorded elsewhere, as groupings that are smaller than recorded kingdoms or even sub-kingdoms (Davies and Vierck 1974). Certainly, 'folk' movements to accompany the very complex and changing fortunes (involving hegemony, conquest, reorganisation, amalgamation, or intermarriage of the ruling dynasties) of any one kingdom should not be envisaged. Secondly, by the time such kingdoms are first recorded, the contemporary archaeological material represents a uniform Conversion Period culture (Geake 1997). Nevertheless, the Migration Period archaeological material appears to often reflect the political configurations recorded in later centuries.

The Anglian area has been divided as follows. The West and East Midlands regions respectively correspond roughly to the kingdom of Mercia, and to the number of folk groupings recorded in the Tribal Hidage possibly as early as the late seventh century and who were known collectively as the 'Middle Angles' (Davies and Vierck 1974).2 The Northern region is broadly equivalent to Northumbria (an amalgam of the earlier kingdoms of Bernicia, Deira, Elmet and Lindsey).3 The region of East Anglia consists of Norfolk and Suffolk, corresponding to the kingdom of East Anglia (Carver 1989).

There are four 'Saxon' regions. Three of these regions match those defined by Härke (1992b, 67) as closely as possible. The South Saxon kingdom appears to correspond fairly closely to modern Sussex (Poulton 1988, fig 8.11). The area that broadly corresponds to the kingdom of Wessex is also divided into two parts: Wessex and the Upper Thames. Wessex is found to the south of the Upper Thames area.4

The Upper Thames region was originally defined by Dickinson (1976, 10-13, figs 51-53) as covering Oxfordshire (excluding the north extremity), Berkshire (excluding the east extremity) and Buckinghamshire (excluding the Chilterns in the east), Gloucestershire (southeast of the Cotswolds scarp), and northeast Wiltshire (Heighway 1987; Hunn et al 1994; Blair 1994).5 The 'Middle Thames' area of north-east Berkshire

---

2 The West Midlands includes the following counties: north and west Gloucestershire (including the Cotswolds), Hereford and Worcestershire (formerly Worcestershire), Shropshire, Staffordshire, Warwickshire and the West Midlands (Birmingham) (Hooke 1985; 1996; Ford 1996). The East Midlands is taken to be: Cambridgeshire (including Huntingdonshire), Derbyshire, Leicestershire (including the former county of Rutland), Lincolnshire (south of the kingdom of Lindsey), and Northamptonshire (Ozanne 1962; Foard 1985). Cambridgeshire has been removed from Härke’s (1992b) East Anglian group and placed in the East Midlands group. This is as the folk groups named in the Tribal Hidage are found in the West and East Midlands primarily, using geographical and place-name evidence (Davies and Vierck 1974), although some geographical assumptions have been questioned by Dickinson (1976, 8). Place-name evidence recorded in the Tribal Hidage relate to Cambridgeshire, and not to Norfolk or Suffolk. This matches differences in the types of brooches between Cambridge and the Suffolk cemeteries along the Lark Valley noticed by Lethbridge (1931, 77).

3 This region includes: Cumbria, Durham, Greater Manchester (formerly Lancashire), Humberside (formerly the East Riding of Yorkshire and part of Lincolnshire), Lancashire, Lincolnshire (south of Humberside and north of the River Witham) and Northumberland, Nottingham, Teeside/Redcar and Cleveland (formerly Yorkshire), Tyne and Wear (formerly parts of Northumberland and Durham), and South, North, West Yorkshire (formerly Yorkshire) (Eagles 1979; Miket 1980; Leahy 1993).

4 The counties that are counted as part of Wessex are Wiltshire and Hampshire (excluding the Isle of Wight) in particular, as well as Avon (formerly part of Somerset and east Gloucestershire), northern Dorset, and east Somerset (Fowler 1972; Aston and Burrows 1982; Bradley et al 1982).

5 The area in which Lechlade lies, in south-east Gloucestershire, is an area that was colonised by the Hwicce, a people who moved down from the Severn Valley (an area that had been archaeologically mixed 'Saxon/Anglian' in the Migration Period) in the 630s. Gloucestershire was dominated by Mercia from the late seventh to the early ninth centuries (Blair 1994, 42, 55).
and south Buckinghamshire is now also included in this region, as is Bedfordshire. Harke had noted the differences in character of material from Bedfordshire compared to that from his Anglian 'East Midlands' group, but analysed them together. In the present study, Bedfordshire has been included in the Saxon Upper Thames area (albeit as an appendage), as although the northern and eastern parts of the county lie outside the Saxon area, all known cemeteries fall within it (Høilund Nielsen 1997b, fig 23). Bedfordshire was not placed in the Saxon Lower Thames region, as all known sites are located north of the Chilterns, hills that appear to have formed a physical and cultural barrier to this area. All the cemeteries from Hertfordshire are also included in the Upper Thames area, as this area is dominated by the Chilterns, even though its northern and eastern parts lie within an archaeologically liminal area (Høilund Nielsen 1997b, fig 23). All the known cemeteries in this area lie in the north part of the county.

It was, however, decided to define a new, fourth Saxon region centred on the Lower Thames, re-allocating data to it from Harke’s ‘Essex’ region (in which he had placed the cemeteries at Mucking). A list of all known cemeteries from this region is given in Table Appendix 3/4. Highlighted parts indicate cemeteries where there are over 20 individuals.

---

6 Kennett (1986, 7) has contrasted the cemetery at Argyll and Montrose Avenue (Luton I) in the southern part of the county, with Kempston in the northern part, where small-long brooches predominate, a type found in Anglian areas in particular. The former cemetery is located near the River Lea, a tributary of the Thames, and the latter on the River Ouse, which runs into the Wash, culturally an Anglian area. The very poor nature of the excavation at Kempston unfortunately means that the exact proportions of brooch types found there cannot be known. At Luton I, circular brooches form more than half of the total. The appearance of large late saucer brooches in the south of this county in the late sixth century has been linked to the new dominance of an elite from the kingdom of Wessex, including the Upper Thames (Matthews and Hawkes 1985, 62-3).

7 There is a lack of Migration Period Anglo-Saxon cemeteries. This was, however, the location of the Chilternsaetan recorded in the seventh-century Tribal Hidage, and so appears to have been dominated by Mercia, an Anglian kingdom (Davies and Vierck 1974; Rutherford Davies 1982).


9 Further references can be found for all these counties in Meaney (1964), for west Kent in Tyler (1992), for Surrey in Poulton (1988), and for Middlesex in Clark (1989).
APPENDIX 4. THE 'SERIATE' PROGRAM

The program 'Seriate' was devised at the Institute of Archaeology in London by RJ Duncan, FR Hodson, CR Orton, PA Tyers and A Vekaria, and was presented initially in a basic form (Hodson 1977, 403-6; Hodson 1978, 34) and later in a more sophisticated form (Hodson 1986, 191-4; Hodson and Tyers 1988, 33-6; Hodson 1990, 35-41, 43, App II). This appendix is a summary of these presentations.

Seriation analysis is a heuristic method that may be carried out by a number of different methods to give the best answer after a certain amount of time, and this answer can vary to a certain extent with each re-run. The few comparative studies that have been carried out on other programs (Wilkinson 1974; Graham et al 1976) demonstrate that different algorithms, or even that repetition of the same algorithm, can bring different results. For this reason Hodson experimented with external criteria of the effectiveness of a seriation, such as well dated Roman coin hoards, and the simulated Merovingian cemetery 'CLOTHAR'. He also experimented with internal measures using the Münsingen cemetery data to see whether Doran (D) or Wilkinson's (W) criteria of concentration worked best. Both order graves only and not types (Hodson 1990, 35-9).

The 'Seriate' program has four main default steps.

1) Types that occur less than twice, and graves that include less than two cross-associated types are eliminated.

2) A first approximate ordering of graves (rows) into an equivalent of a similarity matrix is carried out from random starts by diagonalisation of the data matrix (one-dimensional correspondence analysis), using Ihm's algorithm (1981; 1983). This has the same effect as the procedure labelled as AXIS, used in earlier programs (Goldman 1971; 1972; Wilkinson 1974), involving the calculation of the mean position of incidences in each column, ordering the columns according to these mean values, and repeating this procedure for the rows. CA however, is preferable to the erratic AXIS algorithm as this is prone to reversals and transpositions of large blocks of graves (Graham et al 1976, 16) and does not usually have a measure of stress (Hodson 1990, 40). The results of averaged AXIS and CA are hardly discernible, although the latter result is reached more directly (Hodson 1990, 121).

3) The default provides for stages 3 and 4 to be performed on the initial state 2 results and its reverse.

The data matrix is 'restored' for application of the concentration principle. The graves (rows) are reordered to minimise the spread of column (type) incidences, and to give minimal stress, known as the 'concentration principle'. It is not clear which is the best procedure for rearranging rows and columns. Using an incidence matrix, D sums the ranges of column incidences [and prevents the search being trapped in an uninteresting local criterion minimum (Doran 1971, 428-9)]. W (Wilkinson 1974, 22) allows for the density as well as the range of column incidences invoking a gamma function, and which can be used in the package if selected. Hodson has used a routine (IMPROVE) to minimise D or W to give the best AXIS result by changing the rank of individual graves (Hodson 1990, 40, App II).

4) The types (columns), and if necessary, the graves (rows) are reordered. Ordering by the mean position of the incidences of types, which would preserve the same type order whichever way up the matrix is presented, was not carried out. Ordering according to the first appearance of a type in the graves was then used, although this
requires a different ranking when the grave order is reversed, but provides a falling leading edge (the appearance of new types), giving a smoother slope of the diagonal, makes study of the data easier and reflects the conventional archaeological rule of dating any association according to the latest artefact in the grave. To get a constantly falling slope to the leading edge of the incidences, it may be necessary to change the order of the graves slightly, which may increase the overall measure of stress (Hodson 1990, 43). This is very important as it allows the frequency of type occurrences to be skewed, ie a rapid circulation of a new style followed by a slow fall-off, rather than a symmetric model.

Abundance data may be used, but it should initially be processed in the IASTATS package and then analysed using CA.
APPENDIX 5. TYPES OF CHRONOLOGICAL ANALYSES

Seriation analysis on mortuary material has been carried out by ordering data matrices, either by directly rearranging the rows (units) of a data matrix or by manipulating a similarity matrix derived from it (Marquart 1978, 266). More recently various multivariate techniques have been developed, such as non-metric multidimensional scaling, Principle Components Analysis (PCA), Principle Coordinates Analysis (PCO), and more recently Correspondence Analysis (CA). Nevertheless, it has been pointed out that these different techniques are mathematically identical (Djindjian 1985a, 119).

Sequence dating

Initial attempts at seriation dating made use of visual techniques, the first of which was invented by Petrie for Egyptian graves using strips of paper on which were noted the presence of pottery types (1899; 1901, 4-12; 1904, 127-9; 1920, 3-4). The cards could be shuffled until a satisfactory ordering of graves was reached, giving 'sequence dates' for the pottery types. Later visual techniques, using percentage frequencies, will not be discussed here, as they are of less relevance to cemetery data. Basic matrices, in the form of a crossword, were first used for the Migration Period by Daim (1978), although they were developed by Hodson as early as 1968. This seriation chart constructed is modified with symbols to show the degree of chronological information given by specific artefacts. Visual tables such as these are used for 'Kombinations-statistik' (Ziegert 1983).

Merovingian cemeteries in north-east Gaul (Périn 1980, 205-82), the north of Champagne (Périn 1978), or the cemetery at Bulles (Legoux 1980b, 284-98) have been analysed on a similar principle, but using a matrix of dominoes permuted by rods (Périn 1980, 132-3). A slightly more sophisticated domino matrix with shading to show quantitative and qualitative variables has been used on Roman cemeteries (Mennessier 1973). Semi-automatic seriation using punched cards, which could be manipulated by hand, was also developed (Legoux 1980a, 138; 1980b, 299).

As Kendall (1971a, 218) has pointed out, however, hand sorting of a matrix will yield an ordering, but it will be difficult to decide if the result is sufficiently close to the ideal to decide whether the criteria of continuity has been met with (Madsen 1989, 207), because the number of possible orders increases dramatically as the number of units seriated increases (Cowgill 1968, 518). Consequently it may suffer from being unsystematic or from unconscious subjectivity.

---

1 Kemp (1975, 263) has pointed out that Petrie had to take typological considerations into consideration to aid his sequence-dating because the number of possible permutations was huge.
2 Heizer (1959, 376, 383-93, 404-25) has described the seriation analyses carried out in the USA as 'surface seriation' where a surface collection of settlement sites is carried out. There are few examples of analyses of cemeteries, such as Dempsey and Baumhoff (1963). For further references, see Doran and Hodson (1975, 277).
3 Hodson (1990, 34) gives examples of 'combination tables' representing relative chronologies in studies of Bronze and Iron Age Europe.
4 Kendall (1971b, 104) states that 85% of the graves at Münzingen-Rain arrived at manually did not differ from the sequence arrived at by MDSCAL multidimensional analysis by more than +/- 5 places.
5 For example, if 25 cards are laid in a row, there are 15 quadrillion possible orders, i.e. there will be N! possible orderings of N graves (Wilkinson 1974, 8).
Computer incidence matrix

Due to the problems of ordering it is preferable to turn to computer analyses for a seriation of any size. Both a computer analysed incidence matrix and multivariate techniques (discussed below) search for the optimal arrangement of rows and columns, whereby an arbitrary ordering of the rows is selected at the outset, to which modifications are made, until the order cannot be improved. This is known as an iterative or heuristic search, where all the possible arrangements are examined, but this would prove extremely time-consuming (Doran and Hodson 1975, 274). A heuristic search will, however, only provide a good estimate of the correct ordering, and it is very difficult, not to say almost impossible to decide from a reordered data matrix whether it is sufficiently close to the ideal to allow you to conclude that the criterion of continuity is being met with (Madsen 1988b, 24).

There has been much discussion about the best algorithm for ordering incidence matrices. One algorithm applied to the incidence data direct is Wilkinson's AXIS (1974), known as the reciprocal averaging method, derived from an algorithm by Goldmann (1971; 1972) and formulated independently by Legoux (1980a; 1980b). This was tested by Graham et al (1976), but because it was prone to reversals and transpositions of blocks of graves, the diagonalisation of the data matrix in the London Institute of Archaeology programme uses an algorithm devised by Ihm (1981; 1983).

Many similarity matrices transforms have also been used, but these are usually for frequency seriations, and so have less relevance to cemetery data. The first similarity matrix was devised by Robinson (1951), and other algorithms are discussed by Marquart (1978, 268-78). Doran and Hodson (1975, 276), however, have argued that similarity matrices do not improve a seriation.

Multivariate analyses

Although both computer analysed incidence matrices and multivariate analyses can provide a less problematic ordering of units, only multidimensional analyses can visually portray other variables which are not chronological, so that these can subsequently be eliminated.

Non-metric multidimensional scaling

Non-metric multidimensional scaling was developed from the MDSCAL programme by Kendall for application to the cemetery data of Munsingen Rain (Kendall 1969a; 1971a, 218-19), but it has subsequently been used primarily for settlement data. In essence, Wilkinson (1974) has worked on the Travelling Salesman Problem, trying to find an algorithm to give the shortest amount of sorting (Doran and Hodson 1975, 280). There are three basic programmes for non-metric multidimensional scaling. One group is MDSCAL, designed by Shepard (1962a; 1962b) and Kruskal (1964a; 1964b) and a modification of this, LOCSCAL (Wilkinson 1974). Both are applied to a similarity matrix derived from a presence/absence matrix. When using real data, for the similarity algorithm known as HORSHU, the degree to which the units follow a semi-circle show how well the criterion of continuity is met with. One takes the order of the units in the semi-circle as an approximation to the optimal order of the row units in the data matrix (Madsen 1988b, 24). A principal components analysis is then applied to the resulting terminal configurations, projecting the points on to the principal component reducing the scattergram to one-dimension (Doran and Hodson 1975, 271). Wilkinson (1974) has proposed 'circle products' transformations on the similarity matrix before applying their algorithm for multidimensional scaling. Sibson (1971; 1972; 1977), proposed a dissimilarity coefficient applied to the Munsingen data using pairwise rank comparisons. Nevertheless, Djindjian (1985a, 124) argued that these have not 'proven reliable for application to real world data', and Graham et al (1976) believed that these did not compare...
the dissimilarities which should represent time differences between objects are shown in a configuration of points (Kruskal 1971), in a multidimensional space (the number of dimensions being one less than the number of cases), known as proximity analysis. In reducing the number of dimensions, the distortion in the relations between points is minimised to achieve the rank-ordering of the distances/similarities (Shennan 1988, 281). The HORSHU programme devised by Kendal (1971a, 225) will produce a horseshoe shaped curve in a two-dimensional scattergram where the position of the units (graves) should demonstrate their chronological relationship, should any exist.

The advantage of this technique has been that it produces a two-dimensional scatter diagram presenting the relationships between the seriation units, so that it enables one to check that 'a single chronological dimension is sufficient to describe the similarity relationships between the seriation units' (Doran and Hodson 1975, 271). Multidimensional scaling has also been criticised because it can mix non-chronological variables with chronological variables without being able to pick out the factorial axis which reveals the seriation (Djindjian 1985b, 23). Doran and Hodson (1975, 215-6) argue that its iterative searches are time-consuming and the number of units that can be searched is restricted as the results are required in a choice of dimensions. It is difficult to find realistic stress values for one-dimensional results; it can only look at 50 units (for example, graves) at one time, and if the data is metric, nonmetric approaches (ranking) can sacrifice information.

Nonmetric multi-dimensional scaling has been used on the occurrence of pottery types from graves from the Huallin Valley, Argentina (Cowgill 1972, 417), and HORSHU on Egyptian Predynastic cemeteries using the presence of pottery types (Kemp 1978; Kemp and Merillees 1980, 24-39; Kemp 1982). MDSCAL has also been used on the brooches from Münsingen-Rain, in combination with cluster analysis, and was demonstrated to show chronological development when compared to the association of artefacts in graves, and the linear development of the cemetery, so proving to be an indirect type of seriation (Hodson et al 1966).

**Principle Coordinates Analysis**

PCO is defined as the space created by the similarities derived from a similarity matrix, where the size of an eigenvalue gives the importance of a given dimension in accounting for variation in inter-point distances (Shennan 1988, 280). It is a Q-mode analysis, in that it analyses the space between units. Unfortunately, PCO needs similarity coefficients, which can involve a loss of information. PCO also needs interpretation by going back from the axes to the raw data to see what it is that differentiates these from one another. PCO does not compare favourably to CA (Shennan 1988, 280-4; Madsen 1989, 207) as CA gives a simultaneous ordering of both units and variables, with reference to the same set of principle axes. It seems that the pretreatment and weighting of the data in CA is better than the equal treatment of data by PCO (Madsen 1988b, 25-7). For these reasons, PCO has not been widely used for seriation. It has, however been used for clustering Anglo-Saxon graves at Holywell Row, Westgarth Gardens, and Droxford combining skeletal position, artefact class and grave design (Pader 1982, 105-12, 155-63, 188-91).

---

For settlement analyses, using sherd frequencies in percentages see Marquart (1978, 279-82, 285-7) or Shennan (1988, 283).
Principle Components Analysis

PCA can also be used to give a seriation.⁹ It does not need similarity coefficients (Shennan 1988, 284) but it will need data with a normal distribution, and cannot analyse all the variables and components visually at the same time. It has been little used for seriation, therefore, although groupings of burials using for example, body position, grave structure and artefacts were obtained using PCA, which were then compared to age and sex (Braun 1979).

Correspondence Analysis

Correspondence Analysis (CA), has only recently begun to be used to seriate cemetery data. It has become popular since the late 1970s onwards in Scandinavia (Hoilund Nielsen 1997a, 37). This is a simultaneous R-mode and Q-mode technique, in that it analyses both the interrelationship between variables, in this case artefact types with units, in this case graves (Madsen 1988b, 14; 1989, 207).¹⁰ In an incidence matrix, CA chooses scores which maximise the correlation of rows and columns so that the row scores are proportional to the averages of the column scores of those items which occur in them and vice versa, a process known as reciprocal averaging. This brings about a Two-way Petrie Matrix, where the first non-trivial axis of the CA generates the correct ordering (Hill 1974, 344). A scatter diagram, showing in two dimensions a multivariate metric space derived from the data matrix, is generated by the first two canonical variates, or eigenvectors, which account for the largest, and second largest, part of the variance compared to the other vectors (Madsen 1988b, 13). Petrie matrix data will produce a parabolic curve, analogous to Kendall's horseshoe curve (Bølkiven et al 1982). Both individuals and variables can be superimposed on the first factorial plan, known as the Gutman Effect (Djindjian 1985b, 18). If time is the dominating effect on the data, it should show up in the first two dimensions (Bølkiven et al 1982, 57).

The data from Münzingen-Rain has been used for CA (Hill 1974, 350-54; Leredde and Djindjian 1980). A diagonalisation of the data matrix by one dimensional correspondence analysis has been carried out, using Ihm's algorithm (1981; 1983) on the male graves at Rübenach (Herzog and Scollar 1987).¹¹ Other examples include late Iron Age graves at Slusegård, Bornholm, using pottery forms and decoration which matched the data from chronologically important brooches (Bech 1988). CA has also been used on Merovingian cemeteries in north-east France (Djindjian 1985a, 129-31), so that the results could be compared to the manual technique of Perin (1980). More recent analyses have been undertaken on early medieval graves from Lombard Italy (Jorgensen 1992b), as well as on Anglo-Saxon cemetery data (Palm and Pind 1992; Stilborg 1992; Hines et al 1999; Hoilund Nielsen and Hines forthcoming).

The benefits of CA are many, and are discussed by Hoilund Nielsen (1997a, 1997b and refs therein). They include the ability to deal with vast contingency tables (Slachmuylder 1985, 139). In addition, more complex patterns of evolution, such as

---

⁹ For an account of how PCA works see Shennan (1988, 245-70).
¹⁰ Dumond (1974, 254) has defined Q-mode analysis as sorting of items (for example graves), on the basis of their characteristics (the artefacts found within a grave) which would therefore achieve groupings of items. R mode analysis is the extraction of co-varying characteristics from sets of items (eg, attributes from artefacts, or types from collections), and would lead to formal definitional categories.
¹¹ As we have seen, Ihm's algorithm (1981; 1983) is part of the Institute of Archaeology, London program.
divergence or convergence, can also be seen in the form of distinct geometric curves. Thus, non-chronological variables, such as age, sex or status influences, can be isolated (Djindjian 1985a, 121-2; 1985b, 22-3). So, for example, where there is a tendency for clustering, the break points can be distinguished on a two-dimensional plot (Madsen 1988b, 25). The process of heuristic elimination of units or variables not conforming to a parabolic curve in a scattergram and validation of results by other techniques is known as serial analysis. One of such validation techniques is described as toposeration, whereby units and a developmental map of the site are simultaneously seriated (Djindjian 1985a, 125-31). Madsen (1989, 207) has stated that CA is a 'very powerful method that is preferable whenever applicable'.
APPENDIX 6. PATTERNS OF ASSOCIATION OF ARTEFACT TYPES WITH AGE AND GENDER GROUPS AT LECHLADE IN COMPARISON WITH PATTERNS IN OTHER ANGLO-SAXON CEMETERIES

Amulets
In general, amulets are found with adults and juveniles. Cowries and fossils are mostly found with adult females, although cowries can also be found in male graves,¹ and in a small number of juvenile graves (Meaney 1981, 113-25). Shells do not seem to be linked to gender (ibid 1981, 127) while beaver teeth are predominately correlated to juveniles and adult females (ibid 1981, 137). At Lechlade there are no departures from the expected associations, although, perhaps surprisingly, no infants were found with amulets.

Bags and portable containers
At Lechlade, containers carried on the body are represented by iron or ivory bag rings, bag collections, purseamounts, chatelaines and workboxes, and were found with adults and juveniles.

Workboxes are generally considered to be a predominately female and adult attribute (Hawkes 1973, 196; Meaney 1981, 176-8; Clark forthcoming, j). Bags are also female and adult, but can also be found with male adults and juveniles (Meaney 1981, 222-8; Geake 1997, 81; Clark forthcoming, i).

Purseamounts are not clearly age or sex linked generally (Hawkes 1973, 195; Dickinson 1976, 228; Härke 1992b, 92), and only one example, in a Phase 2 adult female grave, was found at Lechlade. The Phase 2 antler discs sometimes associated with chatelaines also emerged as female and primarily adult at Lechlade (Boyle forthcoming, f).² Chatelaines altogether appear to be age related, and at Lechlade were found only with adult females (Crawford 1991b, 169).

Beads
The presence of one or more beads is generally seen as being adult and female linked, but beads can also be found with juveniles (Owen-Crocker 1986, 55, 64). At Lechlade, it has been possible to demonstrate that the average number of beads increases with age, until (and especially noticeably) it decreases with older adult females. As most datasets are relatively small compared to Lechlade, a general tendency amongst older Migration Period females cannot be identified with certainty. Miniature beads do not seem to be particularly associated with juvenile status (Clark forthcoming, h; Chapter 6.4).

¹ For example, a grave at Ellesborough, Bucks found with a cowrie and a comb, although Meaney (1981, 124) thinks this is a case of mistaken osteological diagnosis.
² Although at least one example, in Grave 76, at Burwell, was found with a 'young girl' (Lethbridge 1931, 61-2).
Bells
Most examples of bells appear to have been found in adult female graves, both here and on the Continent (Bruce-Mitford 1983, 899), although some are found in male graves. In this respect, the Lechlade examples proved to be atypical, as one example was found with an adult male, and one with a child, the first example where it is clearly associated with a juvenile (Ager forthcoming, b).

Brooches
The presence of brooches is seen as primarily female- and adult-linked, but can also be associated with juveniles.

The presence of brooches was considered as a clear adult marker at Westgarth Gardens (Pader 1982, 152) and elsewhere, but the evidence from Lechlade (and other cemeteries) has demonstrated that simpler types of brooch, such as disc or pennannular brooches, frequently worn singly, were acquired by juveniles at around the age of 14 years. Although this trend had been postulated for other cemeteries (eg Dodd 1995, 96, 131), the excellent dataset at Lechlade meant that it could be clearly shown for the first time. A distinct threshold of acquisition of saucer brooches at the age of 18 could also be newly observed at Lechlade (Chapter 3), although it should be remembered that these patterns will only apply to ‘Saxon’ cemeteries. Also for the first time, it has been possible to demonstrate that older females may have lost some of their brooches. This picture was not always matched by data extrapolated from other cemeteries (Chapter 3), but Lechlade provides by far the largest dataset.

Buckles and belt fittings
Buckles altogether do not appear to be gender linked (Shephard 1979, 52). This was also the case at Lechlade where 26% of adult females and 29% of adult males possessed them (Clark forthcoming, b). Nor do specific types of buckles seem to reveal particular age and gender associations. One type, the buckle à jour, is generally associated with both males and females, and all age groups (Evison 1956, 93). Inlaid buckles are not gender linked (Evison 1955a, 35-44), nor are buckles of bone and iron 4 (Evison 1969a, 114-16; Evison 1988, 20-2; Down and Welch 1990, 101-2); and although the latter are mostly found in adult graves, they can also occur with juveniles. 5 All four examples of the 'D'-shaped buckles were found with adult females, even though they appear more generally not to have been gender linked in the Upper Thames Valley region (Dickinson 1976, 252-3).

At Lechlade, the presence of a buckle does seem to be clearly linked to age, as only one infant (with a kidney-shaped buckle, in Grave 48), one child (with a small buckle, in Grave 140), and two juveniles were found with buckles.

3 Such as that found in Mound 1, Sutton Hoo, Suffolk or in the warrior’s Grave 3C at Niederstotzingen, Germany (Bruce-Mitford 1983, 890-99).
4 One example, Grave 62, at Harham Hill, Wilts was associated only with an iron buckle, and so cannot be sexed (Akerman 1855b, 476).
5 Examples found in Buckland, Dover, Kent, Grave 20 and Alton, Hants, Grave 41 were juveniles (Evison 1987, 220; Evison 1988, 81).
Combs
All four examples were associated with adult females, although elsewhere they can be found with males (Shephard 1979, 52; Härke 1992b, 92) and juveniles (Clark forthcoming, c).

Containers
Taken as a whole, it is interesting to note that relatively larger percentages of containers have been found with juveniles.

Wooden boxes are generally a female artefact type, although Geake (1997, 82) identified one example with a male (Clark forthcoming, k).6 Iron-bound buckets are predominately male and adult, although some are associated with females, and occur across all age groups. Gotlandkesseln are predominately associated with male adult graves dated to the late fifth and early sixth centuries, although there are a small number associated with female juveniles in the second half of the sixth century and the seventh century, while Perlardbecken are a predominately female type found in all age groups, apart from very young children (Rutter forthcoming, a). Copper alloy bound buckets are not generally associated with any particular sex (Evison 1965, 22) and are found at all ages, but especially with adults (Cook forthcoming). Turned wooden vessels are also not linked to sex or age, and appear to have been in use for the individual’s lifetime (Morris 1984, 175). Inhumation pots are usually associated with 'young people' (Crawford 1991a, 22). There are not enough examples of containers at Lechlade to show a clear pattern, but there were no departures from ‘normal’ associations (Table 6/7).

Decorative items
The spangles on the cosmetic brush in Grave 163 were part of adult female costume (Ager forthcoming, i), and these are found on female artefacts only.

Finger rings
Finger rings in general are predominately female and adult by association, although they are occasionally found in male 7 and non-adult graves (Fisher 1979, 47). The examples at Lechlade are associated with adult females and juveniles. The youngest individual of all possessing a finger ring was a child, in Grave 148 at Lechlade itself (Geake 1997, 57).

---

6 This is excluding Grave 75, at Polhill, believed to have been incorrectly identified as male, and Grave 102, where there was probably a confusion of artefacts (Hawkes 1973, 199).
7 Such as Grave 38, Brighthampton, Oxon, Grave 8, Black Patch, Wilts, Grave 933, Mucking, Essex (Hirst and Clark forthcoming, b), Snape, Suffolk (Filmer-Sankey 1992) and Grave 58, Fingleshame, Kent (Fisher 1979, 33, 58, 65, 80, 82).
Keys
Keys are usually female linked, although iron keys are found in both male and female graves on the Continent from the Iron Age onwards (Steuer 1983, 195). In Britain, they appear to have been more strictly female and adult related (Crawford 1991b, 169), contra Evison (1987, 116). Keys have, however, been identified in male graves at Stowting, Kent (Meaney 1981, 187-8; White 1988, 150) and in a Conversion Period grave at Faversham, Kent, where a padlock barrel and key were found with male artefacts (Geake 1997, 83).

At Lechlade keys were found in two juvenile graves (14 and 97) respectively containing an 'F'-shaped key and a set of padlock keys. One infant in Grave 33/3 also possessed a set of padlock keys (Clark forthcoming, e). In the latter two graves these were multiple keys, a trait which appears in general to be largely adult. The majority of keys altogether were indeed found with adults. At Lechlade, it has been possible to demonstrate for the first time that keys tend to be found with young adult females in Phase 1, and in Phase 2 with older females. For the possible symbolic significance of keys see Chapter 6.4.

Knives
Knives altogether are not sex linked (Shephard 1979, 52). However, the size of knives is linked to age at Lechlade and elsewhere (Härke 1989a; Härke forthcoming), with long knives tending to be associated with adult male burials. More adult males were found with Böhner Type C/ Dover Type 3 knives in this cemetery than any other type (Härke forthcoming). The presence of two knives is generally only found with adults (Härke 1989a) and Lechlade also conforms to this pattern.8

Pendants
Pendants are a female and presumably largely adult type during the Migration Period, whilst in the Conversion Period were equally divided between the adult females and juveniles.

The silver cross in Lechlade Grave 187 was in an adult female burial. Examples of pendant crosses found elsewhere are associated with female grave groups (Hawkes and Grove 1963, 29), with at least one example apparently being found with a juvenile.9 Some are stray finds,10 or without recorded associations11 and only one example, the pectoral cross found in St Cuthbert's coffin (Bruce-Mitford 1967; 1974), is certainly associated with a male.

---

8 Although Grave 162 at Dover, Buckland was that of a child (deduced from the size of the grave) with two knives (Evison 1987, 252).
9 There is one example from Grave 9, Chartham Down, Kent in a grave belonging to a 'girl' (Hawkes et al 1966, 115, fig 4.36).
10 Such as that from Milton Regis, Kent (Hawkes and Grove 1963), Thurham, Kent (Bruce-Mitford 1967), Wilton, Norfolk (Webster and Backhouse 1991, 27) or from Middle Harling, Norfolk, dated stylistically probably to the eighth century (Gregory and Rogerson 1984, 183).
11 Such as that at Wingham, Kent (Meaney 1964, 140; Smith 1923, fig 64).
Examples of glass pendants with applied twisted strands are very rare and had hitherto been found only with adult females. The one example in Lechlade, Grave 148 is perhaps the first unequivocal example found with a child, and a similar pendant, in Grave 84, but without twisted strands, was associated with an infant.

Of the gold and garnet pendants in Lechlade Graves 84, 95/1, 179, two examples were associated with adult females, and one, Grave 84, with an infant. Examples from elsewhere have usually been found with female artefacts, although some are found without associations or from hoards. Older excavations have sometimes led to unclear or unrecorded associations and there have been at least two anomalous find-associations.

The cabochon garnet pendant in Lechlade Grave 172/2 was associated with an infant. These normally belong to adult female burials, although occasionally they are found in juvenile graves.

Slip-knot rings are a female type, equally divided between adult females and juveniles (Clark forthcoming, h).

'Thunor's club' pendants, and beaver, boar, unidentified canine pendants (Clark forthcoming, a) are generally found with adult females, as well as in a small number of juvenile graves.

Pins
At Lechlade bone pins were found to be more strongly correlated with juveniles than adults (six examples were found with juveniles and two with adult males). Iron pins generally are not gender linked (Hawkes 1973, 194; Brush 1988, 81). At Lechlade, they occurred amongst female adults and juveniles, but slightly more frequently amongst the adults. There were only two pairs of silver linked pins, one found with a juvenile and one with an adult female. More generally, they have only been found with female adults. The copper alloy pins occurred predominately amongst female adults, with the remaining examples from juvenile burials and one in an adult male grave.

There is no reason to follow Evison (1987, 52) who treated a pin found at the neck as indicating a female.

---

12 The two examples from Grave 172, Sibertswold, Kent (Hawkes et al 1966, fig 3.22; Faussett 1856, 131, pl 4.8 and 9), and Grave XI, Melboum, Cambbs (Wilson 1956a, pl V) were found with female adults, and the one example from Grave 56, Riseley, Horton Kirby, Kent was associated with a gold bracteate and several gold pendants (Hilton 1980, 47-8).
13 Like that from Coulsdon, Farthingdown, Surrey (Flower 1874, 111, plate 1).
14 As at Wieuwerd, and Conjum, Frisia (Mazo Karras 1985).
15 Such as at Faversham, Kent AM12, AM14, AM15, AM16, AM17 (Brown and Schweitzer 1973, 178-9; Åberg 1926, fig VI.7, VI.8, VI.9, 132, fig 242-3), Seamer, Yorks (Meaney 1964, 240-1, 300), Acklam Wold, Yorks (Åberg 1926, fig VI.14; Smith 1923, plate III.6), one pendant from Uncleby, Yorks (Smith 1912, 154), or the Conjum, Frisia pendants (Mazo Karras 1985, 171, fig 10.4, 5).
16 One example, from Twickenham, Kent, was found with a sword and shield (Meaney 1964, 168), and a gold pendant without garnets at High Wycombe, Bucks (ibid, 59) was found with what was believed to be a sword, but could be a weaving batten.
17 Such as at Chatham, Kent (Brown and Schweitzer 1973, 177).
Toilet articles
Toilet sets are usually female linked and presumably adult linked, apart from at least one example with a male (tweezers and a scoop) from the Upper Thames Valley (Dickinson 1976, 220). Tweezers are found more often in male than female graves (Hawkes et al 1974, 79; Evison 1987, 118; Härke 1992b, 92) although all the examples at Lechlade, as well as the cosmetic brushes, were associated with females. When toilet articles are found with females, the owners are usually ten or more years old (Crawford 1991b, 241), and at Lechlade they were always adults. Scrapers are included under toilet articles, although their function is not clear. They are found with adults of both sexes and juveniles (Clark forthcoming, f; forthcoming, g).

Tools (general)
At Lechlade, there were a few examples of artefacts categorised as 'general tools', consisting of a whetstone, a pair of shears, a probable awl (Clark forthcoming, o), a chisel (Clark forthcoming, n), a probable spatulate tool (Clark forthcoming, l), and a spokeshave (Clark forthcoming, p). Whetstones are primarily a male and adult artefact type, but are also found in juvenile graves (Clark forthcoming, m). Balance weights are not generally sex linked (Hawkes 1973, 198; Dickinson 1976, 242-3; Scull 1990; Clark forthcoming, q). Shears are in general primarily found with adults, especially females, but can be found with males (Härke 1992b, 92). Spatulate tools are not regarded as having clear links to age or sex (Ager 1989, 224; Härke 1992b, 92). There were not enough examples of these types at Lechlade to confirm the general patterns. Woodworking tools are found in both male and female graves, including chisels (Clark forthcoming, o). In Conversion Period graves, pointed iron tools that appear to include awls, gimlets or punches, tend to be male linked, but have also been found in female graves (Geake 1997, 94).

Tools (weaving)
As a general category, weaving tools have been found with juvenile and adult females. At Lechlade, perhaps surprisingly, such tools were roughly as frequent in both age groups. Weaving battens appear generally to be female linked on the basis of the accompanying grave goods, and are mostly adult (Chadwick 1958, 30-2; Evison 1987, 112). Spindlewhorls are female artefacts (Dickinson 1976, 233-5) but surprisingly were found with two juveniles, and one was a lead spindlewhorl, reused as a bead, in the child's Grave 17. Weaving picks generally are female linked. Woolcombs had only been found in settlements until recently, so there are no established links to sex or age groups, although a connection with female adults would seem probable in view of their association with other weaving equipment (Weightman forthcoming).

18 Such as Grave 162, Dover, deduced from the small size of the grave, although the skeleton could not be sexed, and the child in Grave 136, Guildown, Surrey, regarded as a boy because of the accompanying knife and spear (Evison 1975; 1987, 252).
19 This supersedes Scull (1986), where he states that only males were found with balance weights.
20 Apart from one grave at Dover identified from the bone evidence as possibly male in the preliminary bone report (Evison 1987, 112).
Weapons

Seaxes
At Lechlade, four examples of seaxes were found in Phase 2 graves with older adult males, a pattern identified elsewhere (Härke forthcoming).

Shields
At Lechlade, only one juvenile was found with a shield (in Phase 1), these on the whole being acquired at around the age of 18. Shields in general appear to be an adult marker (Härke 1992a, 156).

Spears
At Lechlade, spears were associated with one child and five juveniles, but the majority were found with adult males (Härke forthcoming; see also Chapter 6.4). The length of spearheads also seem to have increased with age. This corroborates the trends found elsewhere (Härke 1992a, 158). The presence of two spears appears to be an adult trait (Härke 1992b, 156).

Swords
Swords appear to be associated with adults (Härke 1992b, 156).

Axes
Axes have primarily been found with adults (Härke 1992b, 156).

Miscellaneous
Clusters of iron rings are associated with females alone (Brown 1972, 109).

Romano-British coins reused as pendants are associated with females, although they are also found with juveniles (Meaney 1981, 214-6). At Lechlade, more of these pendants were found with juveniles than expected.

Conclusions
Certain artefacts could be identified as having age diagnostic value, in the absence of osteological evidence for age. There is a high probability that bone pins will indicate a juvenile. The possession of spears and brooches can be taken to be indicative of an adolescent or adult. The presence of axes, seaxes, swords, shields, two spears, and saucer brooches can be used to signify an adult in the absence of bone evidence.
Familiar sex-correlated patterns of artefact types can also be seen at Lechlade, but are confirmed here by the excellent osteological evidence. Henceforth it may reasonably be assumed that any unsexed individual found with a workbox, pendants, antler discs/chatelaines, groups of iron rings, more than one bead, two or more brooches, spangles, and weaving tools would be female. It was decided not to treat wooden boxes and keys as gender diagnostic. Any unsexed individual with weapons could be assumed to be male.

In terms of age, some trends have been identified. At Lechlade, it can be seen that bone pins were largely found with juveniles, simpler types of brooches were acquired by adolescents, saucer brooches were acquired at around the age of 18 years, there are fewer beads and a lower incidence of paired brooches amongst older female adults.
APPENDIX 7. SINGLE-LINK CLUSTER ANALYSIS ON THE DATA FROM LECHLADE

INTRODUCTION

Single-link cluster analysis (SLCA) is one such type of analysis, and has been used generally to group units into clusters. It was decided to use the SLCA part of the Institute of Archaeology, UCL program. This program was designed by Duncan, Hodson, Orton, Tyers, Vekaria, for University College London, Institute of Archaeology.

SLCA (also known as nearest-neighbour analysis) is the only direct, hierarchical and agglomerative clustering procedure that satisfies the mathematical needs for numerical clustering (Doran and Hodson 1975, 176). At each successive stage of the hierarchy a search is made for the closest pair of previously unlinked units, and fusion made. Two groups can be merged if any member of one group has its highest level of similarity with a member of the other group. Similarities and distances between individuals and groups, or between groups and other groups, are defined as those between their nearest neighbours. Eventually all the individuals are joined up, with clusters formed like chains, with each member similar to its neighbours, but not necessarily similar to any other members (Doran and Hodson 1975, 176; Shennan 1988, 213). A dendrogram is produced with an association or similarity scale, which can demonstrate the level of similarity between different types, and which can then be interpreted.

It was decided to use SLCA because '...the performance of any clustering method is highly dependent both on the nature of the data and on the similarity coefficient through which it operates. Combined with the Jaccard coefficient, the single link method has certainly proved effective for clustering functional types in graves...' (Hodson and Tyers 1988, 33).

Jaccard Coefficient

A data matrix is set up with the graves as rows and the functional types as columns, in a presence or absence form, counting the associations between the different types of grave goods occurring in graves in counts and percentages. The Jaccard coefficient is then used to express the intensity of the relationship of two variables with each other (Shennan 1988, 203-5). This Coefficient uses only presence and absence variables. This is suitable if there are a large number of variables which only occur rarely, as is often the case in cemetery data, because negative matches are not counted (Shennan 1988, 203-4). Although Doran and Hodson (1975, 141-2) have pointed out the problems of asymmetry in using counts of associations between variables, rather than percentages, they recommend that the Jaccard Coefficient should be used as it will act as an average between 'two types by expressing the raw count of co-occurrences as a proportion of the total occurrence of both types' (Hodson 1990, 29). Thus if half the occurrences of type 1 are associated with type 2, it will emphasise this, and not that the less common attribute 2 is in perfect association with attribute 1 since every time it occurs attribute 1 is present as well (Shennan 1988, 204-5; Hodson 1990, 29).

It was decided not to use the Gower Coefficient, as used by Pader (1982), because although this can combine metric and non-metric data, it is not satisfactory
mathematically. This uses a system of weightings for each of the different variables and treats different types of data in different ways, neither of which is explicitly stated (eg scoring multistate variables the same as non-multistate variables, and not taking into account the linkage of variables). Combining metric and non-metric data also averages out the types of data with each other, where a more detailed picture could be obtained by looking at them separately (C Orton, pers comm).

**Single link clustering of artefact types with age and gender groups at Lechlade**

A classification of the types must show the maximum amount of gender and age differentiation. Most categories were of the simplest functional types, such as 'brooch' or 'spear', which are unlikely to show chronological variations.

In the case of artefacts, some classification problems were encountered. Hodson (1990, 24-5) lists difficulties in defining functional types for SLCA. These are:

1) *One clear functional categorisation may not be possible.*

A 'miscellaneous' category was used for artefacts with an unclear function as some objects had only a possible and not probable function.

Artefacts were counted as 'miscellaneous' when they were disturbed, with no information on position in the grave, or where they appeared to be reused or residual.

Some artefacts were difficult to classify in a clear 'functional' way, but could be placed in a category such as 'amulets'. These included the Iron Age terret, miscellaneous rings, ie those found in a bag with no obvious function (Meaney 1981, 176-8), as well as fossil shells, shells and cowries which were not beads. Such materials, when made into beads, were counted as beads. Animal tooth pendants did not seem to have been used as pendants except in the case of Grave 78, and so were counted as amulets only. The Romano-British coins found in a bag in Grave 18 were not pierced and therefore could not be counted as pendants, unlike the other Romano-British coins. The 'Hercules Club' pendant (Meaney 1981, 162-4) was classified as an amulet although it could equally have been classed as a pendant. In the case of all these examples, however, the divisions were arbitrary, because many artefacts can be seen as being amuletic in function in addition to their 'functional' purpose.

In the case of other artefacts, where there was a clear non-amuletic function as well as an amuletic function, it was decided to count only the non-amuletic one. These included amber, quartz, and amethyst beads which were only counted as beads. The presence of beads in general can be viewed as being amuletic (Meaney 1981, 67-71, 75-82, 205-09). Relic boxes, spangles, crystal spindlewhorls, finger rings and slip-knot rings, antler disc, pelta-shaped pendants, copper alloy scutiform pendants (Meaney 1981, 28-9, 139-42, 160-2, 172-5, 181-191) and inlaid ring-and-dot buckles may also have had amuletic functions (Evison 1955a), but were not classed under amulets, as they all seemed to have had other uses.

Rings were always counted as part of another artefact, such as keys or toilet sets, if attached to, or closely associated with them. Some examples, although not part of an artefact, were used for particular purposes, such as rings found on a festoon strung around the neck, which were counted therefore as beads, such as in Grave 1/1. Most commonly, however, rings were found in bags, and were counted as amulets.
(see above). Only very occasionally could no function be assigned to a ring, where it was not found in a bag in which case it was classified as 'miscellaneous'.

The second major category of what might appear to be dual function are those artefacts found in a bag collection without a bag ring and those items hung on a chatelaine. In such cases, the collection of rings, miscellaneous items and knives or keys, etc., can suggest the former existence of a bag. It was decided to differentiate between objects with no clear function, such as broken and scrappy artefacts, including Roman brooch fragments, which were counted as 'miscellaneous', and items with a clear function such as knives or keys (Clark forthcoming, e). In the latter case, the functional use of such items was recorded, as was the presence of a bag or chatelaine. Other items in bag collections appear to have been reused, such as beads, brooches and slip-knot rings, but their uses cannot now be ascertained with any confidence. These were categorised according to their initial function, but reuse was noted. In the case of miscellaneous rings found in bags, these were counted as amulets (see above). In all cases where the presence of such objects seemed to denote a bag or chatelaine, the presence of these containers was noted.

There was one example, in Grave 59, of a string of beads found between the thighs, a location which appears to have been relatively common in areas of Saxon settlement. It was decided to still count these as beads for their purpose still appeared to be decorative, like those found in the chest area (Owen-Crocker 1986, 45).

Thus, in such cases where only one function was chosen, it is necessary to state which decisions were made in categorising the data (Barth and Hodson 1976, 170).

2) Hierarchy of functions according to the level of classification.

Certain artefacts like brooches and beads were analysed only as general groups. Other categories appeared to show links to different age and gender groups, and so could not always be counted as general groups.

In the case of containers, these were divided into those worn on the body, and those not carried on the body. This follows the distinction of costume and non-costume possessions found in a grave. Containers not carried on the body were amalgamated, even though they were a varied group: the Perlrandbecker or Gotlandkessel, iron or copper alloy bound buckets, turned wooden vessels, pots, the pail, wooden and leather containers, or wooden boxes were both associated with females (Clark forthcoming, k).

In the case of containers worn on the body (Clark forthcoming, i, j), it was decided to amalgamate the chatelaines and relic box with the bag rings (iron and ivory) and bag collections, as the difference appeared to be not so much one of function as of chronology. It was found upon examination, however, that both the iron rings were associated with infants, whilst the ivory rings, bag collections and chatelaines were largely associated with adult females. It was necessary to amalgamate the iron bag rings as there were only two examples, which would have proved too infrequent for analysis.

It was decided to divide the pins into silver, copper, iron and bone in order to discover whether any correlations could be found, as pins are not generally believed to be strongly sex or age-linked.

The buckles (Clark forthcoming, b) were not subdivided into sub-types, as the sub-types appear to have chronological significance, and there are too few examples
for a meaningful analysis at this level (see below 'rare items'). There was, however, a clear link between buckles as general group and adulthood.

The tweezers, brushtubes (cosmetic brushes) and toilet sets (ie pick and spatula/scoop) were amalgamated, although it did appear that brushtubes were associated with adult females, and toilet sets and tweezers slightly more strongly with adult mature females (Clark forthcoming, f).

The pendants included the Romano-British coins (Meaney 1981, 213-22) and imitation sceat (pierced), plain bronze, silver, scutiform, pelta-shaped, glass, gold and garnet and garnet examples, the silver cross and the reused plaque of Grave 123, with the unclassifiable pendants.

Tools not used in weaving, such as the spatulate tool, whetstone and ?spokeshave in Grave 40, the ?awls, in Grave 57 and the balance reused in juvenile Grave 134 were placed in a general category. Subdivision into types according to use would have led to too few examples for analysis (see below 'rare items'). All were associated with adult males, apart from the shears in Grave 14 found with a juvenile female and the chisel of Grave 54, found with an adult female (Clark forthcoming, l, m, n, o, p, q, r).

Weaving tools were amalgamated because all examples of weaving picks and weaving battens belonged to adult females (although the woolcombs and spindlewhorls were not exclusively so).

3) Reuse of artefacts
In some cases, an artefact in a grave was not being put to the use for which it was originally made. The use to which an artefact was put when buried was preferred when possible, but should this be unclear, its previous function was noted. Should either be uncertain, it was relegated to the 'miscellaneous' category. In all cases it was noted which objects were reused.

There were some examples of brooches, as in Graves 56 and 90, pins in Grave 90, beads in Graves 81/1, 90 and 145/2, the scutiform pendant in Grave 18 and slip-knot rings in Grave 145/2 being relegated to bag collections. In some cases spindlewhorls were reused as beads, such as in Graves 17, 59, 77, and 159. In Graves 14 and 180 finger rings were reused as beadstring ornaments. The brooch in Grave 13 was found in the pelvis of the infant, and was damaged and worn, and so may not have functioned as a brooch. Nevertheless, it was unclear if it had a new function, so it was categorised as a brooch. The plaque in Grave 123 was once possibly a pursmount (Ager forthcoming, h), but was classified as a pendant, as this appeared to be its secondary use. The plaque in Grave 163, which was originally a belt fitting, seems to have been reused as a pendant and so was classified as such. The shoulder ornament in Grave 180 appears to have been reused as a brooch, although its original function appears to have been a shield or harness mount (Ager forthcoming, d).

4) Incomplete/residual data.
Although it was not necessary to divide graves up on the grounds of quality, as in the case of the Hallstatt data (Hodson 1990, 18-19, 29) it was necessary to differentiate between items which were residual, for which there is no information, or where they had been disturbed.
Animal bone, flints and pottery fragments that do not seem to have come from a deliberately buried pot were omitted. These were classified as residual material and not used. There were some cases where artefacts appeared to be modern, such as the knife in Grave 15.2.

In some cases, it could not be stated with confidence whether an artefact belonged to one grave or another and so they were classified as being of unclear location and accordingly omitted. Other examples of disturbance include the fossil in either Graves 33/1, 33/2 or 33/3, the knife of Graves 58/1 or 58/2, the spear in Graves 66/1 or 65, the spindlewhorl in Graves 66/1 or 66/2 and the brooch in Graves 80/1 or 80/2.

Sometimes, no location or information was given but there was no reason to believe that artefact types belonged to another grave, so such artefacts were included in the analysis, such as the ring in Grave 48.5.

Occasionally, despite disturbance, it appeared that there was no mix up with other graves and the find was probably not residual, such as the brooch in Grave 19.1, the buckle in Grave 25.13, or the tweezers in Grave 42. Such artefacts were used.

5) Rare items
Rare objects were omitted if they could not be amalgamated into any functional categories, as the extra categories needed would have blurred any clear results (Hodson 1990, 29). These included the garnets in Grave 71, and the antler disc in Grave 76, of which there was only one example each.

After a few trial runs of the analysis, it was decided to discard all examples where they were fewer than five counts of association of all types against all other coded types. The cut-off level at which the number of associations was deemed significant was determined by scoring the counts on a histogram, and estimating, somewhat arbitrarily, a point at which associations appeared to be meaningful.

It was decided therefore to exclude the combs, of which there were only four examples, and where it was felt that decomposition may have rendered a misleadingly small number of surviving examples. There were only four examples of seaxes, and two examples of bells, which were also excluded. As already described, silver pins were retained as a separate group because of other pin types included in the analysis.
APPENDIX 8. CODING CONSIDERATIONS FOR SERIATION OF THE
LECHLADE AND MUCKING MATERIAL

HIERARCHY OF LEVELS OF DATA

The ideal classification of data for seriation involves a multitude of levels of data in a
continuous spectrum from similar artefacts to more functional general groups with a
common purpose. Hodson defines several hierarchical levels of artefacts, from a
functional class (such as ‘brooches’), to stylistic family (brooch ‘types’, such as saucer
brooches), stylistic type (such as a saucer brooch with late Roman motifs), and stylistic
variety (a saucer brooch with late Roman motifs in the form of five-point stars). The
chronological value of each level ranges from general similarities of date, to the best
chronological indicators of all, represented by matching pairs of artefacts (Hodson 1977,
399, fig 2; 1990, 20-5, appendix 1). 'A separate column of the data matrix is assigned to
each. Thus an object that can be classified at the variety level will also be recorded as a
member of a type and a family and so will be assigned three incidences in the matrix for
seriation. It will have three times as much weight in the analysis as an object classified
only at the most general level' (Hodson 1990, 43). The types were weighted by
counting them at all levels from the most general to the most specific.

At Lechlade and Mucking, brooches provided the most potentially important
chronological material, as they have the most complex forms. One basic decision was
how to allocate functional groups to the material. This would influence whether an
artefact was counted at a more or a less detailed category. Knives, for example, were
counted as a separate class, rather than as part of tools or personal equipment.
Similarly weaving tools could have been incorporated into general tools. Amulets
were given a separate category, although many object types are amuletic in function. It
was decided to keep the separate amulet class as small as possible, confined to objects
where no alternative functional category could be found, because it is believed that
symbolic and functional categories should not be separated (Pader 1982). In practice,
the most detailed classifications were used wherever possible, and where only single
examples of artefacts were found at these levels, they were grouped into a more general
category. Thus, sometimes it was necessary to amalgamate a variety into a type, a type
into a family, or a family into a class, in order to avoid losing the data altogether.
Nevertheless, such decisions had to be made judiciously.

Material that fell only into the most general level of class was excluded as being
too general to be chronologically useful. Some material had to be excluded on the
grounds of being too common, that is, present in over half the graves, thus potentially
over-linking graves; at Lechlade, amber beads were disregarded for this reason
(discussed further below), whilst at Mucking, the knife Type 1 was not included in
either seriation. Pots were excluded in the female seriation.

A type must occur in at least two graves, and must also be cross-associated,
meaning that these graves must themselves contain at least two different, relevant types
(Hodson 1990, 23).

The coding details of data at Lechlade are provided in Appendix 9, and at
Mucking in Appendices 11 and 13.
TYPOLOGICAL PROBLEMS

Hines (1992, 90) has pointed out that in a seriation it is best to use ‘... artefact types and subtypes which have been thoroughly studied and for which comprehensive classifications exist, and for which, ideally, some typological sequence of development can be proposed’. Accordingly, the most explicit and systematic of established typologies were used for each artefact type. It is generally assumed that these typologies were primarily constructed for the purposes of chronological analysis.

Detailed research into the established typologies of types found at Lechlade was carried out where specialist reports had not already been written for the cemetery publication. This has been done for the various pendants, the buckles, the combs, the Kentish disc brooch, the keys, the toilet sets (including shears), the 'scrapers', the beads and slip-knot rings, the bag collections (including chatelaines and the purse-mount), the workboxes, wooden boxes, spatulate tools, whetstones, the chisel, the spokeshave, the balance pan and the shears (Clark forthcoming, a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r).

At Mucking, and to a lesser extent at Lechlade, there were potential problems with the established classification of certain types of artefacts, which are discussed below. Amongst the brooches, the received typologies of the annular, penannular and small-long brooch types posed particular problems.

The narrow-band annular brooches, found only at Mucking, were classified using the grouping by Leeds (1945, 46-9) and Ager (1985) into Types F and G. Hines (1984, 260-9) criticised Leeds for failing to take into account the range of variety of form, such as the cross-section, whether the ring is cast in one or joined, the type of decoration, or how the pin is fixed to the ring, but he did not propose an alternative typology, as this would produce an enormous number of sub-groups. Subdivision of Type F was made by Hirst (1985, 55-7) on grounds of width of the ring based on Dickinson's work on material from the Upper Thames Valley (1976, 143), but as this type only occurred within one grave, such divisions proved unnecessary at Mucking. Nor were the subdivisions suggested by Hirst (1985, 55) applicable to the Type G brooches.

The most widely used classification of penannular brooches, based on Fowler (1960; 1963), proposed groups based purely on the form of the terminal. As White (1988, 14; 1990, 126-7) points out, this does not take into account the cross-section and decoration of the hoop, so that the groups may be too broad and therefore his subdivisions have been followed. The subgroups of Type G, based not only on the terminals, but also on the hoop decoration and size (Dickinson 1982), have also been used (Hirst and Clark forthcoming, b).

The classification of small-long brooches has been unsatisfactory (Leeds 1945, 4-44), and the subject of much criticism (Dickinson 1976, 174; Hines 1984, 11-13; Hirst 1985, 58). The most basic flaw is that the headplates were usually (but not always)
given priority. Nevertheless, the feet of the small-long brooches from Lechlade were taken into account (Dickinson forthcoming, d). In the case of the Mucking material, the classification of material by Böhme (1986, 554-8) was used, and comments on the headplates and footplates by Hines were considered (Hirst and Clark forthcoming, b), both of which took into account overall form and ornament.

At times, it was difficult to allocate particular artefacts to the appropriate sub-group, particularly in the case of knives. In fact, at Mucking some types plainly did not fit into the established typology (Böhner 1958; Evison 1987), and the classification had to be extended to include the new knife Types 7 and 8 (Hirst and Clark forthcoming, b).

Many brooches in Mucking II were unusual variations of their type, such as the supporting-arm brooch of Grave 987, the equal-arm brooches of Graves 637 and 983, and the Glaston-Mucking brooch of Grave 989, as well as the Type IIIB buckle in Grave 979. The unusual brooch in Grave 579 appeared to be a small-long/cruciform hybrid. In Mucking I, the Armbrustfibel of Grave 100, and the Krefeld-Gellep Type buckle in Grave 91 were also unusual. (These are discussed further in Chapter 5.)

There were also problems with the use of the typologies of weapons. Thus at Mucking, there was a degree of difficulty in assigning individual shield bosses to groups (which were polythetic and overlapping), and they were sometimes assigned to groups other than those published by Dickinson and Härke (1992) (Chapter 1.2).

The spearheads were ordered by Swanton (1973) primarily on the grounds of blade form, ie, whether this is barbed (Type A), leaf-shaped (Types C and D), or angular shaped (Types E, F and G), but also according to cross section (Types B, I, J and K). These groups are subdivided, however, at least partly by overall length (Swanton 1973; 1974). Differences between spear types may not, therefore, be purely chronological in nature. As we have seen, the length of spearheads is often linked to the age of the individual. Differences in spears may also be related to function; spear subtypes may be a reflection of whether they were used for throwing, stabbing, slashing or thrusting (Swanton 1973; 1974; Dickinson 1976, 319-20; Härke 1989b, 58; 1992b, 115). These possible differences in function appear to be at least partly related to spearhead length, as, for example, the spear subtype C1 which is shorter than the C3 subtype.

Given these links to function and differential age-related status, it was decided to minimise the input of this type in the seriation, by coding this on one level, and not the two possible levels. Sacrificing the general groups, eg Type C or D, was preferable to omitting the subtypes, which potentially reflected more chronological information, eg Type C1. This was also desirable because the frequency of Type C spears would have led to overlinking of the graves.

There were other problems with the spearhead typology, due particularly to overlapping subgroups (Dickinson 1976, 291-319). On the whole, the types appear to be over-refined for what appears to have been decentralised production (Härke 1992b, 85-7). Certain subtypes appear to overlap (such as the concave-sided Type H and the straight-sided Type E), but until a better defined typology is found, it was decided not to amalgamate Swanton's classifications, unless data would otherwise be lost. Of those types at Mucking, Hills (1976) pointed out that the angular-bladed Types C3 and E3 appear to overlap. Given this similarity, the sole example of Type C3 (in Grave 950) at

---

3 Of those types found at Mucking, Dickinson (1976, 324) envisages thrusting spears as Types C1-2, D1, E1-2, H1-2, slashing spears as Types C3-4, E3 and H3, and throwing spears as Type D2.
Mucking was amalgamated with the Type E3 examples in order to avoid losing this data.

In addition to overlapping types, the shape of the spear may not resemble its original form. The effects of corrosion can alter the shape. In order to combat this problem at Mucking, X-radiographs were taken of all the spears, and were carefully examined. Repairs can also alter the shape (Härke 1992b, 85-7), but there were no obvious examples of this at Mucking.

These problems were noted whilst classifying the examples at Mucking, but the categories were eventually assigned with some confidence. This has meant that certain spears have been re-assigned to new types from those given by Swanton (1973; 1974).4

At Mucking, there are unique types that are not fully encompassed in Swanton's typology (Härke 1992b, 85-7). In the case of the spearhead in Grave 662, Evison (1987, 27-8) suggested that this was single-sided, but it is not well enough preserved to be sure; it may have been a high-status piece (suggested by the copper alloy plating) that has few parallels. It was coded as a C2 type. The pronged sockets of the spearheads in Graves 572 (H2) and 682 (C2) were also not accounted for in Swanton's typology (Hirst and Clark forthcoming, b), but the spear in Grave 572 could be encompassed within Böhme's typology, belonging to his group with closed sockets and no midrib (1974, 100-1).5 The spear in Grave 979 can be classified as a Type B2, although this appears to belong to a group of short spears, with closed sockets and sometimes a distinct midrib (Hirst and Clark forthcoming, b). Grave 869 can be counted as a Cl (not a B2 contra Evison 1981, 136) but has a closed, short socket that is unusual for this type, and was coded with the spear from Grave 979, as it may again be one of this particular type.

There were potential problems in distinguishing arrowheads from spearheads. Manley (1985, 223) argued that while it was clear that on the whole arrowheads are smaller than spearheads, there appeared to be no clear dividing line between the two types. Nevertheless, Swanton (1974, 8) listed his smallest spearheads as being over 100mm in length, which still appears to be a useful division, although this division cannot be absolute. Thus, at Mucking, the shortest spearhead was 143mm long (in Mucking II, Grave 662) whereas the longest arrowhead was 104mm (in Mucking II, Grave 772), so there was a clear division in length parameters between the two types.

Swords also proved problematic to classify at Mucking. The primary typology of swords was devised by Menghin (1983), where stylistic families were based on the combination of at least two types of grip, scabbard fittings, or accessories, such as sword rings or decorative plaques. Stylistic types are defined by material, decoration and shape of chapes, mouthpieces, and pommels, and further subdivided into stylistic variety on the same criteria. Obviously, the lack of distinctive pommels and fittings at Mucking meant that anything other than broad grouping was impossible.

---

4 These were, in Mucking I: Grave 159 from C3 to C2, Grave 243 from H1 to C3, and Grave 245 from H2 to C2 (Swanton 1973, 55, 103, 107) and in Mucking II Grave 260 from H2 to E3 (Swanton 1973, 107, 199).
5 Böhme (1974, 100-1) established four groups for examples from the Elbe-Loire area based primarily on socket shapes and cross-section, as well as blade shape.
SIMILAR AREA OF COMMONALITY

One potential problem concerns the use of data from several sites representing different 'areas of commonality' (Doran and Hodson 1975, 269; Hines 1992; Høilund Nielsen 1997a; 1997b). In such cases, an absence of association could result from cultural differences, a problem avoided here by the use of one large dataset from a single cemetery. Høilund Nielsen (1997b) has even argued that specific artefact types that may not have been manufactured in the area of commonality in which they were found should be excluded. This is because artefact types at a greater distance from the place of manufacture than other types can introduce the potential problem of a time lag.

At Lechlade, very few non-Saxon objects were found. In the case of Mucking, the area of commonality is also essentially Saxon, but there were substantially more Kentish and Anglian artefacts (as well as Frankish) than at Lechlade (Chapter 2). As there is so much intermixing of these and other artefact types, it would have been impractical to exclude particular ones, nor was it considered that a time lag between manufacture and burial would be a more serious problem than with other artefacts from the local area.

THE DIVERSITY OF MATERIAL AT MUCKING

Brooches

At both Mucking and Lechlade, the brooches provided the most detailed chronological information for the female seriations, and were weighted using the hierarchical system. As brooches are the most complex forms of metalwork, they seemed likely to yield the most chronological information.

At Mucking, brooches provided the most numerous examples of artefacts in one functional class, and they were key elements in the identification of 'females'. They occurred in 80% (82/104) of the female graves, compared to only 54% (45/83) of the female graves at Lechlade.

At Lechlade, at the level of stylistic family, the brooches were grouped by type, e.g. saucer brooch or disc brooch. There were ten brooch types, of which five types were suitable for seriation, as examples occurred in two or more graves. The saucer brooches were the most numerous type of brooch, occurring in 18 graves, compared to disc brooches in 14 graves, followed by penannulars (and annulars) in eight graves, then applied brooches in six graves. At the more detailed level of stylistic type, the brooches were grouped by art style. For example, saucer brooches were grouped by late Roman or Style I motifs, or else by their similarities to Kentish disc brooches. Eleven stylistic types were identified in this way.

At Mucking, in contrast to Lechlade, at the level of stylistic family, there was a far greater variety of brooch types. If grouped according to brooch type there would be 16 stylistic families (of which 13 occurred in two or more graves), putatively qualifying them for inclusion in seriation. Within these 13 stylistic families, there would be 46 stylistic types. Different types of brooch were found together in only 26% of the graves with brooches; on the whole, brooches were buried in matching

---

6 These types were discs, penannulars, saucers, applied, and small-ongs.
pairs. This pronounced and methodologically difficult diversity posed a problem for the linking of the graves in the Mucking female seriation. In practice, a maximum of nine stylistic families (in this case types of brooch) can be coded using the ‘Seriate’ program in a straightforward manner within one functional class. The smaller the number of stylistic families (brooch types), the stronger the linking to other stylistic families will be.

At Mucking, it was decided to group together those brooches with very close similarities in form or ornament at the level of stylistic family. This was done for two reasons. Firstly, it would maximise the linking of the diverse brooch types, showing considerable similarities in either form or ornamentation between types, which would not otherwise be reflected in the coding. Secondly, the addition of the broad grouping has an effect on the hierarchical ordering, raising what was originally a stylistic family to the more detailed stylistic type, and stylistic type to stylistic variety. As there was very little information on the brooches at the level of stylistic variety at Mucking, this maximised their hierarchical levels to include this most detailed categorisation of data.

The broad groups that were made for seriation were based primarily on the presence of particular art style, as this promised to greatest amount of chronological information. The brooches were, where possible, grouped according to complex ornamental styles, which at Mucking fell into two main groups: late Roman motifs and Style I.

The use and transmutation of late Roman motifs on material of the ‘mixed culture’, and Quoit Brooch Style in particular, as well as Style I is acknowledged (Haseloff 1974; Böhme 1977, 26; Dickinson 1979; Ager 1985, 13-14; Dickinson 1993). Given this wholesale use of such motifs in ‘mixed culture’ and ‘Anglo-Saxon’ contexts (Appendix 16), it was not felt that grouping brooches by art style, including those that resemble late Roman motifs, would be introducing absolute dates into a seriation. Late Roman motifs can be seen even in ornament styles that seem less directly connected to late Roman influence, such as Salin’s Style I (Haseloff 1974). Furthermore, it has also been demonstrated that late Roman ornamental motifs remained very important even in the Conversion Period, a full 200-300 years after the end of the western Roman Empire (Geake 1997, 119-20).

These broad groups based primarily on the predominant art style formed polythetic sets. Some brooches formed the nucleus, with other brooches then being placed in this category according to shared similarities, which are not perhaps evident from the brooches at Mucking, but which can be seen in other cemeteries.

The distribution of artefact types was also examined, as it seemed possible that spatial patterning might be of some chronological significance. There did not seem to be any concentration of what could be expected to be ‘high-status’ brooch types, such as the small square-headed brooches, compared to the ‘low status’ brooches which at Lechlade appear to be the applied, small-long, disc and penannular brooch types. The analysis of artefact types in Mucking I, however, proved disappointing, even in the case of the brooches and buckles, probably because of the fairly small size of the cemetery sample (Figs Appendix 8/1, Appendix 8/2). The analysis of Mucking II, on the other hand, was more rewarding. Although the distribution of weapons and common artefact types, such as knives and buckles, showed no clear patterning, many brooch types did appear to have a fairly restricted distribution, although this was true
of some brooch types more than others. If Mucking II is divided into four, according to the grid north coordinates of 800N and 500E (ie those that cross-cut the cemetery), it appears that the distribution of brooches falls into three main zones. Firstly there is a concentration of types along the east side of the cemetery in the area that was later used as a windmill (centred on c 780N x 680E), in the SE quadrant. There is a second distribution of applied and penannular brooches found along the east side of the cemetery, but more widely scattered (in the NW and NE quadrants), and a third scattering towards the west side, in the NW, SW and SE quadrants (Fig Appendix 8/3). These broad groups do, however, show considerable overlap.

This broad spatial patterning was used in order to group the brooches, although the consideration of ornamental style was always more critical. After these two prime considerations, the problem of the effect on seriation of differential age-related status was minimised by coding juvenile-related brooch types at only one level (and not the possible two or three levels), in order to reduce possible non-chronological bias. In addition, it was felt prudent to avoid, as far as possible, separating high-status from low-status brooch types. In fact, this was not always possible, as although the most ornamental brooches were by their very nature the more high-status types, they had to be grouped together in order to maximise the important potential chronological information they could provide. In this way the following groups of brooches were formed.

The first three groups that are described were formed primarily on the basis of art styles. The first group features fairly complex ornament resembling more elaborate late Roman motifs, which are found on brooches of varied forms. This ornament includes the presence of flat, often open-jawed zoomorphic motifs, relief casting, and geometric motifs, such as ring-and-dot, beaded borders, ribbing and facetting, and notching. More organic motifs are also common, such as spirals or palmettes (Hawkes and Dunning 1961; Haseloff 1974; Böhme 1974, Abb 14; Simpson 1976, 195, fig 1). The range of motifs and techniques on wide ‘official’ buckles, and their close similarity to Quoit Brooch Style artefacts, especially those from Mucking, are discussed in detail in Chapter 5 and Appendix 16. Brooches decorated in Quoit Brooch Style (specifically the quoit brooch in Grave 548) are therefore placed in this group on account of their close similarities in techniques and motifs to late Roman ornament. The closely related brooch from Grave 637 was also included.

Applied brooches in this group consist of those of Muids Type, with backward-facing animals (in Grave 589), those with a six-pointed star motif, similar but not identical to the star motif on Rhenen Type brooches (Böhme 1974, Abb 8), and those bearing floriate crosses (of the Great Chesterford Type) (Böhme 1986, 545-7). The latter resembles, but is not identical to, the common late Roman palmette motif. The star motif is very simple, but as the brooches in Graves 925, 970 and 975 are all six-pointed stars, a link to floriate cross brooches is suggested; an example of this is the brooch with a six-pointed star combined with heart-shaped motifs between each point from Grave 123, Guildown, Surrey (Welch 1975, pl XX.3; 1976, 208). The Muids Type brooch depicts animals that are similar to those in late Roman ornament, but flatter and more regularised (Evison 1965, fig 25, pl 8.c).

The star brooches display beaded borders, and, in the case of the applied brooches from Graves 970 and 975 at least, also display a weak zigzag border. In the
case of the brooch from Grave 589, a scalloped (tongue) border is present. The floriate
cross brooches are very fragmentary, but in the case of Grave 992 there is a milled
border of the kind commonly found in late Roman ornament (Haseloff 1974, 2). The
ten-spiral applied brooch in Grave 355 resembles the spirals on the equal-arm and
tutulus brooches (T Dickinson, pers comm; Hirst and Clark forthcoming, b), such as
the equal-arm brooch in Grave 90, and has a beaded ring in the centre that is
reminiscent of the brooches with star motifs and the Muids Type brooch.

The two Spong Hill Type applied brooches in Grave 249, Mucking I,
displaying six human facemasks were placed in this category. Both brooches feature
a beaded border that resembles other applied brooches with late Roman motifs. They
are, however, somewhat different from each other. Brooch 249/3 is surrounded by a
plait border, it possesses an integral upturned rim, and has a centre with linear wavy
and circular motifs; brooch 249/4, in contrast, has more stylised masks with a
‘spectacle and nose’ facemask of a ‘Mr Chad’ Type, and a beaded centre like that on
applied brooches with star, spiral and backward-facing animals. With regard to brooch
249/3, the plait border is usually a feature of Style II ornament, but can also occur in
Roman mosaics, and is combined with beading (repousse dots), characteristic of late
Roman metalwork borders (Dickinson 1976, 109). There is also some resemblance to
the plait border, but not a great deal of similarity to the facemasks, found on the Muids
Type brooches (Evison 1978, pl XLII.c, d; Böhme 1986, Abb 67.6d). The facemasks
on brooch 249/4 more closely resemble late Roman facemasks and those on Quoit
Brooch Style artefacts, such as the facemasks on the belt set from Grave 117, than do
those on brooch 249/3. Nevertheless, even the facemasks on brooch 249/3 are closer
in style to late Roman motifs than the ‘helmet-headed’ facemasks found on Style I
metalwork, such as those found on button brooches, including the ‘Mr Chad’
facemasks on Class K or Class E, a variety that is unusually common at Mucking
(Avent and Evison 1982, 85, 89).

The equal-arm brooch in Grave 90 was also placed in this group. This brooch
is a relief cast Sahlenburg Type example, whose ornament is typical of wide ‘official’
belt fittings. As the atypical equal-arm brooches found in Graves 637 and 983 in
Mucking II both display rudimentary pairs or sets of opposed animal heads with
simple punched eyes, rendered in a flat manner that is characteristic of late Roman
ornament, they were included in this group on the grounds of their similarity in form
to the brooch in Grave 90. The notching, ribbing and grooving, as well as the ring-
and-dot motifs on the brooch from Grave 983, and the stamping on the brooch from
Grave 637 that resembles the scalloped borders of late Roman metalwork, provided
additional reasons to include them in this group. The idiosyncrasies of these brooches
are such as to suggest that they were made by the same craftsman.

The second group was largely composed of disc brooches, found in 15 graves,
which were combined with two pairs of saucer brooches bearing ‘late Roman’ motifs
(running spirals) which were found in Graves 622 and 639. This combination was
decided on for two reasons. Firstly, the disc brooches themselves display what are
probably ‘late Roman’ motifs. Nearly all of them here (as generally) are decorated with
ring-and-dot motifs, whilst others are decorated with compass drawn rings or

---

7 It has been argued that the six-point star motifs provide a link to the six facemasks of the Spong Hill
type applied brooches (Dickinson 1976, 110).
stamps which, combined with rough casting, and nicked edges, bear some resemblance to late Roman motifs (Dickinson 1979, 51), but are not complex enough to make a definite link to late Roman art styles. Secondly, saucer brooches appear to be a higher status form of disc brooch (Welch 1983, 55-7). The motifs on these saucer brooches resemble other brooches with late Roman motifs, but unlike the applied brooch in Grave 255 with spiral motifs, the cast saucer brooches lack the late Roman motifs of guilloche, and milled or beaded borders. (In the case of the saucer brooch from Grave 615, it was felt that it was more important to place this in the Style I group than with the disc brooches.)

The third group of brooches were grouped by the presence of Style I or related anthropomorphic (facemask) and/or zoomorphic motifs. The zoomorphic motifs differ from late Roman ones in that instead of the depiction of animals in profile, often open-mouthed and rendered in a flat style, they are in contoured relief. Brooches decorated in Style I include the saucer brooch in Grave 615 with six running-leg motifs, or are they six animals in profile? - an example of the ambiguity often found in Style I ornament (Leigh 1984).

Also included in this group are the small (Kentish) square-headed brooches in Graves 99, 102, 814, 843, and 936. All bear lozenge or cross-shaped feet, apart from the example from Grave 102, with a triangular foot. The small square-headed brooch in Grave 906 was also included in this group because of its similarity in form to the Style I small square-headed brooches. The ring-and-dot ornament on this example can be seen as an echo of the eyes on the facemasks and animals often found on great square-headed brooches (Hirst and Clark forthcoming, b).

The lozenge brooch with ring-and-dot motifs in Grave 552 was included in this group, as it would appear that such motifs represent low-status copies of garnet-inlaid examples (Hirst and Clark forthcoming, b). In this respect it is linked with small square-headed brooches; the Series II small square-headed brooches in Grave 843 Mucking II are very similar to small square-headed brooches with garnet inlay found elsewhere (Hirst and Clark forthcoming, b).

A type of human mask with a helmet or hair, and often with prominent eyebrows, is characteristic of button brooches (Avent and Evison 1982). These can securely be coded with other Style I brooches despite an apparent lack of this art style on button brooches at Mucking, for various reasons. Perhaps most importantly, the contoured features of Style I zoomorphic ornament may be found on two button brooches at Mucking, albeit executed in an ambiguous or oblique way. The prominent beard on the Jii Type brooch in Mucking II, Grave 550, may represent an animal in crude Style I, whilst the design on the unclassified brooch in Grave 90/2 may have been intended to depict an arm (Welch 1983, 53). The use of a button brooch mould has also been suggested for the making of the shield ornament from Mucking II, Grave 600, which is clearly in Style I. Facemasks which are combined with Style I animal ornament, and which are similar to those on button brooches, can occasionally be

---

8 A group of hybrid applied/disc brooches are known (Dickinson 1976, 190-1), suggesting that perhaps these brooch types at Mucking should have been grouped together, but as the distribution of these types was very different in Cemetery II, it was decided not to.
One of the few examples is the cast saucer brooch from Aston Remenham that displays a button brooch type facemask with 'Vimose' type animals in Style I, a motif closely copied in the case of the applied brooch from Lechlade, Grave 90 (Dickinson 1993, 25).

Some small-long brooches have been argued to be a 'poorer' version of the more elaborate Kentish brooches (Leeds 1945, 63-4, fig 34). The brooches in Graves 537 and 649 appear to belong to a group of small-long brooches that have a predominantly Lower Thames distribution, making it more likely that they were low-status forms of Kentish square-headed brooches than of Anglian cruciform brooches. Nevertheless, the connection is not strong, as no examples of small-long brooches at Mucking resembled the small square-headed brooches in having a lozenge-shaped footplate.
This brooch sub-group was distinguished from those brooches with lappets for several reasons. Firstly, the distribution of the small-long brooches is the most widespread of the cemetery, compared with the relatively restricted distribution of the other brooch types, which were mostly found either on the north and west side of the cemetery, or in the ‘windmill’ area. When the small-long/cruciform brooches were divided into those with lappets and those without, those with lappets tended to be found more often towards the west side of the cemetery, and those without were distributed much more widely, but often on the east side. Further, had the small-long brooches not been divided, they would have formed the largest group of brooches, liable to produce an overlinking of graves, as their distribution appeared to reflect within it a wider date range than some of the other brooch types at Mucking.

Brooches with lappets were found in Graves 336, 448, 529, 537, 648, 649 and 842 and formed matching pairs, apart from the brooches in Grave 336. Some of these brooches possessed zoomorphic lappets. Rudimentary zoomorphic lappets were found on the small-long brooches from Graves 529 and 842, but again they were very simple, and not rendered in Style I (and indeed they even bear some resemblance to the lappets on the equal-armed brooch in Grave 90, in the ‘late Roman’ ornament group). Brooch 336/2 bears possible, if very stylised, zoomorphic ornamentation. It also bears triple dot-in-triangle stamps that are similar to those on the disc brooches from Graves 334 and 610, as well as notching that is broadly comparable to the Kentish square-headed brooches of the ‘Style I’ group. The ring-and-dot motifs on some of the brooches in this group, or the beaded and stamped edging on the brooches from Grave 649, echo the cast tongue (scalloped) motifs of late Roman ornament. On the whole, however, this group bears either zoomorphic decoration that appears to be neither Style I nor late Roman in style, or stamp marks that are too simple to allocate this group to the category of late Roman motifs.

One group of brooches consists of bow brooches that are relatively narrow, and which display an absence of a zoomorphic foot plate, or lappets, and indeed a general lack of ornament. All display notching, facetting, and grooves, however. The Armbrustfibel (in Grave 100), supporting-arm brooch with trapezoid feet (in Grave 987), the Glaston-Mucking type brooch (in Grave 989/2), and the bow brooch (in Grave 989/3), were placed within one stylistic family.

Another group consisted of applied brooches where the motifs were missing, a common occurrence given their fragile nature. Features of this group, and variables within it, such as the presence of copper alloy or iron pins, flat or curved backplates, whether or not the pin catches were long and slender, and/or the presence of separate rims, and the overall size of the brooches, all of which may have chronological implications (Hirst and Clark forthcoming, b), were also taken into consideration. These features and variables were not closely correlated to applied brooches with known motifs at Mucking, and, although the distribution of the damaged applied brooches was predominantly easterly, they were not concentrated in the ‘windmill’ area as those with motifs were, so that it was decided to place them in a separate category.

Penannular brooches were found on the east side of Mucking II, and so were grouped together, and not with the annular brooches. Given the difficult typological problems, where sub-divisions were unlikely to have any chronological significance, they were coded only at one level.
Quoit and ring annular brooches, distributed towards the west side of Mucking II, were grouped together, and counted only once in the coding. This was because it was felt that they would have relatively little chronological information to offer, as they appear to be of low age-related status, and were more likely to be passed on than other brooch types. When found with other brooch types, the association of an older with a younger brooch type might produce misleading results when seriated. Unfortunately, the quoit brooches are more likely to be found in association, at Mucking anyway, with other brooch types, as instead of being worn in matching pairs, they usually form the second brooch to another type (usually small-long or applied brooches). The narrow band annular brooches also suffer from typological difficulties, that may not have chronological significance (see above). The quoit brooch form is sometimes found decorated in Quoit Brooch Style (Ager 1985), as was the case with the brooches from Graves 548 and (in a related way) 637. These two brooches have been included in the group that had ‘late Roman’ motifs in common.

The beadstrings
The individual types of polychrome glass beads, metal-in-glass, and non-glass beads at Lechlade could be seriated, as there were relatively few stylistic types within each stylistic family (eg marbled, spiral trail or spot decorated beads within the stylistic family of polychrome beads). The monochrome beads were more problematic. If differentiated by colour, it was felt that crude groupings of colour, eg ‘green’ or ‘yellow’, might obscure chronological information. If distinguished by gradations of colour, eg translucent yellow or opaque yellow, this would have led to no less than 22 stylistic types. If divided by shape, eg a bicone or disc, the groups (14 in number) would still substantially exceed the maximum nine stylistic types available. This highlights the problem of classification of glass beads, particularly for seriation, both at Lechlade and at other cemeteries.11

In order to address this problem, it would have been possible to undertake a separate analysis of the beads using a single link clustering program as part of the IAGRAVES package (C Orton, pers comm). Correspondence analysis could also have been undertaken, as in the frequency seriations of beads from four East Anglian cemeteries (Høiland Nielsen and Hines forthcoming), where beads were coded primarily by colour, or at Weingarten and Eichstetten, in Alamannia (Sasse and Theune 1996). Only in the latter case were the great variations in the numbers of beads between graves reduced by using the square root. The use of cluster analysis was not considered necessary for the analysis of Lechlade, however, as the monochrome beads were infrequent (consisting of only 12% of the total of the beads), and their exclusion is unlikely to have had much impact on the seriation. Amber beads predominated in this cemetery: 67% of all beads and 82% (54/66) of the bead

---

11 The monochrome beads from Weingarten and Eichstetten (Sasse and Theune 1996) were divided primarily on the grounds of opacity and transparency, an unreliable method of classification (Biek and Bayley 1985), then form, followed by colour (unlike the methods used for the Mucking and Lechlade beads), whereas polychromes were divided by decoration then colour and form. In the case of the East Anglian cemeteries, the forms of monochrome beads were not considered, but merely the colour (Høiland Nielsen and Hines forthcoming). The polychrome beads were grouped primarily by base colour, and not by decorative motif.
combinations in female graves were exclusively or predominantly amber (Clark forthcoming, h). Of the non-amber strings, only three consisted of ten or more beads.

At Mucking, however, the range of glass bead types was far more diverse than at Lechlade. When the percentages of beads from both cemeteries at Mucking are combined, 61% of the beads are monochrome glass, followed by 23% amber, and 9% polychrome glass. Glass beads, particularly monochrome beads, predominate at Mucking, and not amber, as at Lechlade. This reflects a regional variation in the frequency of amber beads between the Upper and Lower Thames. In Britain, amber has been most frequently found in the Upper Thames region and in the Anglian Midlands in particular (Huggett 1988, fig 1; Hirst and Clark forthcoming, b).

Had the glass monochrome beads been analysed according to colour, there would have been 33 stylistic types; if by shape, there would have been 30 stylistic types. In the case of the polychrome beads, there was a minimum of 35 stylistic types. Even if grouped by base colour, there would have been 17 stylistic types. Coding the presence of amber would have necessitated only the use of a stylistic family (ie amber), and not a stylistic type (unless amber shapes were coded), but its presence was recorded in 43 graves, which would have linked nearly half the seriated graves merely on the grounds of its presence or absence. Had the monochrome and polychrome beads been coded at this level, they would have occurred in over 45 and 31 graves respectively. Clearly, the beads would have to be coded in some other way, by grouping them in reasonably broad groups.

It was believed that results of similar quality to single link cluster analysis or frequency based correspondence analysis could be obtained at Mucking by using the bead strings that had been grouped according to broad percentages of bead types, ie whether primarily glass or amber, and if glass beads predominated, by the most common colour, and then by the relative frequencies of monochrome or polychrome beads (Hirst and Clark forthcoming, b). The beadstrings in Mucking I were added to these groups (Table Appendix 8/1). At Mucking, beadstrings (or merely beads) were present in 65 graves, ie in two thirds of the graves coded for the female seriation. As this might have led to overlinking of graves, thus obscuring the chronological information provided by the beads, and because very small bead strings might possess misleading relative percentages of types and colours, it was decided to exclude bead strings of fewer than 10 beads, leaving only 40 bead strings. Where strings were included, however, the use of relative frequencies of bead types within a bead string meant that the problem of introducing absolute number of beads (which could clearly be linked to status or age differentials) into the seriation, was avoided.

Linking across functional classes
Provision for the cross-cutting of classifications was made for the analysis of bracelets and anklets at Halstatt (Hodson 1990, 21-2), but this option is not normally available when using the ‘Seriate’ program. Functional classes (eg brooches or pins) were the primary factor in coding the data but certain artefacts could fall into two or more functional classes, but were clearly chronologically related as they displayed similar

---

12 In Mucking II, monochrome beads formed 67% of the beads, followed by amber at 17% and polychromes at 9% (Hirst and Clark forthcoming, b). This was not the case at Mucking I, where amber predominated (57%) followed by monochrome beads (28%), with only 7% polychrome beads.
ornament. The brooches provided the most numerous examples of artefacts grouped by art motifs. It was therefore decided that the chronological similarity of any artefact that displayed an art style similar to that of a brooch, but which did not fall into this functional group, would be accounted for by cross-referencing the brooch art style coding with the grave coding of the non-brooch artefact.

For example, the garnet-inlaid buckle of Grave 281 in Mucking II can be linked to the Series II and III small square-headed brooches. Leigh (1980, 498-9) estimates that, judging by the subtleties of style and technique of relief carving, the same individual craftsman was responsible for several of the Series II and III brooches, as well as the garnet inlaid Style I buckles. As Grave 281 already contained button brooches that were in the Style I group, coding to link this buckle to Style I was not necessary. Equal-arm brooches display great similarity in form to supporting-arm brooches with trapezoid feet (Böhme 1974, 18; Evison 1977, 130). To reflect this, the code for brooches with late Roman motifs (encompassing the equal-arm brooches) was added to the coding for Grave 987, which contained a supporting-arm brooch. At Lechlade, the linking of art motifs amongst the saucer brooches at the level of stylistic variety was carried out by adding the code of a stylistically linked brooch to the grave coding.

**Reused artefact types**

Some graves contained reused types. In order to minimise any possible chronological distortion, the secondary use was recorded.13 Romano-British coins (usually worn as pendants), as well as Romano-British or Iron Age artefacts (themselves coin-dated), were not included, as they must clearly have been collected for amuletic or curiosity value.14 In practice these items comprised a very miscellaneous collection of broken brooches, often in bags, but primarily found in grave fills. All material was excluded if it was fragmentary, such as annular/penannular brooches at Lechlade, as was all material found in grave fills. Coin-dated artefact types that appeared to be late fourth-century were, however, included; nearly all known examples (at Mucking) were complete, and apparently functional.

---

13 For example, finger rings used as part of bead strings were counted as pendants, as were some possible spindlewhorls of crystal which, when found around the neck, suggested their use as beads. When identifiable artefacts, such as pins, beads or brooches, are found in bag collections they were used to indicate the presence of bags, and were also counted under their own classes.

14 Most Roman coins in Migration Period graves are third or fourth century in date (White 1988, 98; Rigold 1988, 218; King 1988, 224).
APPENDIX 9. THE CODING OF MATERIAL AT LECHLADE FOR SERIATION

Round brackets indicate that this data is not used in the seriation as there was only one example, and square brackets indicate that the program omitted the coding data.

01000 Amulets
Only those objects that could not be placed under another functional class were counted as amulets, as many types, such as beads, keys, relic boxes, finger rings, slip-knot rings, scutiform and pelta shaped pendants, for example can all be counted as being amuletic (Meaney 1981). The beaver, canine and boars teeth are counted under pendants because they usually are used as such in other cemeteries.

(01100) Fossil shells
This type is rejected because of the confusion with shell and difficulty of distinguishing it from pendants. Graves 164, 165

(01200) Shell
Rejected because of survival problems
Grave 137

01500 Cowries
These cowries were counted separately from the beads, as they are not pierced.
Graves 33, 14, 71, 138

02000 Bags and portable containers
These have been divided from other containers because they were worn as part of dress. They do not lend themselves to a hierarchical classification, and consist only of stylistic families, apart from pursesmounts.

02100 Ivory and iron bag rings, bag collections
These are amalgamated as they are all components or the remains of bags.
Graves 18, 43, 48, 54, 56, 81/1, 790, 123, 145/2, 159, 164, 185

nb the antler disc Grave 76 which can be either a bag or chatelaine cannot be included in either category

02200 Chatelaines
Graves 42, 76?, 78?, 138

(02300) Pursesmount

(02310) Pursesmount
Plain iron variety with looped ends (Brown 1977, 470)
Grave 71
(02400) Workboxes
Grave 14

03000 Beads

(03100) Glass

(03111) Monochrome
There were many stylistic varieties of monochrome beads (eg blue monochrome beads) but few examples in each of these. The beads could have been grouped according to their associations in graves but this analysis was considered unnecessary given the relatively small numbers of monochrome beads in this cemetery.

03113 'Metal-in-glass'
Graves 10, 18, 41, 81/1, 81/3, 81/4, 90, 136, 163

03120 Polychrome

03121 Marbled (P10)
Graves 77, 164

03122 Double crossing wave and dot and double crossing waves (P4, 5 [all tightly crossed], 8a, b). These were amalgamated because of the similarity in design.
Graves 25, 77, 78, 86, 101, 130, 164, 187, 197

03123 Spiral trail (P2)
Graves 25, 36/2, 41, 130, 142, 160

03124 Spot decorated (P6)
Graves 17, 25, 101

(03126) Stripe (P1)
Grave 187

(03127) Wiredrawn, alternating double ogee trails (P3)
Grave 101

(03128) Wave decorated with trails (P7)
Grave 81/4

(03129) Reticella (P9)
Grave 180

(03200) Amber
These were excluded as they were found in over half of the seriated graves (55 in number).
Graves 1/1, 10, 11, 18, 25, 26, 30, 33/2. 33/3, 41, 45, 47, 48, 50, 52, 53, 56, 59, 78, 81/1, 81/3, 81/4, 86, 90, 97, 101, 119/2, 123, 124, 130, 131, 133, 136, 144, 157, 158, 159, 163, 164, 174, 176, 180, 184, 190, 197

(03300) Amethyst
Grave 172/2

(03400) Bone
These are rejected because of the problems of survival and difficulties of distinguishing from pendants.
Grave 184

03500 Copper alloy

(03510) Copper alloy, biconical wire
Grave 130

(03520) Copper alloy, re-used Iron Age penannular brooch fragment. This was excluded as it was re-used.
Grave 123

03600 Calcareous
Graves 10, 18, 49, 130, 144, 184

03700 Cowries
Graves 3.2, 148

03800 Crystal
Graves 18, 59, 78, 159

(03900) Beads in other materials
Beads were not coded at this level as this would have been misleading.

(03910) Faience
These are probably all reused Romano-British beads, therefore these were not used.
Graves 11, 33/2, 78, 172/2

03920 Lead
Graves 17, 184

(03930) Shell
This is rejected because of the difficulties of survival.
Grave 67

(03940) Shale
These were not used because they are Romano-British.
Graves 55, 77

03950 Silver beads

(03951) Silver biconical wire
Grave 3

(03952) Silver hollow
Grave 172/2

524
(03960) Silver gilt tubes
Grave 18

(04000) Bells
Grave 148

(05000) Brooches

05100 Disc brooches
Graves 1.1, 13, 41, 56, 77, 80/1, 81/1, 123, 146, 163, 184

05100 Hybrid applied or disc
Grave 146

(05110) Disc, incised concentric circles and arcs (Group 3, Dickinson 1976, 124-6, pl 31-2)
Grave 163

(05111) Disc, incised concentric circles and arcs, incised central concentric circle with nicked edges (Group 3.2, ibid 1976, 125, pl 32)
Grave 163

05120 Disc, central or sole ornament of quincunx of bull's eyes or dots (Group 4, ibid 1976, 126-9, fig 33-4)
Graves 1, 13, 56, 77, 80/1, 81/1, 123, 184

(05121) Disc, central or sole ornament of quincunx of bull's eyes or dots, quincunx of deeply punched dots (Group 4.2, ibid 1976, 126, pl 33)
Grave 80/1

05122 Disc, central or sole ornament of quincunx of bull's eyes or dots, quincunx of single or double bull's eyes (Group 4.2, ibid 1976, 126, pl 33)
Graves 1, 13, 56, 77, 123

05123 Disc, central or sole ornament of quincunx of bull's eyes or dots, border of stamped annulets (Dickinson Type 4.4, 1976, 127, pl 31ci)
Graves 81/1, 184

(05130) Disc, central and surrounding bull's eyes (five and over) (Group 5, ibid 1976, 129-30, pl 35)
Grave 41

(05131) Disc, central and surrounding bull's eyes (five and over) with stamped border (Group 5.1, ibid 1976, 129, pl 35)
Grave 41

(Graves 97.2, 160 are Romano-British or sub-Roman and discounted)
(05200) **Penannular brooches**

(05200) Fragmentary, possibly annular and so excluded
Graves 128, 169, 176

[05210] Penannular, Type Cb (Fowler 1960; 1963)
Graves 134, 142, 167/2

(05220) Penannular, Type D1 (Fowler 1960; 1963)
Graves 81/3

(05230) Penannular, Type Aa (Fowler 1960; 1963)
Graves 81/3 (reused or repaired)

05300 **Saucer brooches, applied**
Graves 56 (.1 and .2), 90, 97.4, 101, 133, 152

05300
The following are fragmentary, without clear decorative motifs:
Graves 56 (.1 and .2), 97.4, 101, 133, 152

(05310) Applied, Style I, button brooch-like mask surrounded by three rings
Grave 90

05400 **Saucer brooches, cast**
Graves 10, 11, 18, 91, 25, 45, 47, 50, 59, 78, 81/4, 86, 111, 130, 133, 144, 159, 164

(05410) Saucer, Style I
Graves 10, 18, 45, 47, 111, 130, 159

05411 Saucer, Style I, leg motif
Graves 47, 159

(05412) Saucer, Style I, quadrupeds with 'Vimose' heads
Grave 111

05413 Saucer, Style I, leg and body elements surround field of geometric decoration
Graves 10 (18 this is included as it related to the star motif), 130

20105 Saucer, Style I, leg and body elements surround a field of geometric decoration, five-point star with double outline (Dickinson 1976, Group 4.1, 69, pl 8, and Group 4.3, 70, pl 9b)
Graves 10, 130

[05414] Saucer, Style I, inner simple leg swastika outer panel of radial bars, Group 2.3 (Dickinson 1976, 63, pl 6)
Grave 45

(05415) Saucer, Style I, hexafoil motif
Grave 18
05420 Saucer, similar to Kentish garnet inlaid disc  
Graves 11, 50, 78, 144

(05421) Saucer, similar to Kentish garnet inlaid disc (old Group 11.1, Dickinson 1976, 85, pl 15a)  
Grave 11

05422 Saucer, similar to Kentish garnet inlaid disc, three animals  
Graves 50, 78

(05423) Saucer, similar to Kentish garnet inlaid disc, axial arrangement based on three or four divisions, garnet setting, basketwork (Groups 16.3-5, ibid 1976, 95-7, pl 20-1)  
Grave 144

(05430) Saucer, versions of late RB designs  
Graves 19, 25, 59, 81/4, 86, 133, 164

(05431) Saucer, version of late RB designs, radial bar and/or astragal motifs (Group 15.1, Dickinson 1976, 93, pl 19 d-e)  
Grave 19

05432 Saucer, version of late RB designs, five-point stars  
Graves 25, 81/4, 133, 159 (10, 130 are also related to other Style I star motif brooches)

(20112) Saucer, version of late RB designs, five-point stars, with incised star and radial-bar border  
Grave 25

(20113) Saucer, version of late RB designs, five-point stars, with plain flange, star tips break surrounding frame  
Grave 81/4

(20114) Saucer, version of late RB designs, five-point stars with stamped border, free standing star. Group 4.1 (Dickinson 1976, 69, pl 8)  
Grave 133

05433 Saucer, version of late RB designs, five-running spiral  
Graves 59, 86, 164

(20115) Saucer, late RB designs, five-running spiral Series II.C  
Grave 59

(20116) Saucer, late RB designs, five-running spiral, elongated scrollwork. Series II.B5  
Grave 86

(20117) Saucer, late RB designs, six-running C scrolls. Series II.D3  
Grave 164

05500 Small-long brooch  
Graves 33/2, 174

05510 Small-long, square-headed

(05511) Small-long, square-headed, with triangular foot  

(20118) Small-long, square-headed, with triangular foot (Group 1.1.2, ibid 1976, 176, pl 48-9)
Grave 33/2

(05512) Small-long, square-headed, lozenge-shaped footplate

(20119) Small-long, square-headed, lozenge-shaped footplate, Group 1.2.4 (ibid 1976, pl 50.e)
Grave 174

(05600) Button brooch
Button brooch, Class III (Avent and Evison 1982)
Grave 123

(05700) ‘Face-mask’ brooches
Grave 136

05800 Square-headed /small-long brooches
The great square-headed brooch was combined with the small-long brooches because of typological similarity.
Graves 18, 33/2, 174

(05810) Great square-headed
Group I (Hines 1984)
Grave 18

(05900) Other brooches
Brooches were not grouped at this level as this would be misleading.

05910 Kentish disc brooch, combined with saucer brooches derived from Kentish garnet inlaid discs
Graves 11, 17, 19, 78, 144

(05911) Kentish disc brooch
Unclassified (Avent 1975)
Grave 17

(05920) ?Horse harness re-used as a shoulder ornament
Grave 180

(05930) Romano-British brooches
These were not used because of their Roman date of manufacture.
Graves 97.2, 152.1, 160, 169, 185

06000 Buckles and belt fittings

(06000) Unclear shape
Graves 20, 174

06100 ‘D’-shaped loops
Graves 18, 47, 133, 165
06200 Kidney-shaped loops
Grave 25

(06210) Kidney-shaped loop with nicked edges
Grave 48

06300 Oval loops
Graves 42, 71, 81/1, 81/4.8, 86, 130, 152, 159?, 180

(06310) Inlaid iron, oval loop
Grave 184

06400 Round loops
Graves 10, 41, 42, 47, 59, 81/4.7, 111, 127, 184

(06500) Stamped and nicked
This has been given its own family, and not stylistic type, which it should be, because the form is unknown
Grave 18

07000 Combs
This group is disregarded because of the survival problems, but can be classified by West (1985, 127-8).

(07100) Type 1A
Grave 62

(07200) Type 2A
Grave 145/2

(07210) Type 2Ai
Grave 18, 81/4

08000 Containers

(08100) Buckets

08110 Bucket, iron-bound
Graves 103, 148, 200

(08111) Possible bucket, iron-bound
Grave 84

(08120) Bucket, copper-alloy bound
Grave 11

(08200) Pots
Graves 15 (not certainly a grave good), 22 (from fill)

(08210) Pot, calcareous fabric, globular form, not made by the same potter
Graves 13, 63
These were excluded from the seriation as they do not appear to be chronologically diagnostic.

[08300] Wooden boxes
Graves 14, 107/1
These were excluded by the program.

(08400) Copper alloy vessels

(08410) Perlrandbecker (Bead rim bowl)
Grave 11

(08500) Turned wooden vessels
These suffer from problems of differential survival and cannot normally be traced unless they were repaired using metal clips, and so were disregarded.
Graves 71?, 146, 173

(08600) Wooden and leather containers
These suffer from problems of poor survival and cannot normally be traced unless they were repaired.
Grave 18

09000 Decorative items

09200 Spangles
The example in Grave 133 was found on a toilet set, and that in 81/3 is found as part of a necklace.
Graves 81/3, 133

10000 Finger rings

(10100) Expanding

(10110) Expanding, copper alloy
Grave 52

10120 Expanding, silver
The decoration on these varies, but as the designs are relatively simple, they were not subdivided.
Graves 18 (3), 130, 144
(10200) Closed

10210 Closed, silver
Graves 78, 152

(10220) Closed, copper alloy
Grave 169

(11000) Garnets
Grave 71

12000 Keys
(12000) Unclear shape
Graves 33/3, 62, 130, 179.5

12100 Slide keys
Graves 10, 14, 76, 103, 179

(12110) 'F'-shaped
Grave 14

12120 Latchlifters
Graves 76, 103, 179.4

(12130) 'T'-shaped
Grave 10

12200 Padlocks
Graves 10, 18, 33/3, 56, 78, 81/1, 97, 136, 184

13000 Knives
(13000) Miscellaneous (unclear shape)

13100 Böhner type A / Dover Type 1
Graves 18, 22, 142, 747, 60, 111, 184

13200 Böhner Type B / Dover Type 2
Graves 82, 127, 133, 136, 170, 174

13300 Böhner Type C / Dover Type 3
Graves 36/2, 55, 70, 776, 81/1, 145/2, 147, 152, 197

14000 Pendants
(14100) Metal
Graves 1.5 (ring), 18.14 (copper alloy oval with wire), 148 (silver fragments), 163.3 (reused copper alloy belt fitting), 163.14 (copper alloy fragments)

(14110) Birds head plaque (reused from a mount or purse mount)
Grave 123

(14120) Cross, silver
Grave 187

14130 Scutiform/disc simple

(14131) Scutiform/disc, plain
Grave 81/4 (two pierced holes)

(14132) Scutiform/disc, plain, with radiate design
Grave 18

14133 Scutiform/disc, composite gold and garnet
Graves 84, 95/1, 179

14140 Finger ring form

(14141) Expanding, copper alloy
Graves 180

(14142) Closed, silver
Grave 14

(14150) Imitation sceat
Grave 179

(14160) Mushroom/pelta shaped
Grave 89/2

(14170) Bucket shaped (silver)
Grave 14

(14200) Garnet
Grave 172/2

14300 Glass

(14310) Glass, with lattice
Grave 84

(14320) Glass plain
Grave 148

(14400) Bone

(14410) Thunor's Club
Grave 133

[14500] Teeth
These were excluded by the program

(14510) Teeth, boar
Grave 171

(14520) Teeth, canine
Grave 78

14530 Teeth, beaver
Graves 14, 18

14600 Slip-knot rings
Several examples were too fragmentary to decide on the type of knot.
Graves 17, 84, 95/1

14610 Slip-knot rings, tight
Graves 1, 138, 145/2, 148, 172/2, 177, 179, 184, 187

(14620) Slip-knot rings, loose
Grave 144

(14700) Shell
Grave 33.1

15000 Pins
Not counted at this level

(15100) Bone
These were not used because they appear to be linked more to juveniles than to chronology.
Graves 13, 81/3, 128, 134, 142

(15200) Flat sheet expanded headed, Type VX (Ross 1992)
Graves 10.3, 11, 33/2, 33/3, 81/1, 123, 159, 180

15210 Rolled/folded Type XVI
Graves 11, 81/1

15220 Coldworked/cast Type XVII
10.3, 33/2, 33/3, 123, 159, 180

15300 Coldworked iron rod
Graves 77, 90, 97, 144, 163, 164

(15310) Loopheaded, Type XVIII
Grave 77
15320 Hook headed, Type XVII
90, 97, 163?, 164

(15330) Crook headed, Type XIX
Grave 144

15400 Composite linked pins
Graves 14, 138

15410 Composite linked pins, sub-group LXIV.i
Grave 14, 138

[15500] Pierced, Type LI
Graves 62, 85

(15600) ?Ball-headed, Type LXX
Grave 42

(15700) Biconical headed, Type LXVIII
Grave 145/2.6

(15800) Biconical pin, Type V
Grave 160

(15900) Unclassifiable
These were not used

16000 Toilet articles

16100 Toilet sets
These consist of combinations of picks and/or a spatula, but were counted as one stylistic family.
Graves 18, 25, 41, 47, 59, 81/1, 111, 174

(16110) Twisted spatula
Grave 81/1

16200 Tweezers
These can form part of a toilet set, but can be found on their own, and in male graves in other cemeteries. It
was decided to count tweezers separately from toilet sets.
Graves 25, 42, 78, 152

16210 Romano-British tweezers
Grave 25, 42

(16220) Copper alloy tweezers, non-functional and miniature
Grave 152
(16230) Fe tweezers, full length
Grave 78

16300 Brush tubes
Graves 767, 78, 163

[16400] 'Scrapers'
The example in Grave 184 was found being used as a pendant, but many toilet sets were found on the neck or chest at Lechlade. Their function is not clear, but they have been included under toilet articles. These were excluded by the program.
Graves 166, 184

17000 Tools, general
These are not used because of the obviously functional purpose of these types.

(17100) Shears
Grave 14

(17200) Balance pan
Grave 134 (reused)

(17300) Chisel
Grave 54

18000 Tools, weaving

(18100) Spindlewhorls
Graves 18, 54, 66/1, 81/1, 89/2, 98, 107/1, 138, 150

18200 Weaving battens
Graves 95/1, 187

(18300) Weaving picks
Graves 54, 107/1

(18400) Woolcombers
Grave 14
19000 Miscellaneous

(19100) Altar stone
Grave 18.51 (This is Romano-British and was not therefore used), 43.3

(19200) Copper alloy
Graves 25 (.9), 30 (.1), 31 (.1), 47 (.10), 56 (.10), 59 (.6), 62 (.2), 63 (.1), 66/2 (.1), 67 (.1 and 2), 77 (.6), 77 (.15), 137 (.3), 150 (.1), 157 (.2), 160 (.1), 163 (.18), 169 (.3), 179 (.9), 180 (.2), 191 (.3)

(19300) Glass
Grave 17.6

(19400) Fe
Grave 18 (.13), 18 (.25), 18 (.28), 18 (.45), 18 (.46), 41 (.8b), 47 (.1 and .9), 56 (.3), 62 (.8), 81/3 (.9), 100 (.1), 138 (.13), 145/2 (.3 and 4), 148 (.15 rings), 157 (.1), 169 (.4), 159 (.9), 170 (.1), 171 (.2), 180 (.9), 185 (.1)

(19500) Flint
Grave 18.31

(19600) Rings
These could be amuletic or functional, primarily used for suspension. It was not always clear whether rings were in bags (and therefore more likely to be amuletic) or used for suspension, so they were excluded (Graves 100, 148, 159, 169, 185). Rings used for suspension were not counted in the seriation. Such rings can be the sole indicator of the presence of bags (in the absence of ivory bag rings for example).
Graves 18.34, 18.35, 18.36, 18.37, 18.41, 78 (.10, 11, 13 and 14), 81/1 (.13 and 14), 100, 123 (.7), 148, 159(6), 164.17, 169, 185

(19700) Romano-British coins
These were disregarded as they are Romano-British. These are normally used as pendants, but those in Grave 18 were not.
Graves 1/1, 18, 41, 81/3, 81/4, 86, 113, 132, 148, 184
<table>
<thead>
<tr>
<th>Page</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>05100  05120 05122 0</td>
</tr>
<tr>
<td>3</td>
<td>01500  03700 03950 0</td>
</tr>
<tr>
<td>10</td>
<td>03113  03600 05400 05410 05413 20105 05432 06400 12100 12200</td>
</tr>
<tr>
<td>15200</td>
<td>15220 0</td>
</tr>
<tr>
<td>11</td>
<td>05400  05420 05910 15200 15210</td>
</tr>
<tr>
<td>13</td>
<td>01500  05120 05122 08200 08210 0</td>
</tr>
<tr>
<td>14</td>
<td>01500  08300 12100 14140 14530 14610 15400 15410 0</td>
</tr>
<tr>
<td>17</td>
<td>01500  03124 03920 05910 14600 0</td>
</tr>
<tr>
<td>18</td>
<td>02100  03113 03600 03800 05400 05410 05413 05800 06100 10120</td>
</tr>
<tr>
<td>12200</td>
<td>13100 14130 14530 16100 0</td>
</tr>
<tr>
<td>19</td>
<td>05400  05430 0</td>
</tr>
<tr>
<td>22</td>
<td>13100 0</td>
</tr>
<tr>
<td>25</td>
<td>03122  03123 03124 05400 05432 06200 16100 16200 16210 0</td>
</tr>
<tr>
<td>33.2</td>
<td>05500  05510 05800 15200 15220 0</td>
</tr>
<tr>
<td>33.3</td>
<td>12200 15200 15220 0</td>
</tr>
<tr>
<td>36.2</td>
<td>03123 13300 0</td>
</tr>
<tr>
<td>41</td>
<td>03113  03123 05100 06400 16100 0</td>
</tr>
<tr>
<td>42</td>
<td>02200  06300 06400 16200 16210 0</td>
</tr>
<tr>
<td>43</td>
<td>02100 0</td>
</tr>
<tr>
<td>45</td>
<td>05400  05410 05414 0</td>
</tr>
<tr>
<td>47</td>
<td>05400  05410 05411 06100 06400 16100 0</td>
</tr>
<tr>
<td>48</td>
<td>02100  06200 0</td>
</tr>
<tr>
<td>49</td>
<td>03600 0</td>
</tr>
<tr>
<td>50</td>
<td>05400  05420 05422 05910 0</td>
</tr>
<tr>
<td>54</td>
<td>02100 0</td>
</tr>
<tr>
<td>56</td>
<td>02100  05100 05120 05122 05300 12200 0</td>
</tr>
<tr>
<td>59</td>
<td>03800  05400 05430 05433 06400 16100 0</td>
</tr>
<tr>
<td>60</td>
<td>13100 0</td>
</tr>
<tr>
<td>62</td>
<td>15500 0</td>
</tr>
<tr>
<td>63</td>
<td>08200  08210 0</td>
</tr>
<tr>
<td>67</td>
<td>16300 0</td>
</tr>
<tr>
<td>70</td>
<td>13300 0</td>
</tr>
<tr>
<td>71</td>
<td>06300 0</td>
</tr>
<tr>
<td>76</td>
<td>02200  12100 12120 0</td>
</tr>
<tr>
<td>77</td>
<td>03121  03122 05100 05120 05122 15300 0</td>
</tr>
<tr>
<td>78</td>
<td>02200  03122 03800 05400 05420 05422 05910 10210 12200 14500</td>
</tr>
<tr>
<td>16200</td>
<td>16300 0</td>
</tr>
<tr>
<td>80.1</td>
<td>05100  05120 0</td>
</tr>
<tr>
<td>81.1</td>
<td>02100  03113 05100 05120 05123 06300 12200 15200 15210 16100 0</td>
</tr>
<tr>
<td>81.3</td>
<td>03113 10200 0</td>
</tr>
<tr>
<td>81.4</td>
<td>03113  03120 05400 05430 05432 06300 06400 14130 0</td>
</tr>
<tr>
<td>82</td>
<td>0</td>
</tr>
<tr>
<td>84</td>
<td>08110  14133 14300 14600 0</td>
</tr>
<tr>
<td>85</td>
<td>15500 0</td>
</tr>
<tr>
<td>86</td>
<td>03122  05400 05430 05433 06300 0</td>
</tr>
<tr>
<td>90</td>
<td>02100  03113 05300 15300 15320 0</td>
</tr>
<tr>
<td>95.1</td>
<td>14133 14600 18200 0</td>
</tr>
<tr>
<td>97</td>
<td>05300  12200 15300 15320 0</td>
</tr>
<tr>
<td>101</td>
<td>03120  03122 03124 05300 0</td>
</tr>
<tr>
<td>103</td>
<td>08110  12100 12120 0</td>
</tr>
<tr>
<td>107.1</td>
<td>08300 0</td>
</tr>
<tr>
<td>111</td>
<td>05400  05410 06400 13100 16100 0</td>
</tr>
<tr>
<td>123</td>
<td>02100  03500 05100 05120 05122 15200 15220 0</td>
</tr>
<tr>
<td>127</td>
<td>06400 0</td>
</tr>
<tr>
<td>130</td>
<td>03122  03123 03500 03600 05400 05410 05413 20105 05432 06300</td>
</tr>
<tr>
<td>10120</td>
<td>0</td>
</tr>
<tr>
<td>133</td>
<td>05300  05400 05430 05432 06100 09200 13200 0</td>
</tr>
<tr>
<td>134</td>
<td>05210 0</td>
</tr>
<tr>
<td>136</td>
<td>03113 12200 13200 0</td>
</tr>
<tr>
<td>138</td>
<td>01500  02200 14610 15400 15410 0</td>
</tr>
</tbody>
</table>
APPENDIX 10. THE FEMALE SERIATION PRINTOUT OF THE LECHLADE DATA

There were 83 units
Scored on 75 variables

Take data from file "c:\dido\iastats\data\reverse2.dat" (filtered through seriset)
Take names from file "stdin"
Delete all contexts/types with fewer than 2 occurrence(s)
Do Correspondence Analysis (and print scores)
Do improve with 8-position search, using Doran criterion
Sort contexts & types for leading slope
Print results for both orders
Print matrix only

***** Deleting
Contexts:
107.1  127  134  142  146  147
160  165  166  167.2  169  170  171
185  200  22  43  49  54  55
60  62  67  70  71  82  85
****** correspondence Analysis (120 iterations)
Context scores:
148     0.00     145.2  55.03  11  72.68  159  76.13  163  78.46
 3    1.19     144  65.73  25  73.40  19  76.21  77  79.54
 84     4.55     42  67.04 152  74.16  59  76.37  81.3  79.59
103     8.21     197  67.08  18  74.17  33.3  76.72  123  79.75
172.2  10.67     180  68.42  130  74.44  47  76.84  56  79.97
179     15.32     36.2  69.06  81.4  74.84  81.1  77.57  33.2  80.15
 95.1  20.76     184  69.22  86  74.91  41  77.68  174  81.34
 76     24.85     101  69.58 164  75.35  97  77.71  80.1  82.21
138     5.20     78  69.71  111  75.81  90  77.78  1.1  83.18
 14    29.28     50  70.11  45  75.81  133  77.88  13  89.51
 17    46.13      10  71.22  48  76.12  136  78.27  63  99.00
187     48.21

Type scores:
03700  0.00     14140  51.01  10210  75.41  06200  78.40  03500  80.86
14300  1.77     14530  54.05  20105  76.35  05410  78.56  15320  81.15
08110  3.86     03920  60.34  06300  76.50  12200  78.60  03121  81.33
03950  5.64     03124  66.00  13100  76.60  15210  78.78  13200  81.50
14133  13.69     13300  66.73  05413  76.82  15200  79.00  05800  82.41
12120  16.42  05910  67.95  05123  76.95  15220  79.07  09200  82.60
01500  26.48     03120  70.24  06400  77.20  05430  79.27  05100  83.63
15410  26.58  05420  72.90  03123  77.22  05433  79.29  05120  84.06
15400  28.58  05422  73.27  05400  77.58  15300  79.49  05510  84.72
12100  30.84  16210  73.59  16300  77.69  05300  79.90  05500  84.72
14610  32.89  03122  73.65  03800  77.69  06100  80.02  05122  86.46
14600  35.62  03600  74.37  14130  78.13  05411  80.22  08200  99.00
18200  35.82  16200  74.50  05432  78.28  03113  80.36  08210  99.00
02200  48.95  10120  74.89  02100  78.30  16100  80.39

***** Improve
***** Sort (forward)
***** Sort (reverse)

Doran scores:
Initially: 2120
After CA: 1063
After improve: 891
After sort (forward): 556
After sort (reverse): 901
82 82 ······
83 85 ·····?.

00000111
33558456
79243554
05110000
00040000

539

544
APPENDIX 11. THE CODING OF MATERIAL AT MUCKING FOR THE FEMALE SERIATION

(01000) Amulets

(01100) manufactured
Grave 962

(01200) shell (sea anemone)
Grave 584A (in fill)

(02000) Beads
Beads were not counted at this level.

02100 primarily glass, predominantly blue beadstrings, primarily monochrome
Graves 93, 355, 548, 550, 566A, 637, 648, 649, 843, 936

02200 primarily glass, predominantly purple and mixed colour beadstrings, primarily monochrome (polychrome beads consist of less than 23%)
Graves 90, 99, 334, 397, 548, 610, 615, 845, 860

02300 primarily glass, varied colour, primarily monochrome, predominantly miniature beadstrings
Graves 351, 785, 874, 960B

02400 primarily glass, varied colours, polychrome and monochrome beadstrings
Graves 924B, 989

02500 primarily glass, primarily red, white or yellow, polychrome and monochrome (over a fifth of the glass beads are polychrome)
Graves 116, 608, 621, 846, 914, 962

02600 predominantly amber or gold-in-glass beadstrings
Graves 256, 283, 633, 650, 690B, 778, 871, 997

02700 mixed amber/glass
Grave 123A

02800 reused spindlewhorls, glass
Two were all on bead strings (351, 924B), but were not found with beads in Graves 842 and 998, but were found in the chest area, so are counted as such.
Graves 351, 842, 924B, 998

02810 spindlewhorls, glass, wire-drawn spiral trails
Graves 351, 842, 924B

(02820) spindlewhorls, glass, blue
Grave 998
(03000) Bags and portable containers

(03100) bags
These were not counted, as they were functional.

03200 pursemounts
Graves 99, 341, 843

(03210) Krefeld type, inlaid bird’s head terminal (Brown 1977a)
Grave 341

(03220) Portchester type, inlaid bird’s head terminal (Brown 1977a)
Grave 843

(03230) horseheaded type (Brown 1977a)
Grave 99

(04000) Brooches

Miscellaneous
Grave 116 (brooch spring only)

04100 Brooches in the form of a plain crossbow
Graves 100, 987, 989
This group includes the Glaston-Mucking type (Hills et al 1994, 19-21) in Grave 989/2, the supporting-arm brooches in Graves 987/2, with a Mahndorf/Perlberg type (Evison 1977) in Grave 987/2, and the small unusual bow brooch 989/3, and the Armbrustfibel in Grave 100.

04110 plain foot plates and headplates
Graves 100, 987, 989/2, 989/3

04111 facetted and/or ribbed
Graves 100, 987, 989/2, 989/3

04200 Brooches with late Roman motifs
Graves 90, 249, 355, 548, 585, 637/1, 637/2, 884, 925, 970, 975, 983, 985, 992

04210 equal-arm brooches
Graves 90, 637/1, 983
(04211) equal-arm brooches, Sahlenburg type, relief cast (Böhme 1974, Abb 36.16; Evison 1977)
Grave 90

04212 equal-arm, non relief cast, made by same craftsman?
Grave 637/1 is classified by Evison (1977) as a Nesse type, and 983 as Dösemooe type

04220 applied, with late Roman-derived motifs
Graves 249, 355, 585, 884, 925, 970, 975, 985, 992

(04221) applied, Muids Type, ie backward-looking animals (Böhme 1986, Abb 66)
Grave 585 (not 589, where found due to animal disturbance)

04222 applied, six-point star (Welch 1975)
Graves 925, 970, 975

Graves 884, 985, 992

(04224) applied, 10-spiral type
This is similar to the running spirals on the equal-arm brooch in Grave 90
Grave 355

(04225) applied, Spong Hill Type
Grave 249

(04230) Quoit Brooch Style, quoit brooch
Grave 548

(04231) quoit brooch, related to Quoit Brooch Style, Type D1 (Ager 1985)
Grave 637/2

04300 Small-long and cruciform brooches, without lappets
Graves 93, 323, 336/1, 374, 397, 579, 584A/1, 584A/2, 634, 825A, 860, 878, 987 (940 not included as disturbed)

04310 small-long, cross headed, plain, faceted, with narrow footplates
Graves 93, 397, 584A/2, 634
This stylistic variety includes the Borgstedt-Rothwell, Bordesholm-Haslingfield, and Liebenau-West Stow Types (Böhme 1986, 554-7, Abb 72).

04320 small-long, cross headed, spatulate feet
Graves 323, 336/1

04330 small-long, square-headed, unstamped
This sub-group is ribbed and faceted (it included headplates and footplates of different shapes)
Graves 374, 584A/1, 860

(04340) small-long, trefoil head
Grave 987/3
04350 cruciform and cruciform/small-long hybrids made by same craftsman?
These include brooches of Mortimer Type B (1990) and Type B1.
Graves 579, 825A, 878

(04351) cruciform brooches
Graves 825A, 878

04400 Brooches in Style I or related zoomorphic or anthropomorphic (facemask) motifs
Graves 90/1 and /2, 92, 99, 102, 281, 546, 550, 552, 615, 639, 690B, 767, 814, 843, 906, 936

(04410) saucer, Style I
Grave 615

(04411) saucer, 6-running leg motifs, zoomorphic Style I
Grave 615

04420 button
Graves 90/1 and /2, 99, 281, 546, 550, 690B, 814

04421 motif secondary to Scandinavian mask designs
Graves 90, 99, 281, 546, 550, 690B
This includes: Type Bi in Grave 281, Type Di in Grave 90/1, Type Ei in Graves 99, 690B, Type II in Grave 546, Type Jii in Grave 550.

(04422) motif similar to Scandinavian mask design
Type Ai (Avent and Evison 1982)
Grave 814

(04423) button, type uncertain
Grave 90/2

04430 small square-headed (Kentish), Style I
Graves 99, 102, 814, 843, 906, 936

04431 small square-headed, Leigh (1980) Series II (simpler Kentish silver gilded brooches)
Graves 814, 843

04432 small square-headed, Leigh (1980) Series III (copper alloy brooches)
Graves 99, 102, 936

small square-headed, not in Style I, but related in form to small square-headed brooches
(04433) small square-headed, crude type
Grave 906

04450 reused horse harness, Style I
Reused horse harness, lozenge-shaped, identical mask design, probably made by identical craftsman.
The fittings in Grave 639 are not re-fitted as brooches, unlike those in Grave 767 but were judged by their positions to denote decorative fittings in the chest area.
Graves 639, 767

04451 reused pendant, made by same craftsman
Graves 639 and 767

(04460) cruciform, with zoomorphic lappets in Style I, Mortimer Type D5c (1990)
Grave 92

(04470) lozenge-shaped plate, with ring-and-dot representing garnet inlay
Grave 552

04500 Disc and saucer brooches with simple ?late Roman motifs
Graves 108, 123A, 252, 322, 334, 341 (re-used, see spangles), 451, 533, 540, 576, 610, 622, 624, 639, 784, 845, 906

04510 saucer
Graves 622, 639

04511 saucer, running spiral motifs (six- and seven-running)
Graves 622, 639

04520 disc brooches
Graves 108, 123A, 252, 322, 334, 341 (re-used, see spangles), 451, 533, 540, 576, 610, 624, 784, 845, 906
Typology based on Dickinson (1976 and 1979).

Dots, circles and concentric circles (Graves 322/2, 624), random ring-and-dot (Grave 533), plain, with or without notches (Graves 576 and 784), quincunx (Graves 108, 123A, 252, 451, 540, 906), triple dot-in-triangle, and ring-and-dot (Graves 334, 610), concentric circles (Grave 845), arc stamps (Grave 341).

04600 applied
applied, unknown motifs
Graves 622, 778, 878, 924B, 964, 983, 998

04700 small-long brooches, with lappets (some of which are zoomorphic)
Graves 336/2, 448, 529, 537, 648, 649, 842

04710 small-long, with zoomorphic lappets
Graves 529, 842 (940 not included as due to animal disturbance)

(04720) small-long, ?zoomorphic, cross-pattée derivative, with lappets
Grave 336/2

04730 small-long, square-headed, with round or spatulate lappets
Graves 448 and 648

04740 cross-headed, round lappets, with ring-and-dot
Graves 537, 649

04800 Brooches, penannular
These include: Type Ca (White 1988) in Graves 944/7, 967, 1000, Type Cb (White 1988) in Grave 875, Type G1.6 (Dickinson 1982) in Grave 992, Type G1.8 (Dickinson 1982) in Grave 860, Fowler’s Type E (1960; 1963) in Grave 249, and an unknown type in Grave 874.

04900 Plain ring brooches
Graves 246, 351, 355, 397, 610, 624, 634, 649, 944

This includes narrow annular and quoit brooches that have no or little decoration.

These include: narrow band annular brooches in Type F (Leeds 1945; Ager 1985) in Grave 944, and Type G (Leeds 1945; Ager 1985) in Graves 397 and 634.

The smaller variants of the quoit brooches include those of Ager’s Type E1 (1985), ie Graves 246, 351, 355, 610, 624, 649

(05000) Buckles and belt fittings
The general category was not used
Shape uncertain
Grave 846

05100 D-shaped loops (without without plates), plain or nearly plain
Iron and copper alloy (18 graves)
Graves 100, 108 (+small rectangular plate), 246, 334, 351, 374, 552 (+plate), 579, 584A (+plate), 633 (+plate), 650, 767, 871 (ca), 878, 884, 998

05200 ribbed/inlaid, various loop shapes
These are iron and copper alloy and nearly all kidney-shaped unless indicated, so all the kidney-shaped buckles are included in this group.
Graves 249, 334 (oval), 341 (from purse-mount), 637, 648, 842, 906, 992

05210 Buckles, ribbed/inlaid
Graves 249, 334, 341, 842, 906

05211 ribbed/inlaid, with plates bearing inlaid ring-and-dot decoration
Graves 334, 906

05300 oval loops, plain
These are iron and copper alloy
Graves 283, 553, 639

05400 circular loops, plain
Iron and copper alloy
Graves 250, 252, 340
05500 Buckles, cingulae

The wide buckle in Grave 989 of Hawkes and Dunning Type IIA (1961) and the D-sectioned tubes in Graves 637 and 842 were not counted in the seriation as these appear to be part of cingulae originally worn by males.

In Grave 987 was a White Group A2a three-piece buckle (1988), Hawkes and Dunning Type IB (1961), a type found with females in late fourth-contexts.

(05500) Type IB buckle
Grave 987

05600 Buckles, heavy cast, bevelled
Graves 116, 281, 778

(05610) heavy cast, tongue not constricted, with garnet inlaid plate, Style I
Grave 281

(05630) heavy cast, tongue missing, with shoe-shaped rivets
Grave 116

05700 heart-shaped plates
Graves 448, 566A, 576

(05800) D-shaped loop, rounded plates with bead-and-reel motif, border and central strip with additional dot-and-circle motifs
Grave 649

Buckles, unknown shape
These were not used as the shape is unknown
Graves 537, 843, 846 (D or oval)

(06000) Bracelets
The bracelets were not counted at this level.
Graves 252, 553, 613/2, 613/3, 631/4, 875, 878

(06100) late Roman derived motifs
Grave 875

(06200) Quoit Brooch Style
Grave 631/4

06300, wire-drawn or plain
Graves 250, 631/2 and /3, 553, 878
(07000) Combs
This category was not used due to preservation problems.
Graves 99, 915

(08000) Containers
The general category was not used.
Graves 92, 99, 100, 102, 246, 249, 340, 351, 448, 451, 553, 585, 610 (Romano-British, not counted),
621, 649, 690B, 784, 843, 860, 878, 884, 906, 924, 944, 967, 970, 975, 989, 992, 998

08100 Containers, stave-built
Graves 246, 553, and 998

08110 Containers, stave-built, stoup or bucket
Graves 246, 553, and 998

08111 Containers, stave-built, stoup or bucket, Frankish or related to Frankish motifs
Graves 246, 553, and 998

(08200) Containers, pots
The pots were not counted at this level, as a general group they do not seem to be of chronological
significance.
Graves 102, 351, 585, 610 (Romano-British, not counted), 784, 860, 878, 967, 970, 975, 989
These included grass-tempered fabrics (1, 2, 3B)
Graves 784, 967
sandy fabrics (1, 3, 4)
Graves 351, 860, 878, 975, 989
other fabrics
Graves 102, 585, 970

(08300) Containers, wooden boxes
Grave 621
Other possible box fittings were less securely identified, and have not been counted, but placed under
copper alloy fittings
[546, 552, 583]

(08400) Containers, turned wooden
These were not counted due to decomposition problems.
Graves 100, 249, 340, 448, 451, 585, 649, 690B, 884, 906, 944

(08500) Containers, lead
Grave 994

(08600) Containers, glass
The glass vessels were not counted at this level, as they all vary considerably.
Graves 92, 99, 843, 924, 992

(08610) Claw beaker, unique
Grave 843

(08621) Claw beaker, Type 3c
Grave 92

(08622) Bowl
Grave 99

(08623) Cone
Grave 992

(08624) Kempston type cone
Grave 924B

(09000) Decorative

(09100) Decorative, spangles
These examples were not included as they were not Klapperschmuck proper. They include the examples in Graves 341 (on pursemount, one re-used disc brooch), Grave 552 (RB coin used as spangle on toilet set), and Grave 784/3 (on neck).

(10000) Finger rings
General category not used
Graves 99, 283, 609, 610, 615, 690B, 875 and 992
The typology is based on Fisher (1979).

10100 expanding, overlapping and spiral
Graves 99, 283, 609, 610, 615, 690B

10110 expanding, overlapping and spiral, silver
Graves 99, 283, 609, 615, 690B

10120 (expanding, overlapping and spiral, copper alloy
Grave 610
10200 solid
Graves 875, 992

10210 solid, Roman ornamental motifs
Graves 875, 992

10211 solid, Roman ornamental motifs, with bezel
Graves 875, 992

(12000) Keys
Keys were not counted at this level, as this is a functional level.
Graves 123A, 246, 552, 553, 609, 621, 633, 648, 650, 884

12100 Keys, padlock
Graves 123A, 246, 633, 648, 650

12200 Keys, slide
Graves 552, 553, 609, 621

These included keys with a right-angled hooked terminal (Grave 621), hookshaped (Grave 552),
terminal bent at obtuse angle (Graves 553/5, 609)

(12300) Keys/girdlehangers, copper alloy, decorated
Grave 884

13000 Knives
Uncertain form
The knives were not counted at this level due to uncertain form.
Graves 246, 351, 448, 546, 778, 842, 884, 975, 985
The typology is based on Evison (1987).

(13100) Knives, Dover Type 1 (26 graves)
Graves 99, 100, 116, 123A, 249, 287, 322, 355, 552, 584A, 609, 621, 622, 634, 639, 649, 767, 814,
843, 845, 846, 878, 924B, 987, 992, 998
These were not used as they were very frequent.

13200 Knives, Dover Type 2
Graves 281, 334, 553, 576, 690B, 860, 871, 874

13300 Knives, Dover Type 4
Graves 648, 650, 778
13400 Knives, Dover Type 5
Graves 568, 962

13500 Knives, Dover Type 6
Graves 533, 624

(13600) Knives, Dover Type 7
Grave 250

(13700) Knives, Dover Type 8
Grave 633

13800 Knives, other
Graves 975, 989

(14000) Pendants
Grave 351 (878 not used as this is a Romano-British coin)

(14100) Pendants, scutiform
Grave 351

14200 Pendants, slip-knot rings
Whether the knots were tight or loose could not be determined in most cases.
Graves 334, 548 (loose), 608 (tight), 621, 633, 846

14210 slip-knot rings, small and silver
Graves 608, 621, 846

(14220) slip-knot rings, large and copper alloy
Grave 334

(14230) slip-knot rings, other
These were not included
Graves 548, 633

14300 Finger rings, used as pendants
Graves 860, 878, 989

14310 Finger rings, expanding, overlapping and spiral, copper alloy
Graves 878, 989
(14320) Finger rings, wire
Grave 860

(14500) Pendants, neck string fittings
These were not seriated as the fittings appear to have been functional.
Graves 548, 633, 860/4a, b, 914, 989

(15000) Pins
There were 21 examples of pins (not counted at this level).

15100 iron, forged, rod-shaped
Graves 108, 322, 334, 584A, 633, 785, 825A, 878, 975, 998
The typology is based on Ross (1992).

(15110) iron, forged, curled head, Type XII.ii.b
Grave 633

15120 iron, forged, hook head Type XVII
Graves 334, 584A

(15130) iron, forged, loop head Type XVIII
Grave 975

15140 iron, forged, crook head Type XIX
Graves 108, 322, 785, 825A, 878, 997, 998

(15200) iron, forged, expanded headed, spatulate, pierced Type VI.ii
Grave 989

15300 iron, forged, round headed, Type LXX.ii
Graves 99, 102, 650, 690B, 814, 845, 924B

(15400) iron, forged, flat-topped ball, Type LXX.iiib
Grave 964

(15500) iron, forged, facet headed, Type IV
Grave 843

(15600) Pins, copper alloy
Grave 568

(15610) Pin, copper alloy, ring-headed (L1)
Grave 568
16000 Toilet articles

16100 Definite toilet articles
Graves 123A, 246, 249, 256, 334, 397, 448, 552, 568 (chatelaine/toilet set), 609, 622, 633, 639, 767, 778, 871, 874, 944, 992, 997 (20 graves)
The degree of breakage of many of the toilet implements meant that grouping them according to the presence of spatulas, or picks was not possible.

This includes:
tweezers, full-size iron
Graves 871
tweezers, copper alloy
Grave 123A, 246, 944
tweezers, copper alloy, 'Roman'
Grave 246

cosmetic brushes
Graves 249, 609

Toilet sets
256, 334, 397, 448, 552, 622, 633, 767, 778, 992, 997

(16200) Possible toilet articles, 'scrapers'
These were not included as their function is not certain.
Graves 553/3b, 633, 639, 767, 874, 997

(17000 Tools, general)

(Tools, general, iron tools)
These were not included as tools are not closely datable.
Graves 546, 871

Tools, general, shears
Grave 99

(18000 Tools, weaving)

(Tools, weaving, spindlewhorls)
These were not used as they are functional, except for the reused glass spindlewhorls.
Graves 100, 351, 842, 843, 924B, 998

Tools, weaving, spindlewhorls, glass
Refer to bead strings.

Tools, weaving, spindlewhorls, stone
Grave 100

Tools, weaving, spindlewhorls, crystal
Refer to bead strings.

(19000 Miscellaneous)

Miscellaneous, Iron Age/Romano-British artefacts
These were not used, as they were found in the fill: 357 (bracelet frag), 537 (finger ring frag) and 623 (bracelet).
RB coins were not counted: 784 (coin pendant), 878 (RB coin) and 552 (RB coin used as spangle on toilet set),
The following were excluded as they pre-date the late fourth century, and are coin-dated types:
610 (late third or fourth-century pot)
123A (first-century brooch, and pierced RB coin, both in bag),
650 (second-century bow brooch in bag),
252 (part of penannular brooch)

Miscellaneous, copper alloy fittings
Graves 546.5 (box/bag?), 552.6 (box/bag?), 562.3 (strapend/key/tweezer/scrapers), 650.6, 784, 878.9, 884.8, 962.6, 963, 989.9, 995.2

Miscellaneous, iron fittings
Graves 553.4 (buckle/ring), 351.10 (bar in fill), 650.7

Miscellaneous, rings
Miscellaneous, rings, copper alloy
Graves 552, 843, 878, 914, 998

Miscellaneous, rings, iron
Graves 99, 123A, 552, 566A (in fill), 637, 778, 784.5, 814 (fill), 842, 860, 878, 962, 975
<table>
<thead>
<tr>
<th></th>
<th>02200</th>
<th>04300</th>
<th>04330</th>
<th>04800</th>
<th>13200</th>
<th>14300</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>860</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>871</td>
<td>02600</td>
<td>05100</td>
<td>16100</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>874</td>
<td>02300</td>
<td>04800</td>
<td>13200</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>875</td>
<td>04200</td>
<td>04800</td>
<td>06100</td>
<td>10200</td>
<td>10210</td>
<td>10211</td>
<td>0</td>
</tr>
<tr>
<td>878</td>
<td>04300</td>
<td>04350</td>
<td>04351</td>
<td>04600</td>
<td>05100</td>
<td>06300</td>
<td>14300</td>
</tr>
<tr>
<td>884</td>
<td>04200</td>
<td>04220</td>
<td>04223</td>
<td>05100</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>906</td>
<td>04500</td>
<td>04520</td>
<td>04400</td>
<td>04430</td>
<td>05200</td>
<td>05210</td>
<td>05211</td>
</tr>
<tr>
<td>914</td>
<td>02500</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>924B</td>
<td>02400</td>
<td>02800</td>
<td>02810</td>
<td>04600</td>
<td>15300</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>925</td>
<td>04200</td>
<td>04220</td>
<td>04222</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>936</td>
<td>02100</td>
<td>04400</td>
<td>04430</td>
<td>04432</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>944</td>
<td>04800</td>
<td>16100</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>960B</td>
<td>02300</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>962</td>
<td>02500</td>
<td>13400</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>964</td>
<td>04600</td>
<td>15400</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>967</td>
<td>04800</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>970</td>
<td>04200</td>
<td>04220</td>
<td>04222</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>975</td>
<td>04200</td>
<td>04220</td>
<td>04222</td>
<td>13800</td>
<td>15100</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>983</td>
<td>04200</td>
<td>04210</td>
<td>04212</td>
<td>04600</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>985</td>
<td>04200</td>
<td>04220</td>
<td>04223</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>987</td>
<td>04100</td>
<td>04110</td>
<td>04111</td>
<td>04200</td>
<td>04300</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>989</td>
<td>02400</td>
<td>04100</td>
<td>04110</td>
<td>04111</td>
<td>14300</td>
<td>14310</td>
<td>13800</td>
</tr>
<tr>
<td>992</td>
<td>04200</td>
<td>04220</td>
<td>04223</td>
<td>04800</td>
<td>05200</td>
<td>10200</td>
<td>10210</td>
</tr>
<tr>
<td>994</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>995</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>997</td>
<td>02600</td>
<td>15100</td>
<td>15140</td>
<td>16100</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>998</td>
<td>02800</td>
<td>04600</td>
<td>08100</td>
<td>08110</td>
<td>08111</td>
<td>15100</td>
<td>15140</td>
</tr>
<tr>
<td>1000</td>
<td>04800</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90</td>
<td>02200</td>
<td>04400</td>
<td>04420</td>
<td>04421</td>
<td>04200</td>
<td>04210</td>
<td>0</td>
</tr>
<tr>
<td>92</td>
<td>04400</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>93</td>
<td>02100</td>
<td>04300</td>
<td>04310</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>99</td>
<td>02200</td>
<td>03200</td>
<td>04400</td>
<td>04420</td>
<td>04421</td>
<td>04430</td>
<td>04432</td>
</tr>
<tr>
<td>100</td>
<td>04100</td>
<td>04110</td>
<td>04111</td>
<td>05100</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>102</td>
<td>04400</td>
<td>04430</td>
<td>04432</td>
<td>15300</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>108</td>
<td>04500</td>
<td>04520</td>
<td>05100</td>
<td>15100</td>
<td>15140</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>116</td>
<td>02500</td>
<td>05600</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>123A</td>
<td>04500</td>
<td>04520</td>
<td>12100</td>
<td>16100</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>125</td>
<td>02100</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>246</td>
<td>04900</td>
<td>05100</td>
<td>08100</td>
<td>08110</td>
<td>08111</td>
<td>12100</td>
<td>16100</td>
</tr>
<tr>
<td>249</td>
<td>04200</td>
<td>04220</td>
<td>04800</td>
<td>05200</td>
<td>05210</td>
<td>16100</td>
<td>0</td>
</tr>
<tr>
<td>250</td>
<td>05400</td>
<td>06300</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>252</td>
<td>04500</td>
<td>04520</td>
<td>05400</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>256</td>
<td>02600</td>
<td>16100</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>283</td>
<td>02600</td>
<td>05300</td>
<td>10100</td>
<td>10110</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX 12 THE FEMALE SERIATION PRINTOUT OF THE MUCKING DATA

There were 104 units
Scored on 82 variables

Take data from file "c:\dido\iastats\data\fringthr.dat" (filtered through seriset)
Take names from file "stdin"
Delete all contexts/types with fewer than 2 occurrence(s)
Do Correspondence Analysis (and print scores)
Do improve with 8-position search, using Doran criterion
Sort contexts & types for leading slope
Print results for both orders
Print matrix only

***** Deleting
Contexts:
1000 125 287 335 340 527
530 568 578 590 631 914
960B 962 964 967 994 995

Types:
05300 06100 06200 10120 13400 15200
15400 15500

***** Correspondence Analysis
(372 iterations)

Context scores:

<table>
<thead>
<tr>
<th>Context</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>846</td>
<td>0.00</td>
</tr>
<tr>
<td>808</td>
<td>0.00</td>
</tr>
<tr>
<td>621</td>
<td>10.01</td>
</tr>
<tr>
<td>116</td>
<td>11.38</td>
</tr>
<tr>
<td>281</td>
<td>50.44</td>
</tr>
<tr>
<td>609</td>
<td>52.06</td>
</tr>
<tr>
<td>546</td>
<td>52.24</td>
</tr>
<tr>
<td>814</td>
<td>53.13</td>
</tr>
<tr>
<td>102</td>
<td>53.50</td>
</tr>
<tr>
<td>99</td>
<td>53.72</td>
</tr>
<tr>
<td>283</td>
<td>53.82</td>
</tr>
<tr>
<td>615</td>
<td>54.41</td>
</tr>
<tr>
<td>690B</td>
<td>54.67</td>
</tr>
<tr>
<td>550</td>
<td>55.63</td>
</tr>
<tr>
<td>936</td>
<td>55.74</td>
</tr>
<tr>
<td>843</td>
<td>55.76</td>
</tr>
<tr>
<td>552</td>
<td>58.06</td>
</tr>
</tbody>
</table>

Type scores:

<table>
<thead>
<tr>
<th>Type</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>14210</td>
<td>0.00</td>
</tr>
<tr>
<td>02500</td>
<td>2.10</td>
</tr>
<tr>
<td>14200</td>
<td>30.11</td>
</tr>
<tr>
<td>05600</td>
<td>38.39</td>
</tr>
<tr>
<td>12200</td>
<td>44.21</td>
</tr>
<tr>
<td>10110</td>
<td>52.77</td>
</tr>
<tr>
<td>04432</td>
<td>53.39</td>
</tr>
<tr>
<td>04431</td>
<td>53.52</td>
</tr>
<tr>
<td>04420</td>
<td>53.78</td>
</tr>
<tr>
<td>04421</td>
<td>54.05</td>
</tr>
<tr>
<td>10100</td>
<td>54.34</td>
</tr>
<tr>
<td>04430</td>
<td>54.83</td>
</tr>
<tr>
<td>04440</td>
<td>55.43</td>
</tr>
<tr>
<td>03200</td>
<td>57.36</td>
</tr>
<tr>
<td>15300</td>
<td>58.24</td>
</tr>
</tbody>
</table>

***** Improve
***** Sort (forward)
***** Sort (reverse)
### Doran scores:

| Initially: | 3475 |
| After CA:  | 1648 |
| After improve: | 1351 |
| After sort (forward): | 1382 |
| After sort (reverse): | 1389 |

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>846 ***</td>
</tr>
<tr>
<td>2</td>
<td>608 ***</td>
</tr>
<tr>
<td>3</td>
<td>621 ****</td>
</tr>
<tr>
<td>4</td>
<td>116 **</td>
</tr>
<tr>
<td>5</td>
<td>256 *</td>
</tr>
<tr>
<td>6</td>
<td>609 **</td>
</tr>
<tr>
<td>7</td>
<td>283 * **</td>
</tr>
<tr>
<td>8</td>
<td>615 ****</td>
</tr>
<tr>
<td>9</td>
<td>546 ****</td>
</tr>
<tr>
<td>10</td>
<td>281 * **</td>
</tr>
<tr>
<td>11</td>
<td>650B *** ****</td>
</tr>
<tr>
<td>12</td>
<td>102 **</td>
</tr>
<tr>
<td>13</td>
<td>98 **** *</td>
</tr>
<tr>
<td>14</td>
<td>936 **</td>
</tr>
<tr>
<td>15</td>
<td>550 *</td>
</tr>
<tr>
<td>16</td>
<td>814 **</td>
</tr>
<tr>
<td>17</td>
<td>843 ***</td>
</tr>
<tr>
<td>18</td>
<td>90 *</td>
</tr>
<tr>
<td>19</td>
<td>548 *</td>
</tr>
<tr>
<td>20</td>
<td>552 **</td>
</tr>
<tr>
<td>21</td>
<td>871 **</td>
</tr>
<tr>
<td>22</td>
<td>767 ***</td>
</tr>
<tr>
<td>23</td>
<td>639 * ****</td>
</tr>
<tr>
<td>24</td>
<td>622 * ****</td>
</tr>
<tr>
<td>25</td>
<td>779 **</td>
</tr>
<tr>
<td>26</td>
<td>845 *</td>
</tr>
<tr>
<td>27</td>
<td>784 *</td>
</tr>
<tr>
<td>28</td>
<td>540 *</td>
</tr>
<tr>
<td>29</td>
<td>451 *</td>
</tr>
<tr>
<td>30</td>
<td>906 *</td>
</tr>
<tr>
<td>31</td>
<td>341 *</td>
</tr>
<tr>
<td>32</td>
<td>610 *</td>
</tr>
<tr>
<td>33</td>
<td>334 * * * * * *</td>
</tr>
<tr>
<td>34</td>
<td>633 * * *</td>
</tr>
<tr>
<td>35</td>
<td>650 * *</td>
</tr>
<tr>
<td>36</td>
<td>123A *</td>
</tr>
<tr>
<td>37</td>
<td>533 *</td>
</tr>
<tr>
<td>38</td>
<td>624 * *</td>
</tr>
<tr>
<td>39</td>
<td>997 * *</td>
</tr>
<tr>
<td>40</td>
<td>108 * *</td>
</tr>
<tr>
<td>41</td>
<td>322 * *</td>
</tr>
<tr>
<td>42</td>
<td>576 *</td>
</tr>
<tr>
<td>43</td>
<td>566A *</td>
</tr>
<tr>
<td>44</td>
<td>246 *</td>
</tr>
<tr>
<td>45</td>
<td>553 *</td>
</tr>
<tr>
<td>46</td>
<td>998 * * *</td>
</tr>
<tr>
<td>47</td>
<td>648 * *</td>
</tr>
<tr>
<td>48</td>
<td>448 * *</td>
</tr>
<tr>
<td>49</td>
<td>252 *</td>
</tr>
<tr>
<td>50</td>
<td>250 *</td>
</tr>
<tr>
<td>51</td>
<td>351 *</td>
</tr>
<tr>
<td>52</td>
<td>785 *</td>
</tr>
<tr>
<td>53</td>
<td>924B * *</td>
</tr>
<tr>
<td>54</td>
<td>842 * *</td>
</tr>
<tr>
<td>55</td>
<td>529 *</td>
</tr>
<tr>
<td>56</td>
<td>874 *</td>
</tr>
<tr>
<td>57</td>
<td>944 *</td>
</tr>
<tr>
<td>58</td>
<td>397 *</td>
</tr>
<tr>
<td>59</td>
<td>634 *</td>
</tr>
<tr>
<td>60</td>
<td>93 *</td>
</tr>
</tbody>
</table>
| 61 | 584A * * *
| 62 | 374 * * ** |

563
<p>|   | 21  | 871 |       |   | 22  | 767 |       |   | 23  | 639 |       |   | 24  | 622 |       |   | 25  | 778 |       |   | 26  | 845 |       |   | 27  | 784 |       |   | 28  | 540 |       |   | 29  | 451 |       |   | 30  | 906 |       |   | 31  | 341 |       |   | 32  | 610 |       |   | 33  | 334 |       |   | 34  | 633 |       |   | 35  | 650 |       |   | 36  | 123A|       |   | 37  | 533 |       |   | 38  | 624 |       |   | 39  | 997 |       |   | 40  | 108 |       |   | 41  | 322 |       |   | 42  | 576 |       |   | 43  | 566A|       |   | 44  | 246 |       |   | 45  | 553 |       |   | 46  | 998 |       |   | 47  | 648 |       |   | 48  | 448 |       |   | 49  | 252 |       |   | 50  | 250 |       |   | 51  | 351 |       |   | 52  | 785 |       |   | 53  | 924B|       |   | 54  | 842 |       |   | 55  | 529 |       |   | 56  | 874 |       |   | 57  | 944 |       |   | 58  | 397 |       |   | 59  | 634 |       |   | 60  | 93  |       |   | 61  | 584A|       |   | 62  | 374 |       |   | 63  | 860 |       |   | 64  | 649 |       |   | 65  | 537 |       |   | 66  | 983 |       |   | 67  | 637 |       |   | 68  | 355 |       |   | 69  | 249 |       |   | 70  | 585 |       |   | 71  | 825A|       |   | 72  | 579 |       |   | 73  | 878 |       |   | 74  | 336 |       |   | 75  | 323 |       |   | 76  | 884 |       |   | 77  | 985 |       |   | 78  | 992 |       |   | 79  | 875 |       |   | 80  | 989 |       |   | 81  | 987 |       |   | 82  | 100 |       |   | 83  | 975 |       |   | 84  | 970 |       |   | 85  | 925 |       |   | 86  | 1000|       |   | 87  | 125 |       |   | 88  | 287 |       |   | 89  | 335 |       |   | 90  | 340 |       |   | 91  | 527 |       |   |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>992</td>
</tr>
<tr>
<td>12</td>
<td>944</td>
</tr>
<tr>
<td>13</td>
<td>323</td>
</tr>
<tr>
<td>14</td>
<td>579</td>
</tr>
<tr>
<td>15</td>
<td>336</td>
</tr>
<tr>
<td>16</td>
<td>825A</td>
</tr>
<tr>
<td>17</td>
<td>878</td>
</tr>
<tr>
<td>18</td>
<td>249</td>
</tr>
<tr>
<td>19</td>
<td>355</td>
</tr>
<tr>
<td>20</td>
<td>93</td>
</tr>
<tr>
<td>21</td>
<td>634</td>
</tr>
<tr>
<td>22</td>
<td>637</td>
</tr>
<tr>
<td>23</td>
<td>983</td>
</tr>
<tr>
<td>24</td>
<td>537</td>
</tr>
<tr>
<td>25</td>
<td>649</td>
</tr>
<tr>
<td>26</td>
<td>374</td>
</tr>
<tr>
<td>27</td>
<td>860</td>
</tr>
<tr>
<td>28</td>
<td>397</td>
</tr>
<tr>
<td>29</td>
<td>584A</td>
</tr>
<tr>
<td>30</td>
<td>785</td>
</tr>
<tr>
<td>31</td>
<td>874</td>
</tr>
<tr>
<td>32</td>
<td>529</td>
</tr>
<tr>
<td>33</td>
<td>842</td>
</tr>
<tr>
<td>34</td>
<td>924B</td>
</tr>
<tr>
<td>35</td>
<td>351</td>
</tr>
<tr>
<td>36</td>
<td>322</td>
</tr>
<tr>
<td>37</td>
<td>108</td>
</tr>
<tr>
<td>38</td>
<td>451</td>
</tr>
<tr>
<td>39</td>
<td>540</td>
</tr>
<tr>
<td>40</td>
<td>784</td>
</tr>
<tr>
<td>41</td>
<td>845</td>
</tr>
<tr>
<td>42</td>
<td>250</td>
</tr>
<tr>
<td>43</td>
<td>252</td>
</tr>
<tr>
<td>44</td>
<td>448</td>
</tr>
<tr>
<td>45</td>
<td>566A</td>
</tr>
<tr>
<td>46</td>
<td>576</td>
</tr>
<tr>
<td>47</td>
<td>123A</td>
</tr>
<tr>
<td>48</td>
<td>648</td>
</tr>
<tr>
<td>49</td>
<td>998</td>
</tr>
<tr>
<td>50</td>
<td>246</td>
</tr>
<tr>
<td>51</td>
<td>553</td>
</tr>
<tr>
<td>52</td>
<td>997</td>
</tr>
<tr>
<td>53</td>
<td>650</td>
</tr>
<tr>
<td>54</td>
<td>871</td>
</tr>
<tr>
<td>55</td>
<td>256</td>
</tr>
<tr>
<td>56</td>
<td>624</td>
</tr>
<tr>
<td>57</td>
<td>533</td>
</tr>
<tr>
<td>58</td>
<td>633</td>
</tr>
<tr>
<td>59</td>
<td>548</td>
</tr>
<tr>
<td>60</td>
<td>334</td>
</tr>
<tr>
<td>61</td>
<td>610</td>
</tr>
<tr>
<td>62</td>
<td>341</td>
</tr>
<tr>
<td>63</td>
<td>552</td>
</tr>
<tr>
<td>64</td>
<td>906</td>
</tr>
<tr>
<td>65</td>
<td>778</td>
</tr>
<tr>
<td>66</td>
<td>622</td>
</tr>
<tr>
<td>67</td>
<td>639</td>
</tr>
<tr>
<td>68</td>
<td>767</td>
</tr>
<tr>
<td>69</td>
<td>90</td>
</tr>
<tr>
<td>70</td>
<td>550</td>
</tr>
<tr>
<td>71</td>
<td>281</td>
</tr>
<tr>
<td>72</td>
<td>546</td>
</tr>
<tr>
<td>73</td>
<td>843</td>
</tr>
<tr>
<td>74</td>
<td>814</td>
</tr>
<tr>
<td>75</td>
<td>936</td>
</tr>
<tr>
<td>76</td>
<td>102</td>
</tr>
<tr>
<td>77</td>
<td>99</td>
</tr>
<tr>
<td>78</td>
<td>690B</td>
</tr>
<tr>
<td>79</td>
<td>615</td>
</tr>
<tr>
<td>80</td>
<td>283</td>
</tr>
<tr>
<td>81</td>
<td>609</td>
</tr>
</tbody>
</table>
APPENDIX 13. THE CODING OF MATERIAL AT MUCKING FOR THE MALE SERIATION

01000 Bags and portable containers
Bags and portable containers were not counted at the most general level.

01100 bags
Graves 244, 260, ?731, 789, 863, 933

(01200) pursemounts
Grave 979

(01210) pursemount, uncertain type, bird’s head?
Grave 979

02000 Brooches
Brooches were not counted at the most general level.
(The brooch in Grave 940 is originally from Grave 842).

02100 penannular
Graves 789, 979

02110 penannular, Type C
Graves 789, 979

02111 penannular, Type Cb
Graves 789, 979

03000 Buckles
Buckles were not counted at the most general level.

Buckles, form uncertain
Grave 343, 841

03100 D-shaped
There were 17 examples of these.
Graves 120, 244, 245, 534, 557, 565, 588, 626, 629, 731, 766, 859 (ca), 939, 948 (ca), 965, 993 (ca)

03200 ribbed/inlaid (of various buckle shapes, also includes plain kidney-shaped loops)
Graves 272, 333, 493, 583, 730, 789, 844, 863

570
03300 oval
Graves 276, 616, 764, 877, 883, 952, 954

(03400) circular
Grave 244

03500 multipiece
Graves 117, 979

03510 multipiece, wide
Graves 117, 979

03511 multipiece, wide, relief cast
Graves 117, 979

This includes Group B2, ie two-piece fixed plate and ‘Simple’ buckle (White 1988), Type IIIB (Hawkes and Dunning 1961) in Grave 979 (includes strapends, rosette, becket/belt stiffener), and a relief cast, Type A, five-piece, wide ‘official’ belt set in Quoit Brooch Style (Böhme 1974) from Grave 117

03600 heavy cast oval, and/or constricted tongues/or shield-on-tongue
Graves 618, 858, 933

(03610) heavy cast, with rosette studs, shield-on-tongue
Grave 618

(03620) square/rectangular plates, slightly constricted tongue
Grave 933

03630) slightly constricted tongue
Grave 858

(03800) miscellaneous
These included an Iron Age terret in Grave 350, and a ?reused key in Grave 575, so were not counted.
Graves 350, 575

(03900) strapends
There was a single example of a strapend.
Grave 547

04000 Containers

04100 stave-built
Graves 583, 588, 600, 825B
04110 stave-built, copper alloy
Graves 583, 588, 600, 825B

04111 stave-built, copper alloy, buckets
Graves 588, 600, 825B

(04112) stave-built vessels, copper alloy, cup
Grave 583

Containers, stave-built vessels, copper alloy, bucket, Frankish type
Not coded, as there was only one example.
Grave 600

04200 inhumation pots
Pots were not counted at this level.
In the male graves, no work of individual potters could be identified.
Graves 260, 347, 493, 534, 588

04210 pots, grass-tempered
Fabrics 1B, 2, 3B
Graves 260, 347, 588

(04220) pots, sandy fabrics
Fabrics 1, 3, 4
Grave 534

(04230) pots, other fabrics
Grave 493

04240 pots, stamped
Graves 260, 534, 588

(04300) turned wooden bowls
These were not included due to preservation problems.
Graves 7117, 286, 565, 600, 668, 731, 844, 933

(05000) Finger rings
General category not used
Graves 933.8, 933.9

(05100) solid
Grave 933.8

(05110) solid, plain
Grave 933.8
(05200) wire
Grave 933.9

(05210) wire, no bezel
Grave 933.9

06000 Knives

(06000) Knives, including those of uncertain form
Graves 246, 542, 583, 600, 883 (and those listed below)

06100 Dover Type 1

These occurred in 31 graves. As this was such a common type (occurring in nearly half the seriated graves), it was excluded.

06200 Dover Type 2
Graves 120, 243, 347, 554, 565, 618, 731

06300 Dover Type 3
Graves 159, 276, 556, 954

06400 Dover Type 4
Graves 286, 575, 588

(06500) Dover Type 5
Grave 288

06600 Dover Type 6
Graves 245, 350, 841, 948

06700 Mucking Type 7
Graves 547, 626

(06800) Mucking Type 8
Grave 616
06900 other
Graves 976, 979

07000 Pins
Uncertain pin type
This was not included.
Grave 243

07100 copper alloy, expanded headed
Graves 333, 493

07110 copper alloy, expanded headed, Type XV
Graves 333, 493

07111 copper alloy, expanded headed, Type XV.ii (rolled and folded)
Graves 333, 493

08000 Toilet articles

(08100) toilet set
Grave 863

08200 tweezers
Toilet articles, tweezers, iron and copper alloy
Graves 244, 731, 766, 844, 863, 871, 948, 979

08210 tweezers, decorated, ie 'Roman'
Graves 244, 979

08300 'scrapers'
Graves 863, 933

09000 Tools, general
General tools were excluded as they are not closely datable.
Grave 244 (awl), 272, 858, 979 (awl)

(09100, hone
Grave 933
10000 Shields

Uncertain boss type
These were not counted as the form was uncertain.
Graves 682, 766, 825B, 877

10100 Group 1.1
Graves 243, 248 (with lozenge-shaped fittings), 554, 556, 600 (with Style I knob, and appliqués), 863

10110 Group 1.1, grip III
Graves 243, 556

(10111) Group 1.1, grip IIIa
Grave 243

(10112) Group 1.1, grip IIIb
Grave 556

10120 Group 1.1, grip I
Graves 248, 554, 600, 863

10121 Group 1.1, grip Ib
Graves 248, 554, 600, 863

10200 Group 3
Graves 114, 120, ?121, ?122, 131, 159, 245, 547, 588, 618, 948, 965

10210 Group 3, grip Ia
Graves 965, 159

(10211) Group 3, grip Ia1
Grave 965

(10212) Group 3, grip Ia2
Grave 159

(10220) Group 3, grip Ib
Grave 618

10230 Group 3, grip III
Graves 114, 120, 121, 245, 547, 948

10231 Group 3, grip IIIb
Graves 114, 121, 245, 547, 948

(10232) Group 3, grip IIIa
Grave 120

(10240) Group 3, grip unknown
Graves 122, 131, 588
10300 Group 6
Graves 950, 954, 961A

10310 Group 6, grip Ia
Graves 950, 961A

10311 Group 6, grip Ia1
Graves 950, 961A

(10320) Group 6, grip unknown
Grave 954

(10400) Rhenen-Vermand
Grave 272

11000 Arrows
Graves 777, 978

11100 Böhner Type A
Graves 777, 978

12000 Spears

12100 Type C
Type C spears were excluded at this level as there were 22 examples. (For 869 see below).
Graves 107, 120, 159, 243, 245 (with ferrule), 276, 286, 350, 541, 557, 575, 617, 7662, 668, 827, 841, 849, 858, 859, 950.2, 954

12110 Type C1
Graves 276, 841, 849

12120 Type C2
Grave 682 (two-pronged socket, with ferrule) was excluded.
Graves 107, 120, 159, 243, 245, 286, 350, 541, 575, 617, 7662, 668, 827, 858, 859, 954

(12130) Type C3
See Type E3
Grave 950.2

12140 Type C4
Graves 557, 827

12200 Type D
This level was not included

12210 Type D1
Graves 863, 934, 993?
12220 Type D2
Graves 128, 965

12300 Type E
This level was not included.

12310 Type E1
Graves 343, 493, 764, 844?, 857 (with ferrule)

12320 Type E2
Graves 535, 616, 777, 950.1?

12330 Type E3
Graves 260, 939, 961A, 950 (Type C3)

12400 Type H
Spears at this level were not included. The spear in Grave 572 (four-pronged socket, with ferrule) was excluded as this was unusual.
Graves 248, 554, 556, 588, 600, 618 (with ferrule), 626, 730, 731, 765, 766 (with ferrule), 850, 877, 948, 952

12410 Type H1
Graves 554, 600, 618, 730, 765, 877

12420 Type H2
Graves 248, 556, 626, 731, 766, 948, 952

12430 Type H3
Graves 588, 850

12500 Type K
Spears at this level were not included.

12510 Type K1
Graves 244, 272, 547, 583

(12520) Type K2
Grave 565

12600 Elbe-Loire type (closed socket and midrib)
Graves ?869, 979 (ferrule)
Grave 979 was not counted as a B2 type.

12610 Elbe-Loire type
Graves ?869, 979

There were single examples only of the following:
Type F1
Grave 629

Type B1
Grave 789

Two-pronged
Grave 682

Four-pronged, part of type with closed socket, and no midrib (Böhme 1974, 100-1).
Grave 572

(13000) Seax
This was excluded as only one example was found.
Grave 933

14000 Axe/fransisca
Graves 534, 583, 976

14100 Intermediate types A-C
Graves 534, 583, 976

15000 Swords
Swords were not counted at this level
Graves 557, 600, 618, 682, 766, 769, 883

15100 simple iron pommels
Graves 557, 618, 682, 769, 883

15110 simple iron pommels, flat and domed
Graves 557, 618, 682, 769, 883

(15200)cocked hat pommel
Grave 600

(15300) Kempston-Mitcham scabbard fitting
Grave 766

(16000) Iron fittings (snaffle bits?)
Grave 979

(Miscellaneous)

(Miscellaneous, Romano-British coins)
These were disregarded as they were Romano-British.
Grave 789
Iron Age terret
Graves 350

Box/strapend
Grave 583.7
107 10120 12120 0
114 10200 10230 10231 0
117 03500 03510 03511 0
120 03100 06200 10200 10230 12120 0
121 10200 10230 10231 0
122 10200 0
128 12220 0
131 10200 0
159 06300 10200 10210 12120 0
243 06200 10100 10110 12120 0
244 01100 03100 08200 08210 12510 0
245 03100 06600 10200 10230 10231 12120 0
248 10100 10120 10121 12420 0
272 03200 12510 0
276 03300 06300 12110 0
APPENDIX 14 THE MALE SERIATION PRINTOUT OF THE MUCKING DATA

There were 76 units
Scored on 58 variables

Take data from file "c:\dido\iastats\data\malemuck.dat" (filtered through seriset)
Take names from file "stdin"
Delete all contexts/types with fewer than 2 occurrence(s)
Do Correspondence Analysis (and print scores)
Do improve with 8-position search, using Doran criterion
Sort contexts & types for leading slope
Print results for both orders
Print matrix only

***** Deleting
Contexts:

<table>
<thead>
<tr>
<th>122</th>
<th>128</th>
<th>131</th>
<th>343</th>
<th>535</th>
<th>541</th>
</tr>
</thead>
<tbody>
<tr>
<td>617</td>
<td>629</td>
<td>662</td>
<td>668</td>
<td>765</td>
<td>827</td>
</tr>
<tr>
<td>850</td>
<td>857</td>
<td>869</td>
<td>934</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Types:

12140 12220 12430 12610

***** Correspondence Analysis
(175 iterations)

Context scores:

<table>
<thead>
<tr>
<th>117</th>
<th>0.00</th>
<th>730</th>
<th>5.83</th>
<th>948</th>
<th>6.98</th>
<th>575</th>
<th>8.22</th>
<th>877</th>
<th>12.56</th>
</tr>
</thead>
<tbody>
<tr>
<td>979</td>
<td>1.66</td>
<td>600</td>
<td>5.98</td>
<td>626</td>
<td>7.29</td>
<td>286</td>
<td>8.22</td>
<td>952</td>
<td>12.64</td>
</tr>
<tr>
<td>789</td>
<td>3.10</td>
<td>534</td>
<td>6.25</td>
<td>588</td>
<td>7.34</td>
<td>347</td>
<td>8.31</td>
<td>260</td>
<td>12.82</td>
</tr>
<tr>
<td>976</td>
<td>3.55</td>
<td>933</td>
<td>6.43</td>
<td>107</td>
<td>7.43</td>
<td>556</td>
<td>8.71</td>
<td>939</td>
<td>17.25</td>
</tr>
<tr>
<td>493</td>
<td>4.10</td>
<td>248</td>
<td>6.57</td>
<td>245</td>
<td>7.46</td>
<td>557</td>
<td>8.99</td>
<td>954</td>
<td>17.61</td>
</tr>
<tr>
<td>272</td>
<td>4.41</td>
<td>554</td>
<td>6.67</td>
<td>120</td>
<td>7.48</td>
<td>159</td>
<td>9.17</td>
<td>961A</td>
<td>33.76</td>
</tr>
<tr>
<td>583</td>
<td>4.75</td>
<td>993</td>
<td>6.75</td>
<td>243</td>
<td>7.62</td>
<td>682</td>
<td>9.67</td>
<td>616</td>
<td>37.44</td>
</tr>
<tr>
<td>825B</td>
<td>5.24</td>
<td>114</td>
<td>6.78</td>
<td>965</td>
<td>7.67</td>
<td>769</td>
<td>9.67</td>
<td>950</td>
<td>38.47</td>
</tr>
<tr>
<td>244</td>
<td>5.35</td>
<td>121</td>
<td>6.78</td>
<td>858</td>
<td>7.79</td>
<td>841</td>
<td>10.16</td>
<td>777</td>
<td>85.12</td>
</tr>
<tr>
<td>844</td>
<td>5.37</td>
<td>731</td>
<td>6.82</td>
<td>618</td>
<td>8.09</td>
<td>764</td>
<td>12.24</td>
<td>978</td>
<td>99.00</td>
</tr>
<tr>
<td>863</td>
<td>5.70</td>
<td>766</td>
<td>6.83</td>
<td>859</td>
<td>8.19</td>
<td>883</td>
<td>12.29</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Type scores:

<table>
<thead>
<tr>
<th>03510</th>
<th>0.00</th>
<th>03200</th>
<th>4.07</th>
<th>10120</th>
<th>6.12</th>
<th>03100</th>
<th>7.64</th>
<th>12110</th>
<th>12.27</th>
</tr>
</thead>
<tbody>
<tr>
<td>03511</td>
<td>0.00</td>
<td>14000</td>
<td>4.36</td>
<td>01100</td>
<td>6.37</td>
<td>06400</td>
<td>7.70</td>
<td>06300</td>
<td>12.55</td>
</tr>
<tr>
<td>03500</td>
<td>0.00</td>
<td>14100</td>
<td>4.36</td>
<td>06700</td>
<td>6.48</td>
<td>12420</td>
<td>7.76</td>
<td>03300</td>
<td>17.53</td>
</tr>
<tr>
<td>02111</td>
<td>1.68</td>
<td>12510</td>
<td>4.75</td>
<td>10231</td>
<td>6.55</td>
<td>10110</td>
<td>7.96</td>
<td>12330</td>
<td>26.85</td>
</tr>
<tr>
<td>02110</td>
<td>1.68</td>
<td>04111</td>
<td>4.87</td>
<td>10100</td>
<td>6.56</td>
<td>06600</td>
<td>8.05</td>
<td>10300</td>
<td>31.59</td>
</tr>
<tr>
<td>02100</td>
<td>1.68</td>
<td>08200</td>
<td>5.10</td>
<td>10230</td>
<td>6.66</td>
<td>10210</td>
<td>8.23</td>
<td>10310</td>
<td>38.29</td>
</tr>
<tr>
<td>06900</td>
<td>1.93</td>
<td>04100</td>
<td>5.42</td>
<td>12310</td>
<td>6.95</td>
<td>04240</td>
<td>8.65</td>
<td>10311</td>
<td>38.29</td>
</tr>
<tr>
<td>08210</td>
<td>2.90</td>
<td>04110</td>
<td>5.42</td>
<td>10200</td>
<td>7.13</td>
<td>12120</td>
<td>8.75</td>
<td>12320</td>
<td>57.35</td>
</tr>
<tr>
<td>07110</td>
<td>3.16</td>
<td>08300</td>
<td>5.68</td>
<td>06200</td>
<td>7.22</td>
<td>04210</td>
<td>9.39</td>
<td>11100</td>
<td>99.00</td>
</tr>
<tr>
<td>07111</td>
<td>3.16</td>
<td>12210</td>
<td>5.85</td>
<td>03600</td>
<td>7.24</td>
<td>15100</td>
<td>9.67</td>
<td>11000</td>
<td>99.00</td>
</tr>
<tr>
<td>07100</td>
<td>3.16</td>
<td>10121</td>
<td>5.86</td>
<td>12410</td>
<td>7.59</td>
<td>15110</td>
<td>9.67</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

***** Improve
***** Sort (forward)
***** Sort (reverse)

Doran scores:
Initially: 1559
After CA: 760
After improve: 622
After sort (forward): 647
After sort (reverse): 643
APPENDIX 15. CONVERSION PERIOD GRAVES AT LECHLADE

Phase 2
In Phase 2, the seventh to early eighth centuries, or perhaps even starting earlier (Chapter 4), there was a fundamental change in female costume, with the abandonment of paired brooches, and presumably the peplos costume, in favour of what is assumed to be a tunic, small bead strings, silver pendants, and silver slip-knot rings (Weightman forthcoming; Hawkes 1982b).

The numbers of graves are smaller than in Phase 1. This may be a reflection of the general problem that late sixth- to early seventh-century graves are relatively invisible, due to the lack of artefacts that can specifically be dated to this period (see Chapter 4).

The treatment of juveniles and adults appears to have been different to the pattern in Phase 1. Certain traits can be expected:

a) An increasing polarisation of wealth is evident in general from the late sixth to seventh century onwards, but is particularly apparent at Lechlade by Phase 2b, in the second half of the seventh century (Geake 1997, 128). At Lechlade, furnished graves in Phase 2b nearly always appear to have been very wealthy, but it should be noted that no contrasting unaccompanied graves in this subphase could be identified, and this seems to be the case for the whole of Phase 2 (see Chapter 4).

b) One would expect some juveniles to be ‘high status’, treated in the same way as adults.

c) One would expect ‘high-status’ individuals to maintain their rank even into old age.¹

Juveniles
Infants
The number and percentage of juvenile graves dated to Phase 2 is far smaller than in Phase 1. Indeed the percentage of infants in Phase 2 has fallen to only 4% from 8% in Phase 1. In absolute numbers, there were only two infants, neither of whom possessed grave goods.

Younger children
Amongst the young children in Phase 2, only two graves were identifiable as belonging to the subphase 2b, and these stand out as being ‘lavishly’ furnished, judging by the presence of a garnet cabochon pendant and silver beads in Grave 172/2, and a worn gold pendant in Grave 84.

Older children
One older child (aged nine to ten), in Grave 140, was found with the first male-linked type, a spear ferrule. As a knife, buckle and bone pin were also found this was probably a high-status grave. In Phase 2b, Grave 148 contained a bell (a very unusual artefact, especially with a child), cowries, ?one silver pendant, slip-knot rings, glass beads, an iron bucket and a glass pendant.

Adolescents

¹ Rank is defined as a position within a legally recognized hierarchy, as opposed to status, which is the standing of any individual in relationship to any other individual (Halsall 1995, 22).
As in the sixth century, the age of around 10-12 still appears to have been a significant watershed. Two seventh-century Anglo-Saxon law codes state that boys were old enough to manage lands and be privy to theft at the age of 10.2 This also coincides with the age at which children were commonly allowed to become oblates (Kuefler 1991, 824-5).3 Unlike the situation in Phase 1, however, this age does not seem to mark a visible threshold, as high-status burials are found both at a younger and older age. In Phase 2b, one of the two adolescent graves, Grave 14, appears to have contained a high-status female burial.

There was only one visible ‘male’, aged 16-18, buried with a weapon, a single spear. The numbers are small, but this amounts to 17%, compared with 19% in Phase 1. In general there is a decline in the deposition of weapons in Anglo-Saxon graves by the seventh century (see below). This decline affected juveniles in particular (Härke 1992a, 160; Shephard 1979, 67). It is possible that at Lechlade the real percentage of juvenile weapon graves is lower, if the undated graves or largely invisible late sixth- to early seventh-century graves were taken into account.

**Juvenile trends**

As in Phase 1, there was still a notable lack of visible juvenile males, especially high-status ones. Two new trends, however, could be detected amongst the juveniles:

a) There was an increased polarisation of wealth, with some very high-status juveniles, especially in Phase 2b, when there was a high proportion of lavish ‘female’ juvenile burials among a numerically small, datable (ie identifiable) sample.

b) Juvenile treatment (of females at least) does not appear to differ from the treatment of adults, despite documentary evidence that full adult status was only acquired at around the age of 10-12 (see above). The age of marriage, although likely to be in adolescence,4 is also not now visible archaeologically. Geake (1997, 128) has suggested that after c AD 650 the dressing of at least some girls as high-status adults may have been in order to attract a ‘rich’ husband. If status was now ascribed, however, it could also be that high-status female juveniles merely reflected the rank of the household into which they were born.

The similar treatment of female juveniles and adults may have applied in life as well as in death. Compared with the situation in Phase 1, there are fewer indications of worn ‘hand-me-downs’, suggesting that the lavish burial of some reflected their costume in life (with the exception of the worn gold pendant in Grave 84). Also in contrast to the pattern in Phase 1, the frequency of supine burial does not appear to have increased with age.

Nevertheless, graves displaying unusual burial practices, such as the deposition of large stones, prone burial, or decapitation appear to be linked to juveniles.5 Crawford

---

2 The laws of Hlothhere and Eadric of Kent, AD 673-685?, stated that boys could manage lands after the age of 10 (30/6: Whitelock 1979, 394). The laws of Ine of Wessex, AD 688-694, stated that boys could be privy to theft after this age (32/7.2: Whitelock 1979, 400).

3 Coming of age appears to be at less than the new age of 15 in the early seventh-century Merovingian laws, the *Lex Ribvaria* (84) (Halsall 1995, 72).

4 At this time, the usual age of marriage is still uncertain, although marriage in the early teens was possible in the seventh and eighth centuries (Cayton 1980). There was also perhaps an increase in the age of marriage to 15 years in the seventh century, as in Merovingian Francia (Halsall 1995, 72).

5 The deposition of stones has been envisaged as indicating a desire to prevent the return of ghosts (Crawford 1993, 86), or death by stoning. Decapitation was probably intended to deter ghosts, or may
(1993) has pointed out that this may have been connected with greater fears surrounding juvenile graves in view of the fact that juveniles were more prone to die suddenly and 'inexplicably' from infectious diseases. She argues that deceased infants in particular may have been held to have a malign effect on the survivors, so that unusual counter measures were sometimes taken. Three such graves were dated to Phase 2, but three others remain undated. There were six double burials in Phase 2, consisting again of adults of both sexes with adolescents (and in one case even of two adults).

Adults

Adult females

Adults, both male and female, display increased polarisation of wealth and the maintainance of high status into later life. There was a relatively small drop in the frequency of visibly adult 'female' graves overall from 76% in Phase 1 to 65% in Phase 2. The scarcity of graves with 'female' artefacts in Conversion Period graves compared to unfurnished graves has been noted (Geake 1997). In Phase 2b, there was an increase in the number of graves that appear to have been of outstanding status (Graves 95/1, 138, 179 and 187), which is consistent with a widespread shift in emphasis from rich burials of males to wealthy female burials. What this actually meant in terms of status during life is uncertain, and may be tied in with access to churchyard burial, and land claims (Geake 1997, 127-8).

Older women do not seem to have experienced a decline in the numbers of artefacts, in contrast to the situation in Phase 1; on the contrary, the numbers of artefacts and types appear to increase with age. This may reflect changes in the marriage settlement in the seventh century, as attested for the Frankish realms, when a widow was now able to reclaim her legal bridegift (dos), at least if she was childless (Wemple 1981, 44-5). Older women were buried in only slightly shorter graves. In other Conversion Period cemeteries, graves amongst older adult females were slightly longer (Table 6/14). They are more often buried on their sides, and in unusual orientations, however, but the numbers are small (Table 6/8).

Adult males

In Phase 2, there is a decrease in the percentage of weapon, ie 'male' graves to 39% from 60% in Phase 1. This accords with the general decline in the deposition of weapons in Anglo-Saxon graves, which fell from a peak late in the first half and around the middle of the sixth century, with weapon combinations seemingly becoming increasingly symbolic over time (Härke 1989b, 51-2; Geake 1997, 75, 127-8). It has been claimed that those weapon burials that are still found are wealthier than fifth- and sixth-century burials (Härke sometimes represent execution (Harman et al 1981). Decapitation is not usually linked to juveniles, however, while prone burial is usually associated with adult females (see below), although the low frequency of juvenile burials in general should be taken into account.

6 In Phase 2, the child in Grave 177 was buried prone with stones in the fill, while the child in Grave 140 and the adolescent in Grave 105 were also buried with stones in the fill. Two of the three undated, unusual burials were those of juveniles and contained no artefacts; they were on unusual alignments (W-E or SE-NW), with the child in the undated Grave 74 buried prone and ?decapitated, and an adolescent in Grave 126 buried prone.
1992a, 162), and this is indeed the case at Lechlade, again suggesting polarisation of wealth (Table 6/16). Even the wealthy weapon burials do not match the opulence of the lavish female burials of the second half of the seventh century, whether juvenile or adult. The dimensions of the weapon graves are larger than in the case of Phase 2 non-weapon-bearing males, being comparable with the size of weapon graves in Phase 1, and the body position was more commonly supine (Table 6/8). The sample is small, but older males were more likely to be aligned unusually.

The most common type of weapon combination now involved the seax, an essentially seventh-century phenomenon, with the occasional presence of a spear and shield (Table 6/15). Three of the seax Graves 155, 172/1 and 40 (but not Grave 178), were also associated with wealthier burials at Lechlade; seax graves are usually high status and associated with older males, and this was the case at Lechlade (Härke 1992a, 158; forthcoming). On the whole, weapons still appear to have belonged to the individual with whom they were buried, as repairs and damage were found with older weapon-bearing individuals, as in other cemeteries. These consisted of damage to the spear in Grave 35, and to the seax in Grave 172/1 (both aged 30-35).

Social structure in Phase 2
As outlined above, social structure was now stratified, with high status acquired at birth and maintained until death.

It has been suggested that weaving battens indicated a position as head of a household (Chadwick 1958, 34). Two examples were found at Lechlade, in Grave 187 (aged 30-35) and Grave 95/1 (aged 35-40). These women were older than the Phase 1 women with keys, also envisaged as heading households, who were mostly in their 20s (see above). Keys in Phase 2, found in Graves 14, 76, 103, and 179, were predominately associated with older females in their 30s and 40s, apart from the lavishly furnished Grave 14 (aged 14-16). A feature of the seventh century is the burial of wooden boxes, which may have been personal items, and it is possible that such keys were merely to lock these items, though the key in Grave 14 does not appear to fit the associated box. The box in Grave 107 did not have an accompanying key.

As in Phase 1, it seems from the distribution of graves that burial was organised in family groups, of which one may have been identified from epigenetic evidence.

---

7 There seems to have been a concurrent shift to individual mounds of very high-status males, such as at Sutton Hoo (Geake 1992; Geake 1997, 127-8).
8 For example, most of the boxes at Dover appear to have been buried with keys that fitted their locks (Evison 1987, 104).
9 Based on the non-metric traits as identified by Harman (1998) of three individuals (Graves 95/1, 105 and 170) buried in close proximity to each other (Boyle et al 1998, fig 3.1, square D2).
APPENDIX 16. THE IMPORTANCE OF THE BELT SET FROM GRAVE 117 AND OTHER ARTEFACTS FROM MUCKING TO THE INTERPRETATION OF QUOIT BROOCH STYLE

At Mucking, four inhumation graves and one cremation contained Quoit Brooch Style artefacts. These include the belt set from Grave 117 in Mucking I, first discussed by Evison as long ago as 1968, and three newly identified artefacts from Mucking II: a buckle plate from Grave 823, relief cast with silver inlay, a bracelet from Grave 631, decorated with lightly incised and punched motifs, and a bronze penannular quoit brooch with a horse's head terminal in Grave 548, similar to the silver example from Cremation 607 (Hirst and Clark forthcoming, b; Clark forthcoming, s). D-sectioned tubes from Graves 637 and 842 could also be counted as Quoit Brooch Style, due to their similarity to the example from Croydon, Surrey (Evison 1968).

The interpretation of the origins and cultural context of Quoit Brooch Style has always been controversial, and it has always been discussed in terms of a contrast between whether it is sub-Roman or ‘Germanic’/‘Anglo-Saxon’. Some authors have supported a sub-Roman interpretation: Leeds (1936, 4-7), Haseloff (1974, 5), (Dickinson 1979, fn 103), Welch (1983, 59-60) and Böhme (1986, 523-5). Others have argued for a ‘Germanic’ origin (albeit heavily influenced by late Roman motifs), whether Scandinavian or ‘Anglo-Saxon’. Thus, links to Scandinavia, and to Jutland in particular, were originally pointed out by Hawkes (1961, 71) and subsequently by Ager (1985), although it should be noted that he now sees a stronger link to Roman art styles (1997a). Evison (1965) initially envisaged a migration of Frankish craftsmen. White (1988, 60), influenced by Ager (1985), argued that Quoit Brooch Style products were made by ‘Anglo-Saxons’, but in accordance with late Roman style.

It is argued here that this style is primarily evolved from a late Roman style. The excavation of the buckle from Grave 117 was pivotal in suggesting this, and new evidence from Mucking II reinforces this.

It is also argued that the term ‘Anglo-Saxon’ is anachronistic before at least the late fifth century, when new forms of regionally based material culture, and a new style of ornament (Style I) were generated, which can be seen as classically ‘Anglo-Saxon’. Before this point, a hybrid Germanic/Roman ‘mixed culture’ is envisaged that can be partly identified by artefact types that have been studied by Böhme (1974), and which in Stufe I stretched from northern Gaul to the Elbe-Weser area. This culture cannot be seen merely in terms of a cultural intermarriage, but may also have been actively socially constructed into, and signalled, other meanings, such as high status. This culture is discussed further by Halsall (1992a), and its application to the earliest graves from Mucking is found in Chapter 8.3. It has been envisaged that before the end of Stufe I (c AD 400) there had been an extensive borrowing of Roman artistic and technical traditions by a ‘Germanic’ world, ie those areas north of the Rhine (Böhme 1977, 26). Relief casting on equal-arm brooches (dating from Stufe II onwards), for example, has been seen as the absorption of a technique into the ‘Germanic’ artistic repertoire, through familiarity with ‘official’

---

1 A related quoit brooch of Type D1 was found in Grave 637, which although decorated with arc-hatched borders, double circles and pellet-in-triangle punchmarks, all individual motifs found within the Quoit Brooch Style repertoire, is not itself decorated in this style.
belt sets or the movement of Roman craftsmen. It is argued here that the active social construction of a new culture, that was signalled often through the use of ornament, went beyond the borrowing of motifs into a 'Germanic' culture. Quoit Brooch Style should therefore not be discussed in terms of sub-Roman or Germanic, but whether it is sub-Roman or part of this already 'mixed' culture.

Mucking has played a crucial role in assigning an early to mid fifth-century date to Quoit Brooch Style artefacts through the analysis of art styles and forms. Although Evison (1965, 50) had already noted the similarities in form and motifs between 'official' and Quoit Brooch Style buckles, the discovery of the belt set in Grave 117, Mucking I (Evison 1968), was pivotal in confirming this. As we have seen, its finding overturned her earlier dating to the second half of the fifth century (1965, 68), and therefore her 'Frankish' attribution. The belt set from Grave 117 demonstrates the widest range of motifs and techniques of any known Quoit Brooch Style artefacts, and only lacks the use of openwork and gilding. It also combines the three major classes of motifs, as defined by Evison (1965, 62). Its early discovery has proved vital in defining the full repertoire of the style in a way that has helped link together previous and subsequent discoveries. Thus it is clear, for example, that at Mucking the quoit brooches from Cremation 607 and Grave 548 fall into the second zoomorphic group, ie with a horse’s head, whilst the buckle plate from Grave 823 and the bracelet from Grave 631 bear only geometric motifs.

All the techniques and motifs found on Quoit Brooch Style products, of which the prime example is the belt set 117, appear to be late Roman in style. These include bead and reel, spiral (Haseloff 1974, 2) and quadrupe designs, as well as relief cast motifs and the use of silver sheet and inlay. The use of some motifs is, however, slightly modified. In the development known as Quoit Brooch Style, there was a greater use of lightly punched or incised motifs, such as tendril scrolls, not always used in a strictly symmetrical way; in addition, a few new punch motifs were employed, such as arc-and-dot, and pellet-in-triangle stamps (Evison 1968, 233; Ager 1985, fig 15). Openwork continued to be used, but now along the edges as well. The animal motifs are also late Roman, but are now executed in a flatter form, within a double contour, with fur patterning inside, as well as being more regularised and repeated.

Quoit Brooch Style is primarily found on belt sets that are very similar in appearance to ‘official’ wide belt sets that were intended to be cingula, and which are central to the ‘mixed culture’. At Mucking the belt sets from Graves 117 and 823 resemble cingula, ie wide belt sets, with two straps, which predominated in Stufe I. White (1988, 48) has argued that there are no wide two-strap Quoit Brooch Style buckles, but this does not seem to be the case.

2 Haseloff (1974, 4) argued that the transmission of this technique was mediated by captured Roman craftsmen, or by Hines (1995, 77) as the free movement of craftsmen.

3 Firstly, there are those with complete animal motifs, secondly a zoomorphic style with horses’ heads and human masks, and lastly, a non-zoomorphic style, ie geometric, including both angular and curved motifs, with more vegetal motifs such as tendrils. Only on the belt set 117 and the quoit brooch from Howletts (Evison 1965, fig 10c) were facemasks combined with animal motifs, although without a horse’s head.

4 Belt sets defined as ‘wide’ by Böhme (1974, 55-65) appear to be cases where the belt strap (preferably judged by the plates and stiffeners, and not the buckle loop, which can be considerably narrower) is wider than 4.5cm. They can be distinguished from the ‘narrow’ belts sets of Type I, about 3cm wide. Although not explicitly stated, this distinction appears to have been followed by White (1988, fig 42; 1990, 136-7, fig 7).
Quoit Brooch Style belt set can strictly be counted as 'wide' (that in Grave 117, Mucking I), belt fittings from other cemeteries are clearly intended to be so, although they are slightly narrower, and often incomplete.\(^5\) Other Quoit Brooch Style belt fittings have fixed-plate buckles (with decorated, sometimes openwork plates). The fixed-plate buckles are reminiscent of 'official' fixed-plate buckles that were common in Stufe III, but do not resemble them in the form of long plates.\(^6\) Although these appear to be narrower than the previous examples, they could also have been two-piece belt sets, as stiffening, perhaps in the form of a wide wooden strip behind the leather strap, would have been needed in order to counteract the brittleness of the fixed-plate buckle (Evison 1968, 238).

Not only the forms, but also the motifs found on wide 'official' buckles also closely resemble those of Quoit Brooch Style, such as relief casting, and face motifs.\(^7\) Human face motifs, such as that on buckle 117, do appear, although rarely, on Quoit Brooch Style artefacts, on the most elaborate and presumably high-status pieces.\(^8\) It has been suggested that the face motifs and beasts on the belt set 117 are a 'Celtic' symbol of the mid-winter solstice (Meehan 1992, 23).\(^9\) This symbolism need not be accepted, however, as there is no other evidence of other 'Celtic' artistic motifs within Quoit Brooch Style.

There is new evidence from Mucking which supports the case for believing that Quoit Brooch Style essentially evolved from a late Roman art style. The incised geometric ornament of the bracelet in Mucking II, Grave 631 demonstrates strong links to the narrow Type 1B horse-headed buckle in Grave 987 that is late fourth to early fifth century in date, or perhaps even later (Chapter 5). Both display tendril-ended triangular motifs, and a predominance of vegetal organic motifs. The bracelet is one of the most transitional of known Quoit Brooch Style artefacts; indeed it could be mistaken for an artefact decorated in 'late Roman' style, but for the winged ring-and-dot motif that is only found on Quoit Brooch Style objects (see Hirst and Clark forthcoming, b). Thus, the closeness of Quoit Brooch Style to late Roman ornament suggests a date of the early to mid fifth century.

The second question, as to whether it was a sub-Roman ornament style or whether it was part of the 'mixed culture' can now be addressed. In some ways, Quoit Brooch Style does appear to have been part of this 'mixed culture'. As we

\(^5\) These include Bishopstone, Bucks, Grave 5, Howletts, east Kent, and Graves 12 and 34, at Hightown, and Alfriston, Sussex, Grave 17. Newer examples that should be added are from King's Field, Faversham, east Kent (Ager 1992, pl 2), Grave 367, Morning Thorpe, Norfolk (Green et al 1987, pl 14, fig 426; Ager 1997a), and Meonstoke, Hants (Ager 1996).

\(^6\) Examples are known from Grave 133 at Mitcham, Surrey, Grave 51 at Orpington, Kent; Grave 12 at Bishopstone, Sussex (Evison 1968, 247, fig 2a-d), Grave 103 at Alfriston, Sussex (Evison 1965, fig 15a), and Grave 50 at Andover, Hants (Cook and Dacre 1985, 96), and an example from Grave 5, Frilford, Berks (Evison 1968, fig 3d).

\(^7\) One example would be a Type 2 relief cast lancet-shaped strapend (Böhme 1974, 74-5, Taf 15.14) from Bremen-Mahndorf. Angular face motifs occur on Type IIA buckles like those from Saltersford, Lincs (Böhme 1986, Abb 7.12, Abb 11). Continental examples of this motif from Gaul can be found on 'official' belt fittings at Vermand II, Grave 321 (Böhme 1974, Taf 141.12) or Landifay (Böhme 1974, Taf 126.15), for example.

\(^8\) It is found on the quoit brooches from Howletts, Kent, and Grave 43, Alfriston, Sussex, and possibly the disc brooch from Higham, Kent (Hawkes 1961, 42). The artefacts from Howletts and Higham have been attributed to the 'Master of the Sarre Brooch' (Hawkes 1961).

\(^9\) It was argued that a head represented the sun, devoured at midwinter by beasts, a triumph of night over day. In contrast, the counterplate shows a pair of beasts retreating (ie facing away from the head) to represent the lengthening of the day, following mid-winter (Meehan 1992, 23).
have seen, many artefacts in Quoit Brooch Style are wide belt buckles that closely resemble the ‘official’ buckles that are so central to this culture.

The subsequently ‘Anglo-Saxon’ nature of the cemeteries in which Quoit Brooch Style artefacts have been found is one of the reasons that led to the dismissal of this style as devolved late Roman (Ager 1985, 13-14). Certainly, no such artefacts have been positively identified in late Roman or sub-Roman cemeteries, but the subsequent nature of the cemeteries in which they are found cannot, however, be used to judge the ‘identity’ of this art style as ‘Anglo-Saxon’. It is interesting to note, however, that there is little overlap in distribution between brooches of Böhme’s Stufen II and III that form part of the ‘mixed culture’ and Quoit Brooch Style artefacts (Böhme 1986, Abb 54-6). The former tend to be found predominantly in East Anglia, unlike Quoit Brooch Style artefacts. The distribution of Quoit Brooch Style artefacts lies primarily along the southern and eastern coasts of England, with some in East Anglia and the Upper Thames area (Böhme 1986, Abb 47). The distribution (if not association within the same cemeteries) is however, similar to that of belt sets of Stufe III (Chapter 8.3).

It would seem that this type of ornament was the product of sub-Roman craftsmen, for several reasons. The similarity of Quoit Brooch Style to late Roman art style is extremely close, to a greater extent even than artefacts of Böhme’s Stufen (1974) which are central in the identification of this ‘mixed culture’. About half of the known artefacts decorated in Quoit Brooch Style use ‘Roman’ forms; they include pendants, disc brooches and bracelets (although bracelets are also part of the ‘mixed culture’). The form of the bracelet from Grave 631 betrays Roman affinities. Exceptions to these forms are the quoit brooches, of which the earliest types (A, B, C and occasionally D1) were decorated in Quoit Brooch Style, but which only appeared in the fifth century (Ager 1985, 7). Ager (1985) argued that the long period of use of quoit brooches, even into the seventh century, showed an ‘Anglo-Saxon’ origin for Quoit Brooch Style, but only the form, and not the art style, continue. One late example is decorated in Style II.

It would appear not only that this is an evolved late Roman ornament style, but also that this type of ornament was the product of sub-Romano British craftsmen, for several reasons. Firstly, artefacts in this art style are restricted largely...
to Britain, with some in northern France, but are not found in the Elbe-Weser area, as one might expect. The distribution of Quoit Brooch Style artefacts is primarily British, although there is a growing number of examples from northern France.\(^{12}\) Of over 45 find spots, around half a dozen are Continental.

Only a relatively small part of the range of Quoit Brooch Style motifs and techniques are found in material of the ‘mixed’ culture. Ager (1992) has pointed out that Quoit Brooch Style openwork is found on Nesse type equal-arm brooches (Evison 1977, fig 4.c). Such brooches also display backfacing animals similar to those on the moulded Quoit Brooch Style pendants from Bowcombe Down, Isle of Wight (Arnold 1982, 94), and Watchfield, Oxon (Ager 1992). It would seem that individual elements of the Quoit Brooch Style occur on certain types of brooches from the ‘mixed culture’ without in themselves amounting to the Quoit Brooch Style.

Another reason that Quoit Brooch Style artefacts may have been the products of sub-Romano British craftsmen is that workshops appear to have existed in late fourth-century Britain that were capable of producing finely made metalwork, and these may have continued in production. There are no documented British production centres of relief cast buckles (Haseloff 1974, 2).\(^{13}\) Nevertheless it is possible that unofficial workshops existed, such as that excavated at Ickham, Kent (Young 1981; Ager forthcoming, a), or as attested for second- and third-century York (Oldenstein 1985; James 1988). It has long been argued, on the basis of their concentration here, that the narrow dolphin-and horse-headed belt buckles (Types IA and IB) were manufactured in Britain (Hawkes 1974, 387), and at least one example of Type IA is known to have been manufactured at Ickham (Young 1981).\(^{14}\) The similarity of the bracelet in Grave 631 to the Type IB buckle at Mucking II has already been mentioned.

There has been less agreement concerning the area of production of Type IIA dolphin-headed buckles with coiled tails, such as that found in Mucking II, Grave 989.\(^{15}\) It has been suggested that this type may have been a British-made variant of a widespread group (Hawkes and Dunning 1961, 21-34, 50-7; Hawkes 1974, 389; Hills 1979, 304). Clarke (1979, 276, 287) and White (1988, 47) distinguished between a British group with openwork plates and coiled tails, and a Continental group lacking these characteristics. Böhme (1986, 481-3, Abb 11) on the other hand, while acknowledging that this group represented an ‘insula variant’, argued that its manufacture also occurred in northern Gaul, and even Pannonia, citing many more Continental examples than had previously been known. Nevertheless, their

\(^{12}\) These include the belt suite from Pont-de-Buis (see above), unpublished D-shaped tubes from St Laurent-sur-Othain (Evison 1968, 241, note 5), and from Grave 146, III, Réville, Normandy (Welch 1993, 93). A Quoit Brooch Style brooch was found at Béouville, Normandy (Lorren 1980, 233, fig 2.2). The buckle from Amiens (Evison 1981, pl Xia) is discounted by Ager as being purely late Roman in style (1992, 244), and the unprovenanced buckle plate is now believed by Ager (1997a) to originate in Britain. There is an unstratified Type D1 quoit brooch said to be from Herpes, Charente, but its provenance may not be more specific than northern France (Ager 1990, 154, pl 1; Ager 1997b).

\(^{13}\) The establishment of mid to late fourth-century fabricae or official production centres for military equipment is recorded in the Notitia Dignitatum, of which the British section, however, may be missing (Oldenstein 1985; James 1988).

\(^{14}\) Evison (1981a, 129-30) believed that a subtype of IA, variant c, was primarily Continental, but there is no evidence to substantiate this.

\(^{15}\) This subgroup is equivalent to Evison’s variant a\(^1\) and a\(^2\) (1981a, 129), or to part of White’s Group A1 (1988, 59).
presence at Ickham (Young 1981) points to a shared (if not exclusively), British manufacture of at least some examples.

A sub Romano-British origin for the Quoit Brooch Style had been deemed unlikely as the previously known metalwork appears to have been degenerate in style and technique (Ager 1985, 11). Nevertheless, this picture may have changed with the discovery of the Hoxne Treasure (Johns and Bland 1993; Webster and Brown 1997, 213; Ager 1997a, fn 31). Artefacts from this hoard include the use of silver sheet and gilding on bronze (on the Empress and pepper pots), and flat incised animals with ‘fur-like’ hatching on the bracelets. Although the Hoxne Treasure was found in Britain, this does not necessarily mean that its constituent pieces were manufactured here. A few of the characteristic motifs have still not been identified on late fourth-century artefacts found only in Britain.16

Conclusions
In conclusion, the belt set in Grave 117, the most splendid example of this art style, was pivotal in confirming the link to ‘official’ wide belt sets as early as 1968, as well as defining the range of techniques and motifs. Although this idea has long been mooted, arguments are presented for a provincial Roman, probably a Romano-British origin. Quoit Brooch Style appears to be part of the ‘mixed culture’, but forms an element that is primarily found in Britain only. The possible reasons for this are outlined in Chapter 8.3.

16 There is an absence of relief casting, double-dotted tooled beading, paired heads, triple dot-and-line motifs pointed out by Ager (1985, 10, 17, fig 15, no 82) as well as geometric, swastika, inlay, heart-shaped leaves and key designs (Evison 1968, 232-4).
APPENDIX 17. THE SETTLEMENT EVIDENCE AT MUCKING

The patterns of settlement evidence in the area should be examined in the light of several questions:

a) What are the inherent biases in the processes that have led to the retrieval of Anglo-Saxon settlement traces?

Damage to the environment and archaeology in the vicinity of Mucking is very extensive, primarily as a result of quarrying. It is estimated that c 20% of the area in Figure 1/2 had been quarried up to the late 1980s (Bond 1988, fig 1). There has also been development, involving domestic and industrial construction as well as road building (Wilkinson 1988, 6); these activities appear to have affected c 5% of the area.

Information on Anglo-Saxon sites in the area has been accumulated mainly through a combination of quarrying, aerial photography and development, and, to a lesser extent, fieldwalking and stray finds. Quarrying will inevitably focus on sands and gravels, which primarily form the terraces. Some clay and brickearth areas have been quarried here and elsewhere in the Grays-Thurrock area (Wilkinson 1988, 6), but this is less extensive. It is unlikely that finds from old quarry sites will have been recorded, and the area is dotted with such small quarries. Aerial photographic coverage of the Mucking area, in large measure conducted by Dr St Joseph from the late 1950s onwards, is extensive (Drury and Rodwell 1973, 48), and indeed led to the excavations of the Mucking terrace. The correlation of subsoils to the amount of cropmarks has been examined; as expected, sands and gravels are more susceptible to forming cropmarks than other types of subsoil but ‘there is considerable mis-correlation in detail’ (Wilkinson 1988, 7-8). Not even the best drained soils will necessarily reveal all the known archaeology (as already exposed by excavation), depending on various factors such as landuse and the types of crops grown, but above all on the presence or absence of patches of fine sediments (Chapter 1.1).

The discovery of archaeological remains through development, stray finds and fieldwalking suffers less from inherent biases compared to quarrying. Fieldwalking has proved rather unproductive as comparatively few Anglo-Saxon artefacts have been retrieved (see below); there are, for example, the lack of monumental construction, problems of the confusion of sand-tempered sherds with Iron Age sherds and the poor survival of grass-tempered sherds. Relatively little fieldwalking has taken place in the vicinity of Mucking, but when undertaken, the results were poor. In the nearby Grays area, to the west of Mucking, finds were very scarce compared to the numbers that became visible when the topsoil was stripped (Wilkinson 1988, 6), and the same situation was found at Mucking (Jones 1993, 7). Compared to some other counties such as Norfolk for example, very few metal detector finds have been recorded in the Essex SMR, probably due to poorer liason with metal detectorists. Good liason with metal detectorists in Suffolk, for example, has even allowed a differentiation of fifth-, sixth- and seventh-century pot scatters, which is not usually possible (Newman 1993). In conclusion, then, there may be some bias in favour of finding sites in sand and gravel areas, but not to a seriously distorting degree.
b) What are the Anglo-Saxon settlement sites in the area?
The Anglo-Saxon settlement sites within 10km of Mucking are all located on gravel (Fig 1/2) and are all dated in the sixth to seventh century, on the basis of grass-tempered pottery. The dating of grass-tempered fabrics is usually sixth to seventh century, but could in theory continue much later into the eighth, ninth and possibly tenth centuries, as there is a lack of diagnostic middle Saxon wares, as was the case in most parts of Britain (Drury and Rodwell 1978; Hamerow 1991, 13; Tyler 1996). It would seem, however, that the latest Grubenhäuser at Mucking, judging by the patterns of settlement shift, and dated by the coin evidence, were virtually aceramic (Hamerow 1993a, 97). This suggests an aceramic middle Saxon phase at Mucking, and that, on the whole, grass-tempered pottery did not continue to be made into the middle Saxon period, at least in this area.

At Orsett Cock, 2km to the north-west, the distribution of the settlement evidence suggests that the late Iron Age and early Roman enclosure may have been maintained, perhaps to corral cattle. The Anglo-Saxon pottery appears to be mid fifth to sixth century in date (Tyler 1987a), but the settlement overall is dated to the sixth century by Carter (1998). Limited excavation in the 1970s and 1980s during road building uncovered at least nine Grubenhäuser and one possible posthole building; aerial photography suggests there was more extensive settlement to the west, south and east (Milton 1987; Toller 1980; Carter 1998).

At Chadwell St Mary, 2.5km to the south-west, a cremation pot found at an unspecified spot in Chadwell St Mary, 2.5km to the south-west, may be fifth or sixth century in date, judging by the description of 'groups of rosettes and semi-rosettes' (Colchester Museum 1923, 19). Other unpublished traces of settlement recently found during development in the vicinity (SMR no 17281) consist of a Grubenhaus and various pits and postholes, but the presence of grass-tempered pottery suggests a sixth- to seventh-century date for these.

At Gun Hill, West Tilbury, located 3km to the south, a single Grubenhaus yielding grass-tempered sherds was excavated in advance of quarrying in 1968; in conjunction combined with cropmarks it suggested the presence of more huts to the north-east (Bingley 1972-3; Drury and Rodwell 1973). Extensive quarrying to the immediate west, south and north of the area may have destroyed part of the settlement.

A seventh-century date is ascribed to a comb-decorated grass-tempered pot originally in the Coates Collection. This may have been found during quarrying in the 1930s at Stanford-le-Hope at TQ 687828, 2km to the north-east of Mucking (Rodwell and Rodwell 1973; Myres 1977, fig 2.6; Corpus no 3760). However, the Jones’ believed it to have been found in 1926 ‘in Mucking’ (Webster and Cherry 1972, 153). There is thus no reason to concur with the assertion that this pot suggests another Anglo-Saxon cemetery in the Mucking parish (Jones 1975a, 192, fn 2).

Ten grass-tempered sherds were discovered near Mucking creek (SMR 16817), 1.5km distant.

A complete grass-tempered globular jar was found immediately to the east of Walton’s Hall Farm, below the 50’ contour (Webster and Cherry 1973, 142; Hirst and Clark forthcoming, a, fig 111/10; Jones 1975a, 192, footnote 2).

c) What is the evidence for Romano-British and sub-Roman settlement in the area?
Examination of the SMR records showed that Romano-British sites locally appear to have been located on a greater variety of soils than Anglo-Saxon settlements,
including the most fertile soils in the region (Fig 1/2). Wilkinson (1988, 122-3, fig 94) has identified Romano-British sites on both clay and gravel soils in the nearby Grays area.

Of particular interest to Mucking is the Roman pottery found on the eastern slope of the terrace at Walton’s Hall Farm, below the 50’ contour, only 300-500m downslope (Barton 1957, 16). The placename evidence (‘settlement of the British’) suggests that this continued as a sub-Roman settlement (Hamerow 1993a, 95). A complete probable sixth- to seventh-century grass-tempered pot was found in an old quarry here (Webster and Cherry 1973, 142; Hirst and Clark forthcoming, a, fig 111/10). Unfortunately the circumstances of discovery are unknown, but it raises the possibility that originally there were further finds from this area. It may also indicate that there was a separate and continuing settlement here.

d) What is the real extent of Mucking?
The Mucking excavations during in the 1960s and 1970s only managed to recover about 75% of the remains (Jones 1975a, 186). Margaret Jones pointed out that the known extent of the settlement may be still be incomplete, as the excavation strategy was dictated by rescue archaeology. No further archaeology has been reported from the continued gravel extraction on the terrace during the 1980s and 1990s (S Tyler, pers comm). In order to assess the original extent of the Anglo-Saxon settlement at Mucking, the various evidence from development, including quarrying and building (assuming that finds have been reported), and aerial photography (Chapter 1.1) must be considered.

The northern extent of the Mucking site appears to be established. At a location 300m to the north, excavation of the Bronze Age North Rings (visible as cropmarks), in advance of destruction in the Orsett Quarry, revealed two or possibly three previously unknown Grubenhäuser, with grass-tempered sherds dated by Hamerow (1988) to the late seventh century. Although this was seen as a possibly separate site by Jones (1979c, 3), there is no reason to believe this, as an area of Woolwich Beds (sandy clay) between here and the northern tip of the Mucking excavations may well have obscured cropmarks.

The southern limit of Mucking was probably established by the excavations at Linford, which revealed settlement beginning in the fifth century, including five Grubenhäuser, enclosure ditches and one posthole building (Hamerow 1993a, 57, which need not necessarily contradict Barton 1962, who argued for fifth- and sixth-century dates). These remains were not seen in aerial photographs, as the sites are located on an area of gravel. (Nb. on Fig 1/2 this is shown as Woolwich Beds (sandy clay), but the delineation of geology may be fairly crude.)

It is clear, however, that retrieval was incomplete, as pottery was found in the vicinity before excavation, although it appears to have been mainly of Iron Age date (Barton 1962). An area of 27,000m² was machine stripped between Orsett Quarry (where the site of ‘Mucking’ lies) and Linford Quarry (where ‘Linford’ was found) in an attempt to link up the ditches, but without success (Jones 1979c, 3), although it should be noted that the southern extent of the Mucking site was incompletely retrieved due to the hurried nature of the excavations (Jones 1993, 7).

It is unlikely that there is further settlement between Mucking and Orsett Cock, to the west (contra Carter 1998, 177). The landscape between these sites is geologically diverse, consisting predominantly of gravel, with roughly a fifth of Woolwich Beds (sandy clay), and a fifth Blackheath Beds (sand). Approximately a fifth of the area is built up (as at Orsett housing estate, built over Orsett Camp), and
might have been expected to have revealed Anglo-Saxon traces during construction work. No cropmarks have been observed in this area. This absence is confirmed by quarrying; Orsett Quarry, operating since the 1940s, and extending to the west (as well as the north) of the Mucking site, revealed no other traces of settlement.

Settlement may have continued beyond the western edge of excavation, as the cropmarks of at least 18 Grubenhäuser were plotted to the north and south of the Mucking I area (Riley 1993, fig 7) and by Tipper (in prep). However, to the north of this area, the Grubenhäuser do appear to thin outwards to the west, so it is probable that the rough limits of the settlement were found. An estimated 80% of the excavated Grubenhäuser had showed up as cropmarks, believed to be due to charcoal in their fills (Riley 1987, 98). It is possible that periglacial features could be mistaken for Grubenhäuser, as at Orsett Baker Street (Wilkinson 1988, 17), although in order to be Grubenhäuser they might be expected to be dispersed and rectangular in outline. The predominantly sandy clay Woolwich Beds further to the west would be unlikely to reveal cropmarks fully, even if there had been settlement there.

It has often been argued that the main settlement of Mucking was located to the east of the excavated area (Jones and Jones 1975, 149; Jones 1980, 86; Jones 1993; Welch 1983, 27; Welch 1992, 32-3), down the gentle slope, where soils were more fertile. A geophysical survey near the Double Ditched Enclosure, admittedly very limited in scope, did not reveal any traces of settlement (Jones 1975b, 32). Along this slope, however, thicker soils and the presence of brickearth may have obscured traces. Brickearth is a silty or silty loam, either a loess and/or of fluvial origin (Allen and Sturdy 1980, 2; Wilkinson 1988, 5), notoriously poor at producing cropmarks and it has certainly masked some features (Jones and Jones 1975, 136; Riley 1987, 95-8; Riley 1993, 24). Although the exact eastern extent of this brickearth is not known, it does not seem to have been extensive, being found primarily at the junction of the Boyne Hill and Flood Plain Gravels (Carrek 1993, 30). The scant features found on the slope (eg GH 114) were eroded (Clark 1993, 11). The scarcity of the Grubenhäuser to the north-east, which are dated to Phase B/C (sixth to seventh centuries), suggests that some at least are missing (Hamerow 1993a, 86). Welch (1992, 31) has argued that some of the northern Phase A/B area (dated to the fifth to sixth centuries) in particular is missing, as the extant buildings of this phase are thinly scattered.

It would seem in conclusion, that the northern, southern and western extent of Mucking appear to have been roughly established, but that only some of the settlement may to have been missed on the east side.

e) Which soils are more suitable for settlement than others?

Gravel areas, such as the terrace on which Mucking was situated, are characterised by soils that are light but poor (Rippon 1991, 52); this type of soil is very extensive in the area (see Clark 1993, fig 3, which distinguishes between the various types of gravel). The erosion of the terraces may mean that such soils were more productive in the past than they are now (Welch 1985b, 22). Sandy soils would have been similarly light and relatively poor, but in this area were often on sloping ground, and therefore unsuitable for growing crops in any case. Clark (1993, fig 3) distinguishes between the various types of sand (Blackheath Beds and the Thanet Beds). In London Clay areas the soil is more fertile but very heavy, and so seems to have been suitable for grazing and woodland (Allen and Sturdy 1980, 6); London Clay only accounts for three small areas of under 0.5km², to the north-east of Mucking, at a distance of up to 1km (Fig 1/2, nb these are not distinguished from the other clay types in the area).
Certain soils would not have been suitable for settlement as they were too low lying. It is very unlikely that settlement was located on the extensive alluvium near the coast due to the problems of flooding. The coastal marsh may have been used instead for salt-marsh pasture, as well as wildfowling, fishing, and as a source of reeds and rushes (Murphy 1994, 24; Wilkinson 1988, 6). Brickearth appears to have been the best arable land in the area (Rippon 1991, 52). The nearest area of brickearth to Mucking lay to the south (Fig 1/2), but here again the land may have been too low-lying for exploitation or habitation. To sum up, the only suitable soils in this area were on gravel and London Clay, of which only gravel areas were settled, but bearing in mind that the London Clay areas are not extensive. There is a need for more environmental evidence, which is lacking for the area, apart from clues offered by the charcoal report (Hather forthcoming).

f) How does this pattern compare with the wider Anglo-Saxon settlement pattern in Essex, and in Anglo-Saxon areas in general? The indications are that the lighter terrace top gravel soils were favoured in the Mucking area for early Anglo-Saxon settlement, even into the later seventh century (Fig 1/2), although there is some bias towards discovery of sites on these soils compared to others. In Essex generally, lighter soils and areas already cleared seem to have been favoured for early Anglo-Saxon settlement, a picture built up from quarrying and development (Tyler 1996). In particular, in an area directly to the west of Mucking, early Anglo-Saxon settlement was found on gravel sites (Wilkinson 1988), and as this was revealed by the relatively unbiased process of road development, it can be accepted that location on such soils is broadly representative of the true settlement pattern. The predominance of sands and gravels with a general lack of other suitable soils makes this pattern quite likely.

The location of Mucking follows a broader pattern of Anglo-Saxon settlement which, it has been argued, was on shallow, light, marginal soils in elevated positions during the fifth and sixth centuries (Arnold and Wardle 1981). There is a disagreement, primarily owing to lack of good data, about patterns of settlement both in the early Saxon period (Welch 1985b) and middle Saxon period (Hamerow 1991); the latter in particular suffers from a lack of dating evidence. Quarrying and aerial photography have inevitably led to the more frequent discovery of sites on light gravel soils (Hills 1983, 100; Hamerow 1992). Hamerow has argued that early settlements may not have been exclusively or even primarily sited in such areas (Hamerow 1991, 14; 1992). For example, settlement appears to have been on ‘prime’ fertile land in river valleys in Kent, according to placename evidence and the location of cemeteries (Hawkes 1982a, 74, fig 28). Nevertheless, where large-scale fieldwalking has been undertaken, it has confirmed the traditional picture of settlement on light soils until the middle Saxon period, while the as yet very limited environmental evidence also points in this direction. In north-west Essex, for instance, an area of widespread Boulder Clay, fieldwalking has indicated settlement on the margins of the lighter clay and chalk soils (Williamson 1986, 126-7; 1988). Fieldwalking and analysis of metal detector finds in the Deben Valley in Suffolk also revealed settlement on the lighter sands and gravels, and avoidance of the Boulder Clay until the middle Saxon period (Newman 1992; 1993). Environmental data from Suffolk also supports the idea of settlement on lighter soils in the early Saxon period (Murphy 1994). Certainly local diversity must be kept in mind, and further research is needed, especially the coring of colluvial deposits in river valleys.
Mucking fits into an at least local pattern of settlement on light, easily worked soils. The Mucking Anglo-Saxon settlement is, however, very unusual in the early date of its foundation, and the strong possibility of its strategic purpose based on an excellent view over the Thames. The present poor, marginal quality of the land may be misleading (Jones 1980, 86; Welch 1985b, 22), as such soils may have been more fertile in the past. Light soils were easily worked, and were easy to keep cleared. The farming potential of soils on river gravels can be considerable (Hooke 1985, 26). Nevertheless, downslope from Mucking on the plateau, conditions may have been even more fertile, as soils were thicker and more loamy, but still light and well drained.
APPENDIX 18. THE RELATIONSHIP OF THE MIGRATION PERIOD TO THE CONVERSION PERIOD CEMETERIES AT MUCKING

The settlement at Mucking appears to have continued well into the eighth century (Hamerow 1993a, 97), as dated by sceattas, and there is also evidence for a ditch complex continuing into the middle Saxon period (Going 1993c; Tipper in prep). In contrast, the latest graves at Mucking appear to be only sixth to early seventh century in date (see Chapter 5). Whatever the exact date of the latest graves, there appears to be up to a century of burials of the inhabitants of Mucking that remain unaccounted for.

Such burials could be unfurnished, and therefore unidentified burials within the known cemeteries. Graves in which individuals were buried without grave goods, oriented W-E and in a supine position can be characteristic of the Conversion Period, and have been identified using radiocarbon dating (Geake 1997, 10). At Mucking, however, such graves do not seem to account for the missing Conversion Period population, for several reasons.

Firstly, roughly a quarter of the known Grubenhauser are dated by Hamerow (1993a, fig 50) to the seventh or eighth centuries. One would thus expect a similar proportion of the total number of burials to be dated to this period, if all burials continued to take place in the recorded cemeteries, but the percentage of unfurnished graves is much lower. Nearly all the graves in Mucking I were aligned WSW-ENE, so the distinction of possible Conversion Period graves from other unaccompanied graves must rely on body position. There are only nine supine unfurnished graves in Mucking I, comprising only 14% of the total. Unaccompanied graves in total account for roughly a quarter of Mucking I (21 or 32%). It is possible that the estimated c 60 burials lost to quarry destruction (see Chapter 1.1), may all have been Conversion Period in date, but this cannot now be ascertained. Graves without artefacts are scattered across Mucking II, but graves with unfurnished, supine burials aligned around W-E were clustered in the west, east and south-east. Nevertheless, they comprised only 5% of the cemetery (14 graves). Even if all of these graves could be ascribed to the Conversion Period, it is evident that there were too few to account for all expected burials. There were undated graves scattered throughout the terrace outside the cemetery areas, but as the site was multi-period, they have to be discounted.

Secondly, it might be expected that some artefacts datable to the Conversion Period would have been found, if such late burial had continued within the cemeteries, but very little has been found (Chapter 5).

The only known late burials and possible burial sites in the vicinity appear to be too far distant to be convincingly associated with the Mucking community. These include the five barrows dated to the late seventh to eighth century at Orsett Neolithic Enclosure (Hedges and Buckley 1985), but the site is 2km to the west. It is interesting to note that the area become part of the Essex estates of Barking Abbey (Jones and Jones 1975, 186). From the mid seventh century, Tilaburg, a monastery founded by St Cedd may have provided a focus for lay burials, although if this was so it was probably the preserve of the elite (Morris 1983, 50). Charters indicate that lay burials could occur in monasteries, such as at Nazeingbury, Essex, for example (Bascombe 1987). Tilaburg was probably located at East as opposed to West Tilbury, c 4km distant (Pewsey and Brooks 1993, 33-5), and again must have been too far distant from Mucking. Sceattas have been located at East Tilbury (SMR no 9001), and although the connection to Tilaburg is not secure, it is possible that they
relate to a nearby secular settlement or market, established at least 50 years before the Mucking settlement appears to have come to an end (Hamerow 1993a, 89). Chadwell St Mary may be another possible founded by St Cedd, as the name may derive from a holy well named after him, but more probably means ‘cold spring’ (Gelling 1984, 31, 270), but again is too far distant. Other mid to late Saxon traces include the tenth- to eleventh-century pot at Horndon-on-the-Hill, and the late Saxon pot and church at Comingham, all roughly 4km away (data courtesy of Essex SMR).

In only two cases have traces been found within 1km of the old cemeteries. Ten grass-tempered sherds have recently been found near Mucking village, and are interpreted as traces of a possible settlement (see Appendix 17). A complete grass-tempered pot was also found 0.5km downslope near Walton’s Hall Farm, although the circumstances of discovery remain unknown (see Chapter 8.1). Another complete ?seventh-century grass-tempered comb decorated pot was found probably ‘at Mucking’. This may derive from quarrying at Stanford-le-Hope (Rodwell and Rodwell 1973), but the Jones’ believed this originated from Mucking (see Appendix 17).

None of these traces are sufficient to point to a Conversion Period cemetery. Despite the extensive amount of aerial photography of the area, graves are very unlikely to have been identified as cropmarks, unless they were under barrows, as they are too small and shallow (see Chapter 1.1). In conclusion, it is entirely possible that there was a separate later cemetery, that has simply failed to be identified.
APPENDIX 19. OTHER ASPECTS OF THE BURIAL RITE AT MUCKING I

Saprophagous flies
Puparia of saprophagous flies were found in Graves 90, 120, 123A and 252. This does not necessarily imply an interval of several days between death and burial (with eggs laid on the exposed corpse), since these species were burrowers (Biek forthcoming, b).\(^1\) In many other cemeteries, it is clear from the increasing evidence of pupae cases of non-burrowing insects in early Anglo-Saxon graves that burial at least at times occurred up to a few days after death (Janaway 1987, 130).

The use of coffins
Coffins were found in 60% of the graves in Mucking I. Although coffins appear to have been made for the individuals buried in them, the use of a coffin appears to straddle age and gender groups, and must have been chosen for other reasons. In both Cemeteries I and II, the presence of coffins and covers appears to have been slightly more common amongst adults than amongst juveniles, and was not related to gender (Table App 19/1). If adolescents/adults are notionally counted as adults, as would appear to be justified (see Chapter 7), then 60% of ‘adults’, and 61% of juveniles were buried in coffins, while in Mucking II the figures are 46% and 42% respectively. It has been argued that given the absence of preservation, the original presence of a coffin could be suggested by the ‘parallel-sided effect’, ie, a supine body with arms close to the body, extended legs, and with feet together (Boddington 1987c, 36, 40). While the body position of individuals in known coffins does appear at times to be relatively constricted, this is not definitive enough to predict the original presence of coffins that can no longer be traced.

It could be argued that coffins were, on the whole, made for those individuals laid within them, for two reasons. Firstly, there is the usual close correlation of body length to coffin length (Chapter 7.1). Secondly, the least labour-intensive method of working oak is when it is freshly cut, or ‘green’. Cracks in oak appear over time, but not immediately, so given the rarity of coffin mends in Anglo-Saxon cemeteries generally, and in both the cemeteries at Mucking, this would suggest that there was not a significant gap between the making of the coffin and its subsequent burial, ie that the coffin may have been prepared for the deceased only after death. In Mucking I, only one coffin was mended, in the infant Grave 125. In fact it is interesting to note that in the few cases of mended coffins in Mucking II, these are usually juvenile burials. This would suggest that unlike the majority of cases, a small number of juveniles may have been buried in what may originally have been their cots.

More definitely identified dugouts are associated with juveniles than with adults, but it is possible that almost all the coffins were dugouts, as only one could be positively identified as a plank-built coffin. Whether in association with adults or adolescents, neither covers nor coffins appear to have denoted high status, since in Mucking I (in contrast to other sites) they frequently occurred in graves of average

\(^1\) As this evidence can only be preserved through mineralisation, the full extent of such delayed burial cannot be known.
depth, albeit not in ones less than 0.18m deep. The presence of coffins has been linked to an above average depth of graves (Hills 1977a, 40; Hirst 1985, 33; Cook and Dacre 1985, 55; Drinkall and Foreman 1998, 34), but as they have also been identified with higher status, itself associated with deeper graves, this may be due to cultural rather than preservation factors.

Dugouts with matching lids that would have been formed in the same manner as the coffin may have had a perceived function as ‘houses of the dead’ (Bärenfänger 1988, 175). Nevertheless, this kind of lid seems to have been absent in Mucking I. Only ill-fitting covers were found, but with less than a quarter (9/39) of known coffins, despite their rarity of occurrence without coffins (Chapter 1.3).³

It has also been suggested that dugout coffins may have had a symbolic role as ‘boats’ to carry the dead on their voyage to the afterlife (Bärenfänger 1988, 176). The similarity of dugout coffins to boats has long been noted (Grohne 1953, 279), although boats (with the exception of punts) can be distinguished from dugout coffins by a pointed prow, a feature not in evidence in the examples from Mucking I. A contemporary perception of the physical and conceptual analogy is borne out by the use of the terms naucus and nauffus in the sixth-century Salic Law to describe coffins (Grohne 1953, 279).⁴ The strongest resemblance is between dugout coffins and the type of small, only partly or non-clinker-built boats, as found at Snape (Filmer-Sankey 1990a; 1990b; Filmer-Sankey and Pestell forthcoming). A widespread but later custom of burial in boats is known in southern Scandinavia in the seventh to eleventh centuries, as witnessed in the cemeteries of Vendel and Valsgärde, in Uppland, Sweden (Müller-Wille 1968-9; Schönbäck 1983).⁵ The symbolism of boats in the cult of death as well as a closely related fertility cult is clear in literary sources, such as Beowulf, and later Norse sagas.⁶ The likelihood that dugout coffins were originally present in many Anglo-Saxon cemeteries, and their widespread distribution in many areas of the Continent (Chapter 1.3), combined with the almost exclusive association of boat burial with southern Scandinavia, and the absence of links to this area in the artefactual record at Mucking, suggests, however, that the interpretation of dugout coffins as symbolic boats is not appropriate in this case.

Where the identification of coffin wood was possible in Mucking I (only in five cases), oak had always been chosen (Chapter 1.3).⁷ The symbolism of the use of oak has been discussed by Paulsen (1992, 29-35) and Filmer-Sankey and Pestell (forthcoming). The tenth-century historian Widukind of Corvey for example mentions a trio of deities, including Thunor, represented as ‘totem-poles’ among his pagan Continental Saxon forebears. Coffins may have represented a link, via the use of oak,

---

² Graves with grave furniture of any kind were on average 0.34m deep (39 graves), whilst those without, and with known grave depths (14 graves), were on average 0.32m deep.
³ At Mahndorf a significant proportion of dugouts also lacked a cover (Grohne 1953, 279).
⁴ I am indebted to Dr Simon Burnell for this reference.
⁵ Boat burial is also known at Slusegård, Bornholm in the Roman Iron Age, ie the second and third centuries AD (Schönbäck 1983).
⁶ For example the royal dynasty of Sweden claimed its lineage from Frey, the god of fertility, who was also a shipowner. A boat bore another fertility god, Seyfd Scefing, as a child, and as a corpse, as recorded in the 8eighth-century Beowulf (Schönbäck 1983).
⁷ There was a similar predominance of oak used for the coffins in Mucking II (Hirst and Clark forthcoming, b) and at Snape (Filmer-Sankey and Pestell forthcoming).
to these deities. Sacred oaks themselves were dedicated to Donar (Thunor). The turning
of the seasons, seen in the yearly cycle of trees, might have been perceived as a
metaphor for the life cycle of humans. Oak was accorded life-giving qualities in
Northern mythology and the symbolic concept of a ‘tree of life’ may also have been
connected to the use of oak coffins. For example, the world-oak Yggdrasill was
described as a link between the dead and the gods by the poet Snorri Sturluson in the
twelfth century.

Nevertheless, it should be remembered that oak was probably the most widely
available type of wood that was substantial enough to be used for coffins. As types of
wood appear to have been chosen specifically for their particular qualities, such as ash
for spears, yew for buckets, and the lightweight lime/willow or willow/poplar for
shields (see Chapter 1.2), oak may have been selected for coffins because of its
strength. Oak predominated in the pollen record (although information was only
available for preceding periods) and in the charcoal of the pyres in Mucking II,
suggesting that it may have been the most common local wood (Hather forthcoming).
Thus oak may have been chosen for coffins for reasons of convenience and practicality
as much as for any particular properties of its own.

Dugout coffins, as distinct from plank-built coffins, do not seem to have been
used in late Roman burials. Dugout coffins are known (but were never common),
however, in fifth and sixth-century north German cemeteries, occasionally dated as
early as the mid fifth century (Chapter 1.3). Dugout coffins may have formed part of the
‘mixed culture’, at least in Britain, as they are found amongst the earliest graves in both
Mucking I and II.

Aspects of the grave cut

Grave length

The close correlation between grave length and the size of the individual buried in the
grave, as demonstrated in Chapters 6 and 7, would indicate that in the great majority of
cases, graves were dug more or less at short notice for their particular occupants.

Orientation

The choice of orientation was another variable to be considered. The predominant
WSW-ENE orientation in Mucking I follows the norm for Migration Period Anglo-
Saxon cemeteries of a broadly W-E orientation. There is an even greater consistency of
W-E orientation of graves in certain regions, for example in both Kent and East Anglia,
between which Mucking lies.9 There is no conclusive evidence for the overall picture

8 It should be noted that in the discussion of the solar model, readings were taken from the foot end
(Hawkes 1976; Kendall 1982; Brown 1983), as well as in the analyses by Evison (1987; 1988). Readings
have been taken from the head at Mucking, as this concurs with common practice in modern Anglo-
Saxon reports, that the first compass point given refers to the head end.

9 Faull (1977) did not distinguish between east and west Kent, but this orientation seems to have
predominated in both areas. The geographically anomalous predominance of a W-E orientation in the
kingdom of Lindsey, largely present-day Lincolnshire (Faull 1977, appendix 1), no longer seems to be the
case (Drinkall and Foreman 1998, 360).
in Mucking's 'area of commonality', but a general survey of published Migration Period sites indicates both a mixed and a predominantly W-E orientation (Table Appendix 3/4).

The very regularity of the WSW-ENE orientation in Mucking I appears to rule out any significance of this variable in terms of chronology, age, gender or status. Aberrant alignments might, in theory, be explained in this way; in other cemeteries unusual orientations have been assigned in general to the young or old (Chapter 6.4), but this does not appear to be the case in Mucking I. It is also possible that the more exceptional orientations reflect a later date, but this does not seem to be conclusively so either. In one case, however (Grave 255), an unusual orientation does seem to be associated with ostracism or punishment (see below).

How should the almost uniform orientation be explained? Possible reasons include religious beliefs (entailing the use of a solar alignment), and the effect of topography or man-made features. At first glance, the easterly orientations in Mucking I do suggest that graves were aligned to the sun. A solar model of alignment to the rising sun has been used to explain similar consistency of orientation in Merovingian and other Anglo-Saxon cemeteries (Wells and Green 1973, 438-41; Hawkes 1976, 49-50; Fichter and Volk 1980). The majority of the orientations in Mucking I fall clearly within the solar arc of 49-138° for Essex (Wilkinson 1988, 57) (ie between the positions of the rising sun at the summer and winter solstices), so this hypothesis must be examined.

One objection to the solar model is that documentary evidence suggests that burial on the day of death was the norm, so that the necessary dawn vigil using the rising sun was not possible (Boddington 1990, 192). Even if burial on the day of death did occur, it is still entirely possible that an observance of the setting, as opposed to the rising, sun was made (Rahtz 1978, 3). The evidence would point, however, to burial on a later day, so that the rising sun could be used. There are problems with Boddington's use of the documentary evidence, in that it primarily relates to a later period, but also that the Frankish *ordines* may have been intended precisely to have a deterrent effect on what was common contemporary practice of burial on the succeeding day or days. Some individuals must have died late in the day, or during the night. It would also seem that time was needed to prepare a funeral, from the digging of the grave, and probably the making of a coffin (see above), to other activities, now lost, that may have been part of the ritual proceeding burial itself (Bartel 1982). In any case, it is clear from the increasing evidence of pupae cases of non-burrowing insects in early Anglo-Saxon graves that burial at least at times did not occur on the day of death (see above). This would obviously mean that a sunrise alignment would have been possible on any one of the successive days following death.

Closer examination of the data from Mucking I suggests, however, that the solar model alone cannot explain the consistency of alignment. Firstly, not all
orientations fall within the solar arc; 14 graves (23%) lie outside this range. The aberrant treatment of these individuals may have been due to other factors (see below).

Secondly, acceptance of a solar arc orientation would allow a time of year to be calculated for each burial (unless at the azimuths to two possible times), and thereby permit examination of seasonal mortality patterns (Wells and Green 1973, 438-41; Hawkes 1976, 49-50). The pattern at Mucking I, however, contrasts sharply with any expected mortality patterns, undermining a solar model.

Viewed in terms of a solar arc model, the Mucking I orientations are heavily skewed towards the summer azimuth (Fig 1/23), implying a complete absence of burials between late October and late February. This accords with a general trend observed in several other Anglo-Saxon and late Roman cemeteries with predominantly easterly orientations examined by Kendall (1982) and Brown (1983), which also demonstrate an apparent lack of deaths during winter. It should be noted, however, that the other cemeteries with predominantly easterly oriented graves examined by Kendall (1982) and Brown (1983) demonstrate an apparent peaking of deaths in spring and autumn. Both these patterns and those from Mucking I are at odds with later Preindustrial and Industrial Period patterns of mortality. It could be argued that patterns of mortality based on data from non-contemporary societies are not directly comparable. Nevertheless, there is still a marked shortfall of graves compared to a pattern based on random deaths throughout the year (Brown 1983, fig 1c).

Unlike other contemporary cemeteries with an easterly grave alignment, the vast majority of deaths (31, ie 49% of all graves, or 66% of those oriented within the solar arc) in Mucking I occurred in late spring/early summer (early April to early May) and/or mid-summer/early autumn (mid-July to early September), with 10 graves in late May to mid-July (16% of all graves, or 21% of graves within the solar arc). Thus the vast majority of burials appear to have taken place during the summer, from April to September (87%). It could be argued that the possible high levels of deaths during summer at Mucking I could be due to plague. The figures given by Russell (in Brown 1983) for the fourteenth century show much higher levels of death during summer at a time when plague was recorded than was the case previously, when deaths predominated in winter. Nevertheless, the use of individual, as opposed to mass graves at Mucking I makes this explanation unlikely.

It could be argued that graves may have been dug in readiness before the ground became frozen in winter (Fichter and Volk 1980; Welch 1992, 56) which might explain a deceptive scarcity of 'winter' burials in Mucking I and in many late Roman and 'Anglo-Saxon' cemeteries. It cannot explain, however, the much lower than expected

---

13 The orientation of one other, unobserved grave (Grave 131) is unknown, and is excluded from analysis.
14 Certain graves also fell outside the solar arc at Finglesham (Hawkes 1976), explained as the result of 'nautical sunrise', or the distorting effects of the nearness of the sea by Fichter and Volk (1980). Such an effect is unlikely to apply to Mucking, however.
15 The sixth- to seventh-century cemetery at Finglesham, the middle Saxon cemeteries at Caistor-on-Sea and Burgh, and the late Roman cemeteries of Poundbury and Cannington (here only the fourth-century burials were studied), Lankhills, Victoria Road, and Chester Road.
16 Thus, as recorded in the Inquisition Post Mortem, at a time when plague was common (taken as 1348 to 1368), 45% of deaths occurred between May and August, compared to a mere 25% in the period preceding this.
incidence of mid-summer burials in general, even if burials were random (Brown 1983, fig 1c), although in Mucking I, there are more 'summer' graves than expected. Most importantly, the close correlation between grave length and the size of the individual buried in the grave would indicate that graves were usually dug at short notice for their occupants (Chapter 7).

The skewed pattern cannot be due to topographical features which can alter the angle of the rising or setting sun (Rahtz 1978, 9), such as high walls, hills or ridges (also see below). It appears therefore that the solar model is not applicable to Mucking I.

The distribution in Mucking I approximates to a normal curve of distribution around a particular orientation (Fig 1/23), as in other contemporary cemeteries examined by Boddington (1987a; 1990). Boddington, however, failed to explain why such an orientation should be around W-E, and why it should fall predominantly within the solar arc. It is most probable that the focus of burial in these cemeteries was not the rising sun, but may instead have been a fixed point(s) (Kendall 1982).

The predominant WSW-ENE orientation in Mucking I lies parallel to the River Thames, and to the contours of the terrace. The potential importance of this is diminished by the fact that the same situation obtained in Mucking II, but the graves there had a mainly southerly orientation. Alternatively, man-made features may have acted as a reference; the majority of the domestic buildings were on the same alignment as the graves, or alternatively the graves may have been aligned to the nearby ditches, as at Berinsfield, Oxon, for example (Boyle et al 1995, 124). In Mucking I, it is possible that the approximately S-N graves were aligned to ditches 5530 or 5234, as 5234 dates from before the mid sixth century, while ditch 5530 probably post-dated the cemetery (Chapter 1.1). The majority of graves orientated WSW-ENE are, however, less likely to have been aligned to ditches 5532 or 5538 to the north of the cemetery, since these are seventh- to eighth-century in date. In Mucking II the Roman ditches that bound it were also roughly on the same alignment as some graves, but this cannot explain the alignment of others (see Hirst and Clark forthcoming, b).

It is also conceivable, however, that the W-E graves were aligned to features now lost, such as a shallow palisade fence, perhaps similar to that found in Mucking II, for example, but this cannot be proven. Alignment could also have been influenced

---

17 Burgh Castle and Caistor-on-Sea, both in Norfolk, and Shudy Camps, Cambs, and, in the case of Finglesham, Kent, corroborating the work of Brown (1983).
18 At Bargates, Dorset, the contours of the terrace appeared to influence the alignment of the graves orientated SW-NE and SE-NW (Jarvis 1983).
19 An idea previously postulated by Hawkes (1976, 42) for the sixth-century graves at Finglesham, east Kent for example.
20 Other cemeteries are aligned roughly S-N, such as Andover, Portway, Hants (Cook and Dacre 1985, 53), where alignment was heavily influenced by the presence of an ?Iron Age ditch.
21 Evison (1987, 152-68) has suggested that certain cemeteries on a W-E alignment (Orpington and Bergh Apton) show, from a scattering of aligned postholes, the line of a fence which in each case runs at an angle of 76.5° from Grid North and may have demarcated plots; this is compared with the Buckland, Dover cemetery, where posthole alignments at 76.5° might have had a similar significance. In Mucking I, no postholes were found within the cemetery area, and even if this was due to 'scraping', a division along this alignment anywhere in the cemetery does not seem to be meaningful.
by a barrow or mortuary structure, as found elsewhere. It is possible that orientations were aligned towards the unexcavated, possible Grubenhäuser D, G or H, or, in the case of Grave 107, even to E (Fig 1/8) and at least some of them would have had to have originated in the first half to mid fifth century, which does not fit with the general spatial development of the settlement (Chapter 1.1). In summary, topographical factors do not appear to have been of significance in the matter of orientation, nor are any surviving features. Nevertheless, it is not impossible that a now-lost feature once existed, such as a post(s), posthole buildings or a sacred tree, for example. The easterly positioning of such a focus may have had some kind of religious significance of a similar nature to solar alignment.

This suggests that the most likely explanation for orientation at Mucking I (and indeed the majority of subsequently Anglo-Saxon cemeteries) is that there was an adoption of the easterly alignment of graves in late Romano-British burial practice. Unfortunately, recorded grave orientations in nearby late Roman cemeteries as a whole are very few. The late fourth-century graves at Mucking, however, appear to have been aligned W-E, although it is unlikely that any of these graves were visible by the early to mid fifth century.

The predominant orientation of graves of the fifth-century ‘mixed’ culture, both in the Elbe-Weser area, and northern Gaul, was N-S (Todd 1977; Halsall 1996, 10, 16). In the Elbe-Weser area, the use of W-E orientation did not occur in a wholesale manner until the end of the Migration Period. In northern Gaul, Reihengräber of the late fifth century onwards were orientated W-E as a rule, but this does not seem to be due to the influence of late Roman burials in northern Gaul, which were much earlier, and not as commonly aligned W-E as has been supposed (Halsall 1992a, 199).

Unfortunately, there are so few intact burials of the ‘mixed culture’ that can be dated to the early to mid fifth century, or even fifth century in Britain (Chapter 8.3) that

---

22 In the case of Norton, Cleveland (Sherlock and Welch 1992, 14) at least some of the graves appeared to be aligned to a prehistoric barrow.

23 The change to one orientation in late Romano-British cemeteries has been argued to have been due to lack of space in urban cemeteries (Philpott 1991, 226-7), although this does not explain the easterly choice of orientation. This may have resulted from the adoption of a sun cult, but this was also part of a Christian belief system (Hirst 1985, 28). Romano-British easterly burial has been interpreted as possibly reflecting the adoption of Christianity (Black 1986), but this new practice had already begun before Constantine’s conversion (Green 1977, 46-7; Macdonald 1979, 424-6; Millet 1995, 127). By itself such an orientation cannot be seen as indicative of Christianity (Watts 1991).

24 In the cases of Kelvedon-Feering, Essex, orientation was almost uniformly N-S, presumably aligned to the surrounding enclosure (Rodwell 1988). At Prittlewell, Essex, one coffin was found oriented NE-SW (Politt 1923).

25 The Roman Cemeteries I, II and IV at Mucking contained fourth-century graves. The heads in Cemetery I were placed in the E or SE, with some around the W, while in Cemetery II they were placed in the SW and NE. N.b Cemetery I (300N x 100W) is erroneously marked as Cemetery II (Clark 1993, fig 4).

26 Earlier burials have been interpreted as referring to the ‘queen of the dead’ who was believed to have lived in the north, according to later documentary evidence (Hirst 1985, 27).

27 Cemeteries here include those in Lower Saxony (Bärenfänger 1988, 174), with sites such as Bremen-Mahndorf (Grohne 1953, 280) and Liebenau (Hässler 1984, 353). At Issendorf (Hässler 1994, Abb 5) there is however, a W-E orientation in all phases. To the SW of this area, in later ‘Frankish’ Westphalia, east of the Rhine, orientation again appears to change only at the end of the Migration Period (Wand 1982, 262), as at Soest for example.
whether this adoption began in the early to mid fifth century cannot be claimed with certainty. The orientations of Grave 117 in Mucking I and 979 in Mucking II are E-W, but other graves in Phase iai/aii in Mucking I are aligned W-E; in Mucking II, they are often, but not always, aligned W-E (Fig 5/7). The fact that subsequent burials in Mucking II were not uniformly aligned E-W, unlike Mucking I, does not support this theory.

In conclusion, most of the graves in Mucking I were probably, but far from certainly, oriented according to sub Romano-British influence. The more unusual orientations are not easily explained but may be associated with individual victims of ostracism, punishment, or were connected with a desire to deter ghosts.

The choice of body position
A supine burial position is the most common of all body positions at Mucking (Fig App 19/1) and in general (Faull 1977). In general, a supine position seems to have denoted a richer burial, judging by the presence of artefacts (Hirst 1985, 37-8; Evison 1987, 133), presumably selected for the purposes of display at the time of burial. As further confirmation of this, in Mucking I only 14% of supine burials were unfurnished (although there was a wide range of numbers of artefact types when furnished), compared to 32% of unfurnished graves in the cemetery as a whole. This trend was not related to age, but persisted across different age groups. Thus, for example, adult males buried supine (seven graves) contained an average of 3.3 types, and non-supine graves contained on average 1.3 types (three graves).

As implied above, a certain number of burials were not laid supine.28 Only seven burials were either laid on their sides or crouched, so statistical conclusions may be misleading, but of these six were unfurnished, and four were adolescents/adults: Graves 126, 240, 247, and 255, the adult Grave 253, the adolescent Grave 123B and the infant burial 130. Most of these (with the exception of Graves 123B and 240) are clustered on the north-eastern side of the cemetery, although other unfurnished graves, both adult and juvenile, were fairly widely scattered. The absence of grave goods makes internal dating impossible. All the examples lay on the edge of the cemetery, with the exception of Grave 123B, which may not be certainly identified as a non-supine burial. At Lechlade, the incidence of semi-flexed or flexed burial positions was more common amongst juveniles and older adult females (Chapter 6.4). In Mucking I, some of the concentrated group are confirmed as juveniles, while it is possible that others may have been older adults, although this cannot be ascertained given the lack of bone evidence.

Graves 253 and 255 are part of this group, but are distinguished by the probable presence of close wrapping or a 'bag', in the case of 253, in conjunction with a crouched burial position, and in 255, with a more unusual orientation, and possibly tied legs. Both contained body stains within a darker stain closely following the outline of the body, 28 Two supine burials, Graves 257 and 276, appeared at first to display anomalous features that could not be explained in terms of age or gender. In the young child's Grave 257 there did not appear to be enough space for the missing head and torso, but comparison with the similarly proportioned Grave 251 allowed for a small torso and head to have fitted within the available space. In the adolescent male weapon burial Grave 276 there did not appear to be a head, but it is more likely that the head had slumped down over the chest.
and there were no accompanying artefacts. The body positions were also unusual: in Grave 253 the burial was in a crouched position (Fig App 19/2),\textsuperscript{29} that is, with the legs bent up at an acute angle to the body, while the burial in Grave 255 was in a less contracted position, on its right side, with semi-flexed legs. In addition, these two graves were situated in close proximity to one another, on the northern edge of the cemetery, with Grave 255 also displaying an anomalously southerly orientation. Thus Graves 253 (an adult) and 255 (an adolescent/adult) appear to have received very unusual treatment, which cannot be explained in terms of age or gender.

Various possible explanations for the use of a crouched body position have been explored in Chapter 6.4. It may be the case that crouched burial was more frequent in Anglian areas, for both juveniles and adults,\textsuperscript{30} making its use in ‘Saxon’ areas seemingly more anomalous. At Lechlade, a number of very unusual body positions, including prone, decapitated, ‘sitting’ and crouched, were associated only with either juveniles or older adult females. Clearly, such abnormal treatment was reserved for only a few individuals, and must have been in some way connected with ostracism, punishment or the fear of ghosts. Although in general crouched burials occur both with and without grave goods (Faull 1977, 5), at Lechlade and certain other sites they tend to be accompanied by few or no objects.\textsuperscript{31} This may be merely the corollary of a bias towards juveniles or older adults, who tended altogether to be buried with fewer artefacts. None of the individuals concerned in Mucking I had any associated artefacts, but this applied to nearly half of the graves in the cemetery, so ‘low status’ cannot be the only explanation for this form of burial.\textsuperscript{32}

It is possible that the unusual graves in Mucking I were merely later in date and reflect the introduction of a new burial practice; Faull (1977, 5) suggested that crouched burials may have been the earliest or latest interments in a cemetery. Crouched burials are found in later cemeteries, although still representing a relatively unusual burial position, both in 'typical' Conversion Period cemeteries, and in high-status burial grounds such as Sutton Hoo.\textsuperscript{33} The graves at Mucking cannot, however, be securely dated in the absence of grave goods.

\textsuperscript{29} Note that the distinction between a straight and a curved back made by Welch (1992, 60), where he only counts the latter as truly crouched, has not been used here.

\textsuperscript{30} Crouched burial is found in Northumbria (Faull 1977), including east Yorkshire (Lucy 1998, 103) and at Norton-on-Tees, Cleveland, where, for example, the crouched burial position accounts for nearly a third of all the burials, with the rest having a predominately S-N orientation (Sherlock and Welch 1992, 27-30). At Sleaford, Lincs, it is also used alongside a N-S orientation (Thomas 1887). This burial position also predominated at Wytham, Oxon (formerly Berks) (Meane 1964, 54), in a ‘Saxon’ area.

\textsuperscript{31} More detailed examination of Anglo-Saxon graves may show that on average crouched burials have fewer goods than extended ones; this was the case at Norton-on-Tees for example (Sherlock and Welch 1992, 30). Certainly crouched burial cannot have been intended, unlike the supine position, for a full display of the deceased's costume during the burial ceremony. In Merovingian graves crouched burials had fewer grave goods (Salin 1952, 220).

\textsuperscript{32} The intention of crouched burial may have been to avoid the laborious task of grave digging, if it can be seen as a careless or hasty form of burial (Hirst 1985, 36). In Mucking I, however, the dimensions of the relevant grave cuts are larger than necessary; both graves were long enough to accommodate an extended position, and Grave 255 extended even a little beyond this. While Grave 255 was, admittedly, shallow (0.15m), Grave 253 was not (0.38m). It should be noted that the stripping of the topsoil in hurried excavations, here and elsewhere, may make such recorded depths misleading.

\textsuperscript{33} Crouched burials are found in Conversion Period cemeteries, such as Grave 17 and Grave 23 (which was also headless), at Winnall, Hants, where it is possible that the bodies had been buried in a position of
At Mucking, organic stains were observed in various shades of black or brown, including in these two Graves 253 and 255. The presence of several possible materials may explain the close-fitting stains: various textiles (including woollen cloaks and blankets, or sackcloth), plant material, or furs. The use of large pieces of cloth, perhaps blankets, cloaks or 'shrouds' to wrap or cover bodies in the grave, as seen in Danish bog burials (Hald 1980), would not be improbable in Anglo-Saxon graves, where mineralised textiles have sometimes betrayed the presence of blankets or cloaks (Crowfoot 1983). What have been described as 'shrouds' unfortunately often feature in older reports, where closer analysis was not carried out.\textsuperscript{3} Owen-Crocker (1986, 48) has suggested that most of the textile remains of tabby-woven linen on the front of brooches may have come from shrouds. These were, however, not shrouds to wrap the naked body, as used in later Christian burials, but were in addition to clothing. The presence of single pins that do not seem to be part of normal dress (whether in life or death), have been suggested as indicating shrouds (Evison 1987, 82), but this seems unlikely, given the absence of a clear 'parallel-sided effect', ie a constricted extended body position that might be expected, as described above, but which might also indicate the presence of a coffin (Boddington 1987c, 36, 40).

Such remains might, of course, also represent blankets or cloaks (Crowfoot 1983; Edwards forthcoming, b). The shape of the stain in Grave 253 does seem to suggest a hood, such as might belong to a 'Gallic cloak' (Owen-Crocker 1986, 69; Hald 1980, 322). It should be noted, however, that another sketch made at the time of excavation implies that the stain was altogether more rounded about the head. Sacking is another possibility,\textsuperscript{35} as are 'shrouds' of plant material found in Merovingian graves (Salin 1952, 128). It is doubtful, however, whether any of these materials would have left a stain of the kind found at Mucking.

This suggests that the remains were derived from a substance much thicker than textile or plant fibres, such as leather, fur, skin or even bark. No such remains were found mineralised in either Mucking I or II (G Edwards, pers comm), but examples of these elsewhere are not unknown. Short fur cloaks were an important feature of Germanic men's costume (Owen-Crocker 1986, 66).\textsuperscript{36} Other leather garments were probably worn, such as the leather cuirass identified in the Sutton Hoo ship burial

\textit{rigor mortis}, and on the whole more carelessly than in earlier cemeteries (Meaney and Hawkes 1970, 29-30). Crouched burials accounted for several of the burials in Groups 1 and 2 at Sutton Hoo (Carver 1992b, 369-71), and many of the individuals at Uncleby, Yorks (Smith 1912).\textsuperscript{34} Dark, enveloping stains have been noted at, for example Guildford, Surrey (Lowther 1931, 8), Hamsey, Sussex (Meaney 1964, 249), and Broughton Down, Hants (Meaney 1964, 95). In the absence of microscopic analysis, however, these remains cannot be identified.

\textsuperscript{35} A burial of a child in what was believed to have been a sack was excavated at Elloughton, Humbs (though it is also possible that this was swaddling). It was among a group of mixed age and sex, with burials 'thrown in' face down, in general disorder, and including one headless burial, which suggested to the excavator that they had been buried following a massacre (Sheppard 1940). Sacking material was also found at Mound 1, Sutton Hoo (Bruce-Mitford 1975, 481) and in Grave 29, at Chamberlains' Barn II, Beds with the crouched burial of a child (Hyslop 1963).

\textsuperscript{36} An example of fur was found in Grave 28, Little Eriswell, Suffolk where, however, the mineralised traces may merely indicate a pouch (Crowfoot 1966, 31). From the Continent, exceptional organic preservation in late sixth- to seventh-century burials beneath the church of SS. Ulrich and Afra in Augsburg shows that the cleric in Grave 8 was wearing an otterskin jerkin and leather boots, among other items of clothing (Werner 1977, 159-63).
None of the types of garment thus described would, however, account for such enveloping stains as those at Mucking. There is also evidence from certain Anglo-Saxon graves that bodies were enclosed in leather or hide 'shrouds'; preserved fragments in conjunction with stains interpreted as 'hide' closely surrounded bodies at Saltburn-on-Sea, Yorks, for example (Hornsby 1913; Gallagher 1987). It should be noted that the presence of leather or hide may have been much more common than the evidence suggests, as its traces are only likely to survive in areas with sandy soils.

One possible reason for 'deviant' burial might have been a wish to prevent a return of the deceased to haunt the living (Hirst 1985, 36-7). The return of ghosts may have been particularly feared in certain circumstances, such as when an individual had been murdered, or if death had occurred suddenly, something that must have affected children especially (Chapter 6.4). Most burial treatments that have been interpreted as a precaution against hauntings include covering at least some of the body with stones, postmortem decapitation (Meaney and Hawkes 1970, 30-1), and/or prone burial (Harman et al 1981). Hirst (1985, 36) has also suggested that tightly crouched burials, where the body may have been bound, may have been carried out with the same intention. On a related theme, unusual burials may symbolise punishment for a crime, or marked disgrace for a variety of reasons, such as a cowardly death. The body position most often suggested as a suitable punishment for disgrace is prone burial, but it is possible that this could have extended to crouched burial. The associated ostracism could be reflected in the positioning of these graves on the margin of Mucking I. Although they lie within a cluster of 'nonconformist' graves, the even more unusual burial treatment in Graves 253 and 255 may be interpreted as a punitive display.

Evidence of deliberate killing can indicate either sacrifice or judicial execution, although the distinction may not necessarily be clear, as victims of sacrifice might often have been those regarded as dispensable, such as condemned criminals or prisoners of war (Ellis Davidson 1992, 338). A growing, but still very small number of burials in the Anglo-Saxon archaeological record have plausibly been claimed as sacrificial killings (Hirst 1985, 1993; Wilson 1992, 77-80, 165-72; Geake 1992, 87-90; Ellis Davidson 1992; Reynolds 1996).

The Mucking I graves in question, do not, however resemble burials where sacrifice has been offered as the most likely explanation. Sacrificial killings have been inferred from unusual body positions, such as prone burial, sometimes appearing to indicate 'live' burial. Such cases appear in the sixth century, with no definite fifth-century examples of this practice (A Reynolds, pers comm). No exact parallels for the unusual Graves 253 and 255 can be found in other cemeteries, but crouched burials placed above a more 'normal' burial are known. Particular features of other, single

---

37 Such leather shrouds have also been found in Continental graves; Salin (1952, 128) noted that in eighth- and possibly seventh-century Merovingian Francia, the practice of burial in a leather 'sack' began in certain high-status contexts.

38 One candidate for such treatment would have been the crouched male buried in Grave 69 at Berinsfield, Oxon, with the shield over his face (Boyle et al 1995, 118).

39 At Portway, Andover, Hants the crouched burial of an adult male (Grave 2) was found without grave goods (unusually for an adult in this cemetery), but with bound arms, and buried directly above a furnished supine mature female (Cook and Dacre 1985, 56). In the disturbed Graves 1 and 2, at Harwell,
crouched burials have suggested a sacrificial context. If human sacrifice by drowning was being practised at Mucking 500 years later than documented Germanic examples, the victims' bodies would have had to have been retrieved for burial in the cemetery.

Judicial execution could be one explanation for the 'deviant' burials at Mucking. Amira (1922, 178-9) noted that in medieval Europe death by drowning was administered as a punishment for witchcraft and was reserved particularly for women. Deliberate drowning is recorded in Merovingian legal practice (Ström 1942, 171-8). Drowning in 'mire' was prescribed in the Burgundian Lex Gundobada (Chapter 34) as a penalty for adultery (Ström 1942, 178-88) and may still correspond to the drowning in bogs recorded by Tacitus (Germania, 12) in the first century AD as the punishment for 'notorious ill livers'. Archaeologically, however, victims of drowning would be hard to identify in a cemetery, even supposing that they could be retrieved and buried by the families. Suspected 'execution' sites are usually disordered (Dickinson 1974), or have clear foci, such as high-status burial mounds, as appears to have been the case at Sutton Hoo (Carver and Evans forthcoming). Neither matches the evidence from Mucking I. In conclusion, execution of particular individuals at Mucking - whether sacrificial or judicial - cannot be proven.

**Grave inclusions**

The remains of plants were found in a small number of graves, which are widely dated (see Chapter 1.3). There are a handful of known parallels for this in other cemeteries representing a wide geographical and chronological range. The phenomenon of plant remains in graves has been discussed relatively recently (Cook 1981, 30; Hirst 1985, 31). Salin (1952, 128-31) cited evidence of moss, straw, herbs and flowers deposited in Merovingian graves and suggested that such inclusions may have insulated the body from contact with the earth, or may (where a coffin or cover was present) have afforded the body protection according to the perceived properties of a particular plant. Hirst (1985, 31) also suggests 'symbolism (in the case of herbs) or perhaps merely sentiment...at the very least such practices in all periods are further indicators of the care shown towards the dead'. Parallels have also been found for the use of ferns elsewhere.

Oxon (formerly Berks), an unsexed upper skeleton without grave goods lay in a contracted position, above an unsexed extended skeleton (Kirk and Marshall 1956, 26).

40 In Grave 47 at Spong Hill, Norfolk, a young woman was buried crouched and covered with large flints (Hills et al 1984, 1, 8, 41). She had also possibly been undernourished, or suffered from ill-health during her lifetime, and the combination with this, as well as its location in the ring ditch surrounding chamber Grave 40, led Hills to suggest that this, and other crouched burials nearby may have been sacrificial.

41 Tacitus (Germania 40) described the first-century cult of the goddess Nerthus, among the Langobardi and neighbouring tribes, whose idol was cleansed in a sacred lake by slaves, who were then drowned in it to preserve her secrets. The Frisians made sacrifices to the powers of the sea, and sacrifices in springs are recorded by Adam of Bremen at Uppsala in Sweden in the eleventh century (Ström 1942, 177).

42 Thus for example, there was a 'bundle of stems of plants' in Grave 33, Little Eriswell, Suffolk (Hutchinson 1966, 32), and a 'bed' of grass or rushes was lining the grave cut in the adult weapon-bearing Grave 29, Holywell Row, Suffolk (Lethbridge 1931, 18).

43 For example, bracken was found under a copper alloy vessel in the male Grave 56, Girton, Cambs (Hollingworth and O'Reilly 1925, 17), in Mound 1, Sutton Hoo, where the whole chamber appears to
There are some parallels elsewhere for the inclusion of unburnt twigs or branches, as found in Graves 117, 120 and 159, but they are more commonly preserved by charring than through mineral preservation (Chapter 1.3). 44

Charcoal was probably deliberately placed in two graves, 265 (undated) and 283 (Phase 1bi/bii) (Chapter 1.3). It could not be tied, at least in Mucking I, to the practice of charring coffins, and so may have been deliberate grave inclusions. The placing of charcoal in early Anglo-Saxon graves is a well attested phenomenon (Meaney 1964, 16; Hirst 1985, 30-1; Wilson 1992, 123-6; Drinkall and Foreman 1998, 212). Charcoal was commonly sprinkled throughout the fill, or near the head or pelvis (Wilson 1992, 125). Charcoal has also been found in Merovingian graves (Salin 1952, 202-12; Young 1977, 30-6). Various proposed explanations have included ritual purification, traces of a funeral feast, the transfer of ashes from the family hearth, or a religious ceremony conducted near the grave and involving fire, perhaps connected to a sun cult (Salin 1952, 203-7). Other reasons may have been to release the spirit in a way that echoed the rite of cremation (Meaney 1964, 16), or perhaps involved the cult of a god, such as Thunor, associated with fire (Welch 1992, 64), an attempt at preservation (Hirst 1985, 31), or even a desire to prevent the return of ghosts (Johnson 1912, 287). 45 Careful analysis of the charcoal from older excavations to identify the species of wood might be revealing. Finally, it should be remembered that it is possible that the presence of charcoal in Mucking I was purely incidental, given the existence of the settlement nearby.

A possible grain imprint was found on the shield boss in Grave 114 (Phase 1bi/bii). Similar grains have been found in the cemetery of Andover, Portway, Hants, where interpretations as part of a grave lining, or food offerings, or inclusions with a prophylactic function have been proposed (Cook and Dacre 1985, 56-7). There might be some connection with the occasional cereal grains found in cremations, but these were most probably accidental inclusions (Hirst and Clark forthcoming, b). 46

The presence of sherds in two graves may merely be a consequence of location within a multi-period site, but alternatively they might represent a possible burial rite little understood at present whereby pots, containing offerings, may have been deliberately smashed, and in which flints may have possessed some symbolic significance (Hirst 1985, 32; Evison 1987, 17-18; Clark forthcoming, s). Lucy (1998, 67) suggests that pots may have been markers of the individual, symbolising their age or sex.

44 For example, at Soham C, Waterworks, Cambs, burnt sticks and twigs were found along the side of the body of an ?elderly furnished female in Grave 15 by Lethbridge (1931, 162); at Snape, Suffolk, in one grave entire, charred branches up to 1.2m long were found throughout the fill (Filmer-Sankey 1992, 48), and at Kempston, Beds, a partly cremated body, burnt in the grave, was found among charred branches (Smith 1868, 205-6).

45 There is no evidence that fires were made in the grave at Mucking, and this is a rare practice in Merovingian cemeteries (Young 1977, 30-6).
A METHODOLOGICAL EXAMINATION OF ASPECTS OF CHRONOLOGICAL
AND SOCIAL ANALYSIS OF EARLY ANGLO-SAXON CEMETERIES WITH
PARTICULAR REFERENCE TO CEMETERY I, MUCKING, ESSEX

Dido Florence Clark

PhD

University College London

Volume 3
1. Blue House Farm; several sherd s RB pottery from ploughsoil (Barton 1957, 16); SMR 5144

2. Walton's Hall Farm; RB pottery from small gravel pit (Barton 1957, 16); no SMR
no. Also complete grass-tempered globular jar from same gravel pit (Webster and Cherry 1973, 142; Firth and Clark forthcoming, b).

3a. 100 yards north of the church, several vessels dated to 2nd century AD found 1930; SMR 1888

3b. Roman burials, 100 yds north of Mucking church found 1886 with vessels dated to 2nd century AD; Powell 1963, 162; SMR 1891

4. Crown gravel pits, 1st century sherds found by MR Hull in 1931; Powell 1963, 162. SMR 1893/1895

5. SE of church 1st century Roman pottery found by MR Hull in 1931; SMR 1897

6. Mucking Creek, Roman pottery from beaches east of Mucking Creek; from sea erosion outside sea wall (Jones and Catton 1971, 42); SMR 5186. Same grid reference has RB pottery, brick, animal bones and wood from flint-lined well found in 1967; SMR 5188

7. Golf coarse, St Cleres Hall, ten sherds grey vegetable-tempered ware; SMR 16817.

Fig 1/2 The location of Mucking, showing solid and drift geology, Romano-British finds, and Anglo-Saxon settlement
Fig 1/3  Plan of Mucking I, with Anglo-Saxon, Iron Age, Romano-British and undatable features
Fig 1/4  Plan of Mucking I, with areas of possible non-retrieval
Fig 1/5  View of Mucking I during rescue excavation
Fig 1/6 Cropmarks in the Cemetery I area, taken by J K St Joseph on 14.6.61 (Cambridge University Collection of Air Photographs, VW38, copyright reserved), from Cambridge University Collection
Fig 1/7 Aerial photograph of Mucking I and II, showing area of lucerne, taken by J K St Joseph on 14.6.61 (Cambridge University Collection of Air Photographs, ADI 20, copyright reserved), from Cambridge University Collection
Fig 1/8  Aerial photographic plot with suggested cemetery boundaries
Fig 1/9  Position of objects on the body
Fig 1/10 Reconstruction of the motif on the applied brooch 249/4, at 1:1
Fig 1/11 The button brooches in Grave 90, at 2:1
Fig 1/12 The equal-arm brooch in Grave 90, at 2:1
Fig 1/13  The small square-headed brooch in Grave 102 at 2:1
Fig 1/14  The bead strings in Graves 93 and 283
Fig 1/15 The bead string in Grave 99
Fig 1/16 The bead string in Grave 99 in situ
Fig 1/17 The belt buckle from Grave 117
Fig 1/18 The inlaid buckle from Grave 272
Fig 1/19 The glass bowl in Grave 99, at 1:1
Fig 1/20  The glass claw beaker in Grave 92, at 1:1
Fig 1/21  The excavator's sketch of the stoup in Grave 246
Fig 1/22  Grave 243, with shield stain
Fig 1/23 Histogram of orientations in Mucking I
Fig 1/24 the dugout coffin in Grave 125
Fig 1/25 An example of a coffin with a rounded head and square end, Grave 128, at an early stage of excavation
Fig 1/26 The base of the coffin in Grave 128
Fig 1/27 An example of a dugout or plank built coffin in Grave 113, at an early stage of excavation
Fig 1/28 The coffin and silhouette in Grave 113, at a later stage of excavation
Fig 1/29 The pillow in Grave 265
Fig 1/30  The organic layer in Grave 119
Fig 1/31 The double Grave 123
Fig 2.1 The frequency of brooch types at Mucking I and II
Fig 2/3: The frequency of brooch types at Lechtalae
Fig 3/1   The single link cluster analysis of artefact types at Lechlade
Fig 4/1 The Lechlade seriation printout, with phasing. R = saucer brooch with Romano-British motifs, SI = saucer brooch with Style I motifs, and K = saucer brooch influenced by Kentish disc brooches.
The coding of artefacts in the seriation at Lechlade (see Fig 4/1)

08210 pots, calcareous fabric
08200 pots
05122 disc brooch, quincunx of single/double bull’s eyes
05120 disc brooch, central/sole ornament of quincunx of bull’s eyes
05100 disc brooch
05500 small-long brooch
05510 small-long square-head with triangular foot
05800 great square-headed brooch + small-long brooch
16100 toilet set
15220 cold worked cast pin Type XVii
15200 flat sheet expanded headed pin Type VX
12200 padlock key
05300 applied brooch
02100 bag
03500 ca beads
15320 hook headed pin type XVII
15300 pin, coldworked iron rod
03113 metal-in-glass beads
16300 brush tube
13200 knife, Böhner Type B
09200 spangles
03121 chevron bead
03122 bead with double cross wave and dot/or crossing waves
06100 D-shaped loop
05430 saucer brooch, late RB designs
05432 saucer brooch, Style I saucer brooch, late RB, 5 pt star
05400 saucer brooch
05433 saucer brooch, late RB, 5 running spiral
03120 polychrome bead
05410 saucer brooch Style I
06300 oval loop buckle
03800 crystal
06400 round loop buckle
05411 saucer brooch, Style I leg motif
03123 spiral trail bead
13100 knife, Böhner type A
15210 rolled/folded type pin Type XVI
05123 disc brooch, border of stamped annulets
03600 calcareous beads
03920 lead bead
14610 tight slip-knots
14130 scutiform/disc simple
05413 saucer brooch Style I, leg/body around geometric decoration
10120 silver expanding finger ring
14530 beaver tooth
20105 saucer brooch Style I, leg/body around geometric decoration, 5 pt star
12100 latchlifter
06200 kidney-shaped buckle
16200 tweezers
16210 RB tweezers
03124 spot bead
02200 chatelaine
10210 closed silver ring
05422 saucer brooch, derived from Kentish garnet inlaid (3 animals)
05420 saucer brooch, derived from Kentish garnet inlaid
05910 Kentish disc + saucer brooches derived from them
14600 slip-knot rings
14140 finger ring (used as pendant)
01500 cowries (amulets)
13300 knife Böhner Type C
18200 weaving battons
15400 composite linked pins
15410 composite linked pins subgroup LXIV.i
12120 latchlifters
14133 gold and garnet pendant
08110 Fe bound bucket
14300 glass pendant
03700 cowrie beads
03950 silver beads
Fig 4/2 The distribution of Phase 1 graves at Lechlade according to gender and age groups
Fig 4/3 The distribution of Phase 2 graves at Lechlade according to gender and age groups
Fig 5/1  The seriation of the male graves in Mucking I and II, with phasing
Fig 5/1 The seriation of the male graves at Mucking I and II with phasing (see Fig/1)

<table>
<thead>
<tr>
<th>code</th>
<th>artefact type</th>
</tr>
</thead>
<tbody>
<tr>
<td>03510</td>
<td>buckles, broad, late Roman/Quoit Brooch Style</td>
</tr>
<tr>
<td>03511</td>
<td>buckles, broad, relief cast, late Roman/Quoit Brooch Style</td>
</tr>
<tr>
<td>03500</td>
<td>buckles, late Roman/Quoit Brooch Style</td>
</tr>
<tr>
<td>02111</td>
<td>brooches, penannular, Type Cb</td>
</tr>
<tr>
<td>02110</td>
<td>brooches, penannular, Type C</td>
</tr>
<tr>
<td>02010</td>
<td>brooches, penannular</td>
</tr>
<tr>
<td>06900</td>
<td>knives, late Roman</td>
</tr>
<tr>
<td>08210</td>
<td>toilet articles, tweezers, decorated, i.e. Roman</td>
</tr>
<tr>
<td>08200</td>
<td>toilet articles, tweezers</td>
</tr>
<tr>
<td>03200</td>
<td>buckles, ribbed/inlaid (loops of various shapes)</td>
</tr>
<tr>
<td>01100</td>
<td>bags and portable containers, bags</td>
</tr>
<tr>
<td>07111</td>
<td>pins, copper alloy, expanded headed, Type XV.ii (rolled and folded)</td>
</tr>
<tr>
<td>07110</td>
<td>pins, copper alloy, expanded headed, Type XV</td>
</tr>
<tr>
<td>07100</td>
<td>pins, copper alloy, expanded headed</td>
</tr>
<tr>
<td>12310</td>
<td>spears, Type E1</td>
</tr>
<tr>
<td>12510</td>
<td>spears, Type K1</td>
</tr>
<tr>
<td>03100</td>
<td>buckles, D-shaped</td>
</tr>
<tr>
<td>14000</td>
<td>axe/francisca</td>
</tr>
<tr>
<td>14100</td>
<td>axe/francisca, intermediate Types A-C</td>
</tr>
<tr>
<td>04210</td>
<td>containers, inhumation pots, stamped</td>
</tr>
<tr>
<td>04111</td>
<td>containers, stave-built, copper alloy, buckets</td>
</tr>
<tr>
<td>04110</td>
<td>containers, stave-built, copper alloy</td>
</tr>
<tr>
<td>04100</td>
<td>containers, stave-built</td>
</tr>
<tr>
<td>08300</td>
<td>toilet articles, 'scrapers'</td>
</tr>
<tr>
<td>12410</td>
<td>spears, Type H1</td>
</tr>
<tr>
<td>12210</td>
<td>spears, Type D1</td>
</tr>
<tr>
<td>10121</td>
<td>shield, Group 1.1, grip lb</td>
</tr>
<tr>
<td>10120</td>
<td>shield, Group 1.1, grip I</td>
</tr>
<tr>
<td>10100</td>
<td>shield, Group 1.1</td>
</tr>
<tr>
<td>15200</td>
<td>swords, cocked hat pommel</td>
</tr>
<tr>
<td>12420</td>
<td>spears, Type H2</td>
</tr>
<tr>
<td>06200</td>
<td>knives, Dover Type 2</td>
</tr>
<tr>
<td>12120</td>
<td>spears, Type C2</td>
</tr>
<tr>
<td>06700</td>
<td>knives, Mucking Type 7</td>
</tr>
<tr>
<td>10231</td>
<td>shields, Group 3, grip IIIa</td>
</tr>
<tr>
<td>10230</td>
<td>shields, Group 3, grip III</td>
</tr>
<tr>
<td>10200</td>
<td>shields, Group 3</td>
</tr>
<tr>
<td>06600</td>
<td>knives, Dover Type 6</td>
</tr>
<tr>
<td>06400</td>
<td>knives, Dover Type 4</td>
</tr>
<tr>
<td>04210</td>
<td>containers, pots, grass-tempered</td>
</tr>
<tr>
<td>12330</td>
<td>spears, Type E3</td>
</tr>
<tr>
<td>10110</td>
<td>shields, Group 1.1, grip III</td>
</tr>
<tr>
<td>06300</td>
<td>knives, Dover Type 3</td>
</tr>
<tr>
<td>10210</td>
<td>shields, Group 3, grip I</td>
</tr>
<tr>
<td>03600</td>
<td>buckle, heavy cast oval</td>
</tr>
<tr>
<td>15100</td>
<td>swords, iron pommels</td>
</tr>
<tr>
<td>15110</td>
<td>swords, iron pommels, domed and flat</td>
</tr>
<tr>
<td>03300</td>
<td>buckles, oval</td>
</tr>
<tr>
<td>12110</td>
<td>spears, Type C1</td>
</tr>
<tr>
<td>10300</td>
<td>shields, Type 6</td>
</tr>
<tr>
<td>12320</td>
<td>spears, Type E2</td>
</tr>
<tr>
<td>10310</td>
<td>shields, Group 6, grip I</td>
</tr>
<tr>
<td>10311</td>
<td>shields, Type 6, grip I</td>
</tr>
<tr>
<td>11100</td>
<td>arrows, Bohner Type A</td>
</tr>
<tr>
<td>11000</td>
<td>arrows</td>
</tr>
</tbody>
</table>
Fig 5/2 The seriation of the female graves in Mucking I and II, with phasing
<table>
<thead>
<tr>
<th>code</th>
<th>artefact type</th>
</tr>
</thead>
<tbody>
<tr>
<td>04220</td>
<td>brooches, late Roman motifs, applied</td>
</tr>
<tr>
<td>04200</td>
<td>brooches, late Roman motifs</td>
</tr>
<tr>
<td>04222</td>
<td>brooches, late Roman motifs, applied, six-point star</td>
</tr>
<tr>
<td>13800</td>
<td>knives, late Roman</td>
</tr>
<tr>
<td>15100</td>
<td>pins, iron, forged</td>
</tr>
<tr>
<td>04223</td>
<td>brooches, late Roman motifs, applied, floriate cross</td>
</tr>
<tr>
<td>05000</td>
<td>buckles, O-shaped</td>
</tr>
<tr>
<td>04111</td>
<td>brooches, plain crossbow, faceted and/or ribbed</td>
</tr>
<tr>
<td>04110</td>
<td>brooches, plain crossbow, plain footplates and headplates</td>
</tr>
<tr>
<td>04000</td>
<td>brooches, plain crossbow</td>
</tr>
<tr>
<td>04300</td>
<td>brooches, small-long and cruciform without lappets</td>
</tr>
<tr>
<td>14310</td>
<td>finger rings, used as pendants, expanding, copper alloy</td>
</tr>
<tr>
<td>02400</td>
<td>beaddings, 1ry glass, varied colours, polychrome and monochrome</td>
</tr>
<tr>
<td>14350</td>
<td>finger rings, used as pendants</td>
</tr>
<tr>
<td>10210</td>
<td>finger rings, solid, Roman in form</td>
</tr>
<tr>
<td>10211</td>
<td>finger rings, solid, Roman in form, bezel</td>
</tr>
<tr>
<td>04800</td>
<td>brooches, penannular</td>
</tr>
<tr>
<td>05200</td>
<td>buckles, ribbed/inlaid, various loop shapes</td>
</tr>
<tr>
<td>16100</td>
<td>toilet articles</td>
</tr>
<tr>
<td>04320</td>
<td>brooches, small-long and cruciform without lappets, small-long, square-headed</td>
</tr>
<tr>
<td>04350</td>
<td>brooches, small-long and cruciform without lappets, cruciform/small-long hybrids</td>
</tr>
<tr>
<td>04700</td>
<td>brooches, small-long and cruciform with lappets</td>
</tr>
<tr>
<td>04501</td>
<td>brooches, cruciform and small-long without lappets, cruciform/small-long hybrids, cruciform</td>
</tr>
<tr>
<td>15140</td>
<td>pins, iron, forged, crook head</td>
</tr>
<tr>
<td>04600</td>
<td>brooches, applied, unknown motifs</td>
</tr>
<tr>
<td>06300</td>
<td>bracelets, wire-drawn or plain</td>
</tr>
<tr>
<td>05210</td>
<td>buckles, ribbed/inlaid</td>
</tr>
<tr>
<td>04900</td>
<td>brooches, plain quoit and annulars</td>
</tr>
<tr>
<td>02100</td>
<td>beaddings, 1ry glass, blue, 1ry monochrome</td>
</tr>
<tr>
<td>04310</td>
<td>small-long and cruciform without lappets, small-long, cross headed</td>
</tr>
<tr>
<td>04212</td>
<td>brooches, late Roman motifs, equal-arm</td>
</tr>
<tr>
<td>04210</td>
<td>brooches, late Roman motifs, equal-arm, non relief cast</td>
</tr>
<tr>
<td>04740</td>
<td>brooches, cruciform and small-long with lappets, zoomorphic lappets</td>
</tr>
<tr>
<td>04330</td>
<td>small-long and cruciform without lappets, small-long, square headed</td>
</tr>
<tr>
<td>12300</td>
<td>knives, Dover Type 2</td>
</tr>
<tr>
<td>02200</td>
<td>beaddings, 1ry glass, 1ry purple and varied colours, 1ry monochrome</td>
</tr>
<tr>
<td>15120</td>
<td>pin, iron, forged, hook head</td>
</tr>
<tr>
<td>03200</td>
<td>beaddings, 1ry glass, varied colour, 1ry monochrome, 1ry miniature</td>
</tr>
<tr>
<td>04710</td>
<td>brooches, cruciform and small-long with lappets, cross-headed</td>
</tr>
<tr>
<td>02810</td>
<td>spindlewhoris, glass, wire-drawn spiral trails</td>
</tr>
<tr>
<td>02800</td>
<td>spindlewhoris, glass</td>
</tr>
<tr>
<td>15300</td>
<td>pin, round headed, Type LXX ii</td>
</tr>
<tr>
<td>04500</td>
<td>brooches, discs and saucers</td>
</tr>
<tr>
<td>05400</td>
<td>buckles, circular loops</td>
</tr>
<tr>
<td>04520</td>
<td>brooches, disc and saucer with late Roman motifs, disc</td>
</tr>
<tr>
<td>04730</td>
<td>brooches, small-long and cruciform with lappets, small-long, square-headed</td>
</tr>
<tr>
<td>05700</td>
<td>buckles, heart-shaped plates</td>
</tr>
<tr>
<td>12100</td>
<td>keys, padlock</td>
</tr>
<tr>
<td>13200</td>
<td>knives, Dover Type 4</td>
</tr>
<tr>
<td>08111</td>
<td>containers, stave-built, stoup or bucket, Frankish?</td>
</tr>
<tr>
<td>08100</td>
<td>containers, stave-built</td>
</tr>
<tr>
<td>08110</td>
<td>containers, stave-built, stoup or bucket</td>
</tr>
<tr>
<td>12200</td>
<td>keys, slide</td>
</tr>
<tr>
<td>02600</td>
<td>beaddings, 1ry amber or gold-in-glass</td>
</tr>
<tr>
<td>13500</td>
<td>knives, Dover Type 6</td>
</tr>
<tr>
<td>14200</td>
<td>pendants, slip-knot rings</td>
</tr>
<tr>
<td>05211</td>
<td>buckles, ribbed/inlaid, plate with ring-and-dot inlay</td>
</tr>
<tr>
<td>10100</td>
<td>finger rings, expanding</td>
</tr>
<tr>
<td>03200</td>
<td>bags and portable containers, pursemounts</td>
</tr>
<tr>
<td>04400</td>
<td>brooches, Style I</td>
</tr>
<tr>
<td>04430</td>
<td>brooches, Style I, small square-headed</td>
</tr>
<tr>
<td>05600</td>
<td>buckles, heavy cast, bevelled</td>
</tr>
<tr>
<td>04511</td>
<td>brooches, disc and saucer with late Roman motifs, saucer, running spiral</td>
</tr>
<tr>
<td>04510</td>
<td>brooches, disc and saucer with late Roman motifs, saucer</td>
</tr>
<tr>
<td>04450</td>
<td>brooches, Style I, reused horse fittings</td>
</tr>
<tr>
<td>04451</td>
<td>brooches, Style I, reused horse fittings, made by same craftsman</td>
</tr>
<tr>
<td>04421</td>
<td>brooches, button, motif 2ry to Scandinavian mask designs</td>
</tr>
<tr>
<td>04420</td>
<td>brooches, Style I, button</td>
</tr>
<tr>
<td>10110</td>
<td>finger rings, expanding, silver</td>
</tr>
<tr>
<td>04432</td>
<td>brooches, Style I, small square-headed, copper alloy</td>
</tr>
<tr>
<td>04431</td>
<td>brooches, Style I, small square-headed, silver</td>
</tr>
<tr>
<td>14210</td>
<td>pendants, slip-knot rings, small and silver</td>
</tr>
<tr>
<td>02500</td>
<td>beaddings, 1ry glass, 1ry red, white or yellow, polychrome and monochrome</td>
</tr>
</tbody>
</table>
Fig 5/3: Complex stratigraphic relationships in Mucking II. The highlighted graves have been seriated.
Fig 5/4 The distribution of seriated and unseriated graves in Mucking I in Phases 1ai/aii and 1aii/aiii
Fig 5/5 The distribution of seriated and unseriated graves in Mucking I in Phase 1aiii
Fig 5/6
The distribution of seriated and unseriated graves in Mucking I in Phases 1bi/bii and 1biii/2
Fig 5/7 The distribution of seriated and unseriated graves in Mucking I in Phases 1ai/aii and 1aii/aiii
Fig 5/8 The distribution of seriated and unseriated graves in Mucking II in Phase 1a iii
Fig 5/10  The distribution of seriated and unseriated graves in Mucking II in Phase 1biii/2
Table 7/1 Scattergram of complete silhouettes in Mucking I against complete coffin lengths
Fig 7/2 Scattergram of complete silhouettes in Mucking II against complete coffin lengths
Fig 7/3 Scattergram of complete silhouettes in Mucking I against complete grave base lengths
Fig 7/4 Scattergram of complete silhouettes in Mucking II against complete grave base lengths
Fig 7/5 Scattergram of complete silhouettes in Mucking I against grave top lengths.
Fig 7/6 Scattergram of complete silhouettes in Mucking II against grave top lengths
Fig 7/7  The distribution of graves by gender in Mucking 1
Fig 7/8  The distribution of graves by age in Mucking I
Fig App 1/1  Key to grave plans
Fig App 1/2   Key to glass bead colours
Fig App 1/3  Graves 90 and 91
Fig App 1/5   Graves 93 and 99
Fig App 1/6 Graves 99 (continued) and 100
Fig App 1/7  Graves 102, 107 and 108
Fig App 1/8  Graves 113, 114 and 115
Fig App 1/9  Graves 116 and 117
Fig App 1/10  Graves 119 and 120
Fig App 1/12  Graves 122 and 123
Fig App 1/13  Graves 124, 125, 126 and 127
Fig App 1/14  Graves 128, 129, 130 and 131
Fig App 1/15   Grave 159
Fig App 1/16  Graves 240, 241 and 243
Fig App 1/17  Graves 244 and 245
245 cont.

Fig App 1/18  Grave 245 (continued)

697
Fig App 1/19  Graves 246 and 247
Fig App 1/21  Grave 249
Fig App 1/22  Graves 250, 251, 252, 253 and 255
Fig App 1/23  Graves 256, 257, 258, 264 and 265
Fig App 1/24  Graves 266, 271 and 272/101
Fig App 1/25  Graves 276 and 283
UNSTRATIFIED, CEMETERY 1

Fig App 1/26 Unstratified artefacts
Schematic illustration of areas of inlay and silver sheet in Grave 117 buckle set. The silver wire and sheet. The numbers indicate points where metallographical examination was undertaken.

Circular area within the rectangular plate is left empty as it is not certain whether this is inlay or.
Fig App 8/1 The distribution of the brooch types in Mucking I
Fig App 8/2 The distribution of the buckle types in Mucking I

KEY
- D-shaped
- Oval
- Circular
- Kidney
- Shield-on-tongue
- Wide "official"
- Quoit Brooch Style
Fig App 8/3  The distribution of brooch groups in Mucking II used in the female seriation
Fig App 19/1  The distribution of body positions in Mucking I
Fig App 19/2  The soil silhouette in Grave 253
<table>
<thead>
<tr>
<th>No</th>
<th>applied</th>
<th>circular</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>saucer</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>disc</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>button</td>
<td>ring</td>
</tr>
<tr>
<td>4</td>
<td>quoit</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>annular</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>penannular</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Armbrustfibel</td>
<td>bow</td>
</tr>
<tr>
<td></td>
<td>Glaston-Mucking</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>supporting-arm</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>equal-arm</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>lozenge</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>cruciform</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>small-long</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>small square</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>great-square headed</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Roman/Iron Age</td>
<td>other</td>
</tr>
<tr>
<td>1</td>
<td>other</td>
<td></td>
</tr>
<tr>
<td>Material</td>
<td>Copper</td>
<td>Pewter</td>
</tr>
<tr>
<td>----------------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>Amber-like</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Jet-like</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Imitation</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Faience</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Glass</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total%</td>
<td>28%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Table 1/2: The bead types arranged by material.
<table>
<thead>
<tr>
<th>Colour</th>
<th>1%</th>
<th>2%</th>
<th>3%</th>
<th>4%</th>
<th>5%</th>
<th>6%</th>
<th>7%</th>
<th>8%</th>
<th>10%</th>
<th>12%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>6.1</td>
<td>6.2</td>
<td>6.3</td>
<td>6.4</td>
<td>6.5</td>
<td>6.6</td>
<td>6.7</td>
<td>6.8</td>
<td>6.9</td>
<td>7.0</td>
</tr>
<tr>
<td>Semi-green</td>
<td>7.2</td>
<td>7.4</td>
<td>7.6</td>
<td>7.8</td>
<td>8.0</td>
<td>8.2</td>
<td>8.4</td>
<td>8.6</td>
<td>8.8</td>
<td>9.0</td>
</tr>
<tr>
<td>Blue</td>
<td>5.2</td>
<td>6.5</td>
<td>6.8</td>
<td>7.1</td>
<td>7.4</td>
<td>7.7</td>
<td>8.0</td>
<td>8.3</td>
<td>8.6</td>
<td>8.9</td>
</tr>
<tr>
<td>Semi-blue</td>
<td>6.3</td>
<td>6.5</td>
<td>6.7</td>
<td>6.9</td>
<td>7.1</td>
<td>7.3</td>
<td>7.5</td>
<td>7.7</td>
<td>7.9</td>
<td>8.1</td>
</tr>
<tr>
<td>Yellow</td>
<td>7.7</td>
<td>7.9</td>
<td>8.1</td>
<td>8.3</td>
<td>8.5</td>
<td>8.7</td>
<td>8.9</td>
<td>9.1</td>
<td>9.3</td>
<td>9.5</td>
</tr>
<tr>
<td>Semi-yellow</td>
<td>8.2</td>
<td>8.5</td>
<td>8.8</td>
<td>9.1</td>
<td>9.4</td>
<td>9.7</td>
<td>10.0</td>
<td>10.3</td>
<td>10.6</td>
<td>10.9</td>
</tr>
<tr>
<td>Red</td>
<td>2.1</td>
<td>2.3</td>
<td>2.5</td>
<td>2.7</td>
<td>2.9</td>
<td>3.1</td>
<td>3.3</td>
<td>3.5</td>
<td>3.7</td>
<td>3.9</td>
</tr>
<tr>
<td>Purple</td>
<td>1.1</td>
<td>1.3</td>
<td>1.5</td>
<td>1.7</td>
<td>1.9</td>
<td>2.1</td>
<td>2.3</td>
<td>2.5</td>
<td>2.7</td>
<td>2.9</td>
</tr>
<tr>
<td>Pink</td>
<td>7.8</td>
<td>7.9</td>
<td>8.0</td>
<td>8.1</td>
<td>8.2</td>
<td>8.3</td>
<td>8.4</td>
<td>8.5</td>
<td>8.6</td>
<td>8.7</td>
</tr>
</tbody>
</table>

Table 1/3: Summary of the Monochromic Bead Colours
<table>
<thead>
<tr>
<th>Number</th>
<th>Form</th>
<th>1%</th>
<th>2%</th>
<th>6%</th>
<th>7%</th>
<th>8%</th>
<th>27%</th>
<th>45%</th>
</tr>
</thead>
<tbody>
<tr>
<td>102</td>
<td>Annular/Disc</td>
<td>G1</td>
<td>G1</td>
<td>G1</td>
<td>G1</td>
<td>G1</td>
<td>G1</td>
<td>G1</td>
</tr>
<tr>
<td>45</td>
<td>Coiled</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1/4 Summary of the monoclonal bead forms.
<table>
<thead>
<tr>
<th>Number</th>
<th>11</th>
<th>3</th>
<th>2</th>
<th>2</th>
<th>1</th>
<th>1</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>black</td>
<td>yellow</td>
<td>green</td>
<td>yellow</td>
<td>green</td>
<td>blue</td>
<td>white</td>
</tr>
<tr>
<td>Total</td>
<td>6.4</td>
<td>5.3</td>
<td>6.7</td>
<td>5.2</td>
<td>6.3</td>
<td>5.1</td>
<td>8.1</td>
</tr>
</tbody>
</table>

Table 1/5: Summary of the polychrome bead base colours.
<table>
<thead>
<tr>
<th>Number</th>
<th>% 22%</th>
<th>% 30%</th>
<th>% 33%</th>
<th>% 34%</th>
<th>% 34%</th>
<th>% 4%</th>
<th>% 4%</th>
<th>% 4%</th>
<th>% 4%</th>
<th>% 4%</th>
<th>% 4%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>

Table 1/5: Summary of the polychromatome bead forms
<table>
<thead>
<tr>
<th>Grave no</th>
<th>No of bdls</th>
<th>N1-Single</th>
<th>N2-Double</th>
<th>N3-Triple</th>
</tr>
</thead>
<tbody>
<tr>
<td>256/2a,b</td>
<td>2</td>
<td>16</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>123a/3a</td>
<td>3</td>
<td>2</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>40/4a</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 17: Summary of the gold-in-glass bead forms.
<table>
<thead>
<tr>
<th>Grave/object no.</th>
<th>No of beads</th>
<th>Type 1</th>
<th>Type 2</th>
<th>Type 3</th>
<th>Type 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>256/2a,b</td>
<td>20</td>
<td>5</td>
<td>6</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>256/2a,b</td>
<td>15</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>123/34</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90/49</td>
<td>4</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1/8 Summary of the gold-in-glue bead types
<table>
<thead>
<tr>
<th>FORM</th>
<th>20%</th>
<th>10%</th>
<th>4%</th>
<th>4%</th>
<th>5%</th>
<th>7%</th>
<th>7%</th>
<th>10%</th>
<th>14%</th>
<th>14%</th>
<th>132</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 1</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 2</td>
<td>28</td>
<td>62%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 3</td>
<td>10</td>
<td>16%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 4</td>
<td>1</td>
<td>4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 5</td>
<td>1</td>
<td>4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 6</td>
<td>1</td>
<td>4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 7</td>
<td>1</td>
<td>4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 8</td>
<td>7</td>
<td>16%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 9</td>
<td>14</td>
<td>33%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 10</td>
<td>7</td>
<td>14%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 11</td>
<td>2</td>
<td>4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 12</td>
<td>14</td>
<td>33%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 13</td>
<td>7</td>
<td>14%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 14</td>
<td>2</td>
<td>4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 15</td>
<td>14</td>
<td>33%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 16</td>
<td>7</td>
<td>14%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 17</td>
<td>2</td>
<td>4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 18</td>
<td>14</td>
<td>33%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 19</td>
<td>7</td>
<td>14%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 20</td>
<td>2</td>
<td>4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Summary of the amber bead forms and sizes.
Table 1/10 The buckle types

<table>
<thead>
<tr>
<th>Numbers</th>
<th>Shape</th>
<th>Oval</th>
<th>Circular</th>
<th>Kidney</th>
<th>Ribbed</th>
<th>Shield-on-tongue</th>
<th>Animal headed</th>
<th>Studs</th>
<th>Plate</th>
<th>Plate comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>100/4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>108/3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>120/3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>244/6</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>245/4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 fragmentary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>246/3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>266/2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>119/1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>276/3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 rectangular</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>283/3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>244/7</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>250/3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>252/3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 square</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>249/6</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>272/4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>116/2</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 shoe-shaped studs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>91/1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 Krefeld Gellep trapezoidal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>117/1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 Quoit Brooch Style</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>0</td>
<td>7</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>6 Total = 18</td>
</tr>
</tbody>
</table>
Table 1/11 The frequency of the knife types

<table>
<thead>
<tr>
<th>TYPE</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>U</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>11</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>19</td>
</tr>
<tr>
<td>%</td>
<td>58%</td>
<td>10%</td>
<td>10%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
</tr>
</tbody>
</table>
Table 1/12 Summary of the spear types

<table>
<thead>
<tr>
<th>Spear type</th>
<th>C1</th>
<th>C2</th>
<th>C4</th>
<th>D2</th>
<th>H2</th>
<th>K1</th>
<th>U</th>
<th>TOTA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>276</td>
<td>107</td>
<td>123*</td>
<td>128</td>
<td>124*</td>
<td>244</td>
<td>117*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>120</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>248</td>
<td>272</td>
<td></td>
</tr>
<tr>
<td></td>
<td>159</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>272*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>243</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>245</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>No.</td>
<td>Material</td>
<td>Width</td>
<td>Height</td>
<td>Depth</td>
<td>Weight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----</td>
<td>--------------</td>
<td>-------</td>
<td>--------</td>
<td>-------</td>
<td>--------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Oak</td>
<td>100</td>
<td>50</td>
<td>20</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Maple</td>
<td>150</td>
<td>70</td>
<td>25</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Ash</td>
<td>200</td>
<td>90</td>
<td>30</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Beech</td>
<td>250</td>
<td>110</td>
<td>35</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The table above lists various types of wood and their corresponding dimensions and weight. Each type is identified by a different number.
Table 1/14 Summary of the body positions

<table>
<thead>
<tr>
<th>body position</th>
<th>numbers</th>
<th>legs extended</th>
<th>semiflexed</th>
<th>extended/semiflexed</th>
<th>flexed</th>
<th>unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>supine</td>
<td>36</td>
<td>29</td>
<td>3</td>
<td>1</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>left side</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>right side</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>crouched</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>unknown</td>
<td>20</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>19</td>
</tr>
<tr>
<td>Region</td>
<td>Watchfield</td>
<td>Luton</td>
<td>Dinton</td>
<td>Alton</td>
<td>Pewsey</td>
<td>Portway</td>
</tr>
<tr>
<td>--------------</td>
<td>------------</td>
<td>-------</td>
<td>--------</td>
<td>-------</td>
<td>--------</td>
<td>---------</td>
</tr>
<tr>
<td>Gloucs</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxon</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beds</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bucks</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Essex</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kent</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surrey</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surrey</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Essex</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kent</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2/1: The number and relative frequency of brooch types in Saxon cemeteries with 20 or more graves.
Table 2/2 A comparison of artefact types within the cemeteries and settlement

<table>
<thead>
<tr>
<th>ARTIFACT TYPES</th>
<th>Brooking I</th>
<th>Brooking II</th>
<th>Ormaments</th>
<th>Settlement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BROOCHES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>applied</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>button</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>disc</td>
<td>Y</td>
<td>Y</td>
<td>7Y</td>
<td>Y</td>
</tr>
<tr>
<td>saucer</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>quilt</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>annular, narrow</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>annular, broad band</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>penannular</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Annularfoil</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>bow</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>cruciform</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>equal-arm</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>great square-headed</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>7Y</td>
</tr>
<tr>
<td>Kentish/small square-headed</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>semi-circular headed</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>small-long</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>supporting-arm</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Rautenfibel</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>safety pin</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td><strong>ORNAMENTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bracelet</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>pin</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>finger ring</td>
<td>Y</td>
<td>Y</td>
<td>7Y</td>
<td>Y</td>
</tr>
<tr>
<td><strong>BEADS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>monochrome</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>polychrome</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>amber</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>amethyst</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>crystal</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>jet</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>silver tube</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>pendant</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>glass pendant</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>seutor</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td><strong>BUCKLES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>buckle</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Late Roman belt fitting</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>kidney/ribbed buckle</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>shield-on-tongue buckle</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>garnet buckle</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td><strong>PERSONAL EQUIPMENT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>comb</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>hone</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>spindlewhorl</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>shears (fulsize)</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>knife</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>loom</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>girdlehanger</td>
<td>N</td>
<td>?</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>tweeters (fulsize)</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>toilet set (fulsize)</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>toilet set (miniature)</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>purse mount</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>rings</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>needlecase</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>loom weights</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>chains</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>lead weights/disca</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>eld</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>chisel</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>gimlet</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>hammer</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>punch</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>scut knife</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>sickle</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>round shave</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>iron strip/sheath</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>iron bar</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td><strong>CONTAINERS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pot</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>glass</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>bucket</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>wooden vessel</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>wooden box</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>ca vessel</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>lead pot</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>leather container</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td><strong>WEAPONS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sword</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>spear</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>lenta</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>arrow</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>?</td>
</tr>
<tr>
<td>axe</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>seax</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>shield</td>
<td>Y</td>
<td>Y</td>
<td>7Y</td>
<td>N</td>
</tr>
<tr>
<td><strong>MISC</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nails</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>AS coin</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>RB coin</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
</tbody>
</table>
Table 21: The numbers and types of brooches worn by females at the Roman site of Emsfeld, according to age groups.
Table 32: The numbers and types of brooches worn by females of the Anglian type at Hythe, according to age groups.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Roman/Iron Age</th>
<th>Roman</th>
<th>Other</th>
<th>Armbrustfibel</th>
<th>Glastonbury-Mucking</th>
<th>Supporting arm</th>
<th>Collar</th>
<th>Button</th>
<th>Disc</th>
<th>Sausage</th>
<th>Swoop</th>
<th>Armlet</th>
<th>Disc &amp; Brooches</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-20</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>21-30</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>31-40</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>41-50</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>51-60</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>61-70</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>71-80</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>81-90</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 3/2. The numbers and types of brooches worn by females at the (liminally) Anglian cemetery of Great Chesterford, according to age groups.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>0-5</th>
<th>6-10</th>
<th>11-15</th>
<th>16-20</th>
<th>21-25</th>
<th>26-30</th>
<th>31-35</th>
<th>36-40</th>
<th>41-45</th>
<th>46-50</th>
<th>51-55</th>
<th>56-60</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Child 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Child 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Adul.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Brooch Type</th>
<th>0-5</th>
<th>6-10</th>
<th>11-15</th>
<th>16-20</th>
<th>21-25</th>
<th>26-30</th>
<th>31-35</th>
<th>36-40</th>
<th>41-45</th>
<th>46-50</th>
<th>51-55</th>
<th>56-60</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Roman/Iron Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Bird</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Radiate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Small square-headed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Lozenge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Equal-arm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Supporting-arm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Oval</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Annular</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Quoit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Collar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Shawl</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Button</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Disc</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Saucer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Disc</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Disk</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Bow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Ring</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>% of graves with brooches</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Circular</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

Note: The table shows the distribution of brooch types across different age groups, with specific percentages for each category.
Table 4: The numbers and types of brooches worn by females at the Anglo-Saxon site of Empingham. All according to age groups.
Table 3/5. The numbers and types of brooch types worn by females at the (liminally) Anglian site of Wakerley, according to age groups.
Table 3/6 The numbers of graves in Mucking I and II, with the numbers of furnished graves

<table>
<thead>
<tr>
<th>Cemetery</th>
<th>Unsexed</th>
<th>Unsexed, with artefacts</th>
<th>Female</th>
<th>Female, with artefacts</th>
<th>Male</th>
<th>Male, with artefacts</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td>125</td>
<td>62</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>187</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>32</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>162</td>
<td>46</td>
</tr>
<tr>
<td>II</td>
<td>86</td>
<td>86</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>172</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>16</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>32</td>
<td>30</td>
</tr>
<tr>
<td>II</td>
<td></td>
<td></td>
<td>71</td>
<td>64</td>
<td></td>
<td></td>
<td>135</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td></td>
<td></td>
<td>15</td>
<td>15</td>
<td></td>
<td></td>
<td>30</td>
<td>24</td>
</tr>
</tbody>
</table>

Total = 345
<table>
<thead>
<tr>
<th>phase</th>
<th>grave no</th>
<th>seriation</th>
<th>orientation</th>
<th>artefact types</th>
<th>grave-goods</th>
<th>sex/age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/1</td>
<td>shares with Phase 1 grave 1/2</td>
<td>SW-NE</td>
<td>Juvenile, F?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1/2</td>
<td>shared with Phase 1 grave 1/1</td>
<td>SW-NE</td>
<td>Juvenile, u</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td></td>
<td>SW-NE</td>
<td>Adult, M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>6</td>
<td>cuts pit 11</td>
<td>SW-NE</td>
<td>Adult, f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>8</td>
<td></td>
<td>SW-NE</td>
<td>Adult, M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>10</td>
<td>cuts ditch 114 (LBA/EIA)</td>
<td>SW-NE</td>
<td>Adult, F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>11</td>
<td>cuts pit 11</td>
<td>SW-NE</td>
<td>Juvenile, f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>13</td>
<td></td>
<td>S-N</td>
<td>Juvenile, f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>16</td>
<td>cuts pit 38, ditch 114 (LBA/EIA)</td>
<td>SW-NE</td>
<td>Adult, M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>17</td>
<td></td>
<td>NW-SE</td>
<td>Juvenile, f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>18</td>
<td></td>
<td>SW-NE</td>
<td>Adult, F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>19</td>
<td>cut by ditch 53 (U)</td>
<td>SW-NE</td>
<td>Adult, F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>20</td>
<td>cut by Phase 2 grave 22, cuts pit 61</td>
<td>SW-NE</td>
<td>Adult, F (mature)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>21</td>
<td>cut by Phase 2 grave 22, cuts pit 61</td>
<td>SW-NE</td>
<td>Adult, M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>23</td>
<td></td>
<td>SW-NE</td>
<td>Juvenile, u</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>25</td>
<td></td>
<td>WSW-ENE</td>
<td>Adult, F (mature)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>26</td>
<td></td>
<td></td>
<td>Juvenile, f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>28</td>
<td>cut by ditch 53 (U)</td>
<td>SSW-NNE</td>
<td>Juvenile, u</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>30</td>
<td>cut by Phase 2 grave 29</td>
<td>NNE-SSW</td>
<td>Adult, F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>32</td>
<td>cut by Phase 1 graves 33/2 and 33/1</td>
<td>SSW-NNE?</td>
<td>Juvenile, u</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>33/1</td>
<td>cut by undated grave 31, cut by Phase 1 grave 32, cuts and = Phase 1 graves 33/2 and 33/3</td>
<td>SW-NE</td>
<td>Juvenile, u</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>33/2</td>
<td>cut by undated grave 31, cut by Phase 1 grave 32, cut by and = Phase 1 grave 33/1, = Phase 1 grave 33/3</td>
<td>SW-NE</td>
<td>Adult, F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>33/3</td>
<td>cut by undated grave 31, cut by Phase 1 grave 32, cut by and = Phase 1 grave 33/1, = grave 33/2</td>
<td>SW-NE</td>
<td>Juvenile, f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>38/1</td>
<td>cut by and = Phase 1 38/2, cuts pit 88</td>
<td>SW-NE?</td>
<td>Adult, M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>38/2</td>
<td>cuts and = Phase 1 grave 38/1</td>
<td>W-E</td>
<td>Juvenile, u</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>39</td>
<td>cut by Phase 2 grave 155</td>
<td>SW-NE</td>
<td>Juvenile, M?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>41</td>
<td></td>
<td>SSW-NNE</td>
<td>Adult, F (mature)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>42</td>
<td>cut pit 137, cut ph 154</td>
<td>SW-NE</td>
<td>Adult, F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>43</td>
<td>?rel to grave 44</td>
<td>SW-NE</td>
<td>Juvenile, f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>44</td>
<td>?rel to grave 43</td>
<td>SW-NE</td>
<td>Adult, M (mature)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>45</td>
<td></td>
<td>SSW-NNE</td>
<td>Adult, F?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>phase</td>
<td>grave no</td>
<td>sequence</td>
<td>number</td>
<td>orientation</td>
<td>phase</td>
<td>grave-goods</td>
</tr>
<tr>
<td>-------</td>
<td>----------</td>
<td>----------</td>
<td>--------</td>
<td>-------------</td>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td>1</td>
<td>46</td>
<td>cuts</td>
<td>Phase 1</td>
<td>grave 49,</td>
<td>1</td>
<td>SW-NE</td>
</tr>
<tr>
<td>1</td>
<td>47</td>
<td>1</td>
<td></td>
<td>cuts by</td>
<td>1</td>
<td>SW-NE</td>
</tr>
<tr>
<td>1</td>
<td>48</td>
<td>1</td>
<td></td>
<td>Phase 1</td>
<td>grave 46,</td>
<td>1 SW-NE</td>
</tr>
<tr>
<td>1</td>
<td>49</td>
<td>1</td>
<td></td>
<td>pit 123</td>
<td>(LBA/EIA)</td>
<td>1 SW-NE</td>
</tr>
<tr>
<td>1</td>
<td>50</td>
<td>1</td>
<td>cut by</td>
<td>Phase 2</td>
<td>grave 55</td>
<td>1 SW-NE</td>
</tr>
<tr>
<td>1</td>
<td>51</td>
<td>1</td>
<td>cut by</td>
<td>Phase 2</td>
<td>grave 55</td>
<td>1 SW-NE</td>
</tr>
<tr>
<td>1</td>
<td>52</td>
<td>1</td>
<td></td>
<td>cuts pit</td>
<td>148</td>
<td>1 SW-NE</td>
</tr>
<tr>
<td>1</td>
<td>53</td>
<td>1</td>
<td></td>
<td>Phase 2</td>
<td>graves 64</td>
<td>1 SW-NE</td>
</tr>
<tr>
<td>1</td>
<td>54</td>
<td>1</td>
<td></td>
<td>Phase 2</td>
<td>grave 55</td>
<td>1 SW-NE</td>
</tr>
<tr>
<td>1</td>
<td>56</td>
<td>1</td>
<td>cut by</td>
<td>gulley 136</td>
<td></td>
<td>SW-NE</td>
</tr>
<tr>
<td>1</td>
<td>58/1</td>
<td>1</td>
<td></td>
<td>cut by</td>
<td>Phase 1</td>
<td>1 SSW-NNE</td>
</tr>
<tr>
<td>1</td>
<td>58/2</td>
<td>1</td>
<td>over</td>
<td>Phase 1</td>
<td>grave 58/1</td>
<td>1 SSW-NNE</td>
</tr>
<tr>
<td>1</td>
<td>59</td>
<td>1</td>
<td>cut by</td>
<td>gulley 136</td>
<td></td>
<td>SSW-NNE</td>
</tr>
<tr>
<td>1</td>
<td>60</td>
<td>1</td>
<td>cut by</td>
<td>Phase 1</td>
<td>grave 64</td>
<td>1 SW-NE</td>
</tr>
<tr>
<td>1</td>
<td>61</td>
<td>1</td>
<td>cut by</td>
<td>Phase 1</td>
<td>graves 64</td>
<td>1 SW-NE</td>
</tr>
<tr>
<td>1</td>
<td>62</td>
<td>1</td>
<td>cuts</td>
<td>Phase 1</td>
<td>grave 64</td>
<td>1 SSW-NNE</td>
</tr>
<tr>
<td>1</td>
<td>63/1</td>
<td>1</td>
<td></td>
<td>cut by</td>
<td>Phase 1</td>
<td>1 SW-NE</td>
</tr>
<tr>
<td>1</td>
<td>64/1</td>
<td>1</td>
<td></td>
<td>Phase 1</td>
<td>graves 66/1 and 66/2</td>
<td>1 SW-NE</td>
</tr>
<tr>
<td>1</td>
<td>66/1</td>
<td>1</td>
<td></td>
<td>= Phase 1</td>
<td>graves 65 and 66/2</td>
<td>NW-SE</td>
</tr>
<tr>
<td>1</td>
<td>66/2</td>
<td>1</td>
<td></td>
<td>= Phase 1</td>
<td>graves 65 and 66/1</td>
<td>SE-NW</td>
</tr>
<tr>
<td>1</td>
<td>67</td>
<td>1</td>
<td></td>
<td>= Phase 1</td>
<td>graves 65 and 66/1</td>
<td>SE-NW</td>
</tr>
<tr>
<td>1</td>
<td>73</td>
<td>1</td>
<td></td>
<td>= Phase 1</td>
<td>graves 65 and 66/1</td>
<td>SE-NW</td>
</tr>
<tr>
<td>1</td>
<td>74</td>
<td>1</td>
<td></td>
<td>= Phase 1</td>
<td>graves 65 and 66/1</td>
<td>SE-NW</td>
</tr>
<tr>
<td>1</td>
<td>79</td>
<td>1</td>
<td>cut</td>
<td>ditch 114</td>
<td>(LBA/EIA)</td>
<td>1 SSW-NNE</td>
</tr>
<tr>
<td>1</td>
<td>80/1</td>
<td>1</td>
<td>disturbed</td>
<td>by Phase 1</td>
<td>grave 80/2, cuts ditch 114 (EIA/LBA)</td>
<td>?</td>
</tr>
<tr>
<td>1</td>
<td>80/2</td>
<td>1</td>
<td>disturbs</td>
<td>and =</td>
<td>Phase 1</td>
<td>grave 80/1, cuts ditch 114 (EIA/LBA)</td>
</tr>
<tr>
<td>1</td>
<td>81/1</td>
<td>1</td>
<td>earlier</td>
<td>than Phase 1</td>
<td>graves 81/4 and 81/5, disturbed by</td>
<td>= Phase 1 grave 81/2</td>
</tr>
<tr>
<td>1</td>
<td>81/2</td>
<td>1</td>
<td>later</td>
<td>than and =</td>
<td>Phase 1</td>
<td>grave 81/1</td>
</tr>
<tr>
<td>1</td>
<td>81/3</td>
<td>1</td>
<td>?= Phase 1</td>
<td>graves 81/1, 81/2, 81/4, 81/5</td>
<td>NE-SW</td>
<td>Juvenile, F</td>
</tr>
<tr>
<td>1</td>
<td>81/4</td>
<td>1</td>
<td>later</td>
<td>than Phase 1</td>
<td>grave 81/1, prob = Phase 1 81/5, = Phase 1 grave 81/2 and 81/3</td>
<td>SW-NE</td>
</tr>
</tbody>
</table>
Table 4/1 List of graves at Lechlade, with phases based on seriation, stratigraphy, orientation and artefact types

<table>
<thead>
<tr>
<th>phase</th>
<th>grave no</th>
<th>seriation</th>
<th>orientation</th>
<th>grave-goods</th>
<th>seigage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>81/5</td>
<td>= Phase 1 81/4, later than Phase 1 81/1</td>
<td>SW-NE</td>
<td>Juvenile, u</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>82</td>
<td></td>
<td>SW-NE</td>
<td>Juvenile, u</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>83</td>
<td></td>
<td>SW-NE</td>
<td>Juvenile, u</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>86</td>
<td></td>
<td>NW-SE</td>
<td>Adult, F (mature)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>87</td>
<td>cut by Phase 2 graves 89/1 and 89/2</td>
<td>SW-NE</td>
<td>Adult, M (mature)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>88</td>
<td></td>
<td>WSW-ENE</td>
<td>Juvenile, m</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>90</td>
<td></td>
<td>SSW-NNE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>92</td>
<td></td>
<td>WSW-ENE</td>
<td>Juvenile, M?</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>93</td>
<td></td>
<td>SW-NE</td>
<td>Juvenile, u</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>97</td>
<td>cut by Phase 2 grave 98, cuts pit 91</td>
<td>SW-NE</td>
<td>Juvenile, f</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>99</td>
<td>cut by ditch 117 (post Sn)</td>
<td>SW-NE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>101</td>
<td>cut by undated grave 100, cuts Phase 1 grave 102</td>
<td>SW-NE</td>
<td>Adult, F (mature)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>102</td>
<td>cut by Phase 1 grave 101</td>
<td>SW-NE</td>
<td>Adult, M</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>106</td>
<td>cut by Phase 2 grave 105</td>
<td>SW-NE</td>
<td>Adult, M? (mature)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>108</td>
<td>cuts pit 1089, cut by ditch 94 (post Med)</td>
<td>WSW-ENE</td>
<td>Juvenile, u</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>109</td>
<td>cuts pit 1089, cut by ditch 94 (post Med)</td>
<td>WSW-ENE</td>
<td>Juvenile, u</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>111</td>
<td></td>
<td>SSW-NNE</td>
<td>Adult, F (mature)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>112</td>
<td>?cuts crem 228</td>
<td>SSW-NNE</td>
<td>Adult, M</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>113</td>
<td></td>
<td>SSE-NNW</td>
<td>Juvenile, f</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>115</td>
<td>cut by Phase 1 grave 116</td>
<td>SW-NE</td>
<td>Adult, M</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>116</td>
<td>cuts Phase 1 grave 115</td>
<td>SW-NE</td>
<td>Adult, M</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>117</td>
<td>cut by Phase 2 grave 161/2, ?= 161/1</td>
<td>SSW-NNE</td>
<td>Adult, M</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>118/1</td>
<td>= Phase 1 grave 118/2, cuts ditch 114 (LBA/EIA)</td>
<td>SW-NE</td>
<td>Juvenile, u</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>118/2</td>
<td>= Phase 1 grave 118/1, cuts ditch 114 (LBA/EIA)</td>
<td>SW-NE</td>
<td>Juvenile, u</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>119/1</td>
<td>= Phase 1 grave 119/2, cut by ditch 94 (post Med)</td>
<td>SSW-NNE</td>
<td>Adult, M</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>119/2</td>
<td>= Phase 1 grave 119/1, cut by ditch 94 (post Med)</td>
<td>SSW-NNE</td>
<td>Juvenile, f</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>120</td>
<td></td>
<td>SW-NE</td>
<td>Juvenile, u</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>123</td>
<td></td>
<td>SE-NW</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>124</td>
<td></td>
<td>S-N</td>
<td>Juvenile, f</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>127</td>
<td></td>
<td>SE-NW</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>128</td>
<td>cuts gulley 1079</td>
<td>SSW-NNE</td>
<td>Juvenile, f</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>130</td>
<td>cut by ditch 1004 (U)</td>
<td>SW-NE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>131</td>
<td></td>
<td>SSW-NNE</td>
<td>Juvenile, f</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>132</td>
<td></td>
<td>SW-NE</td>
<td>Juvenile, f</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>133</td>
<td></td>
<td>SSW-NNE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>134</td>
<td></td>
<td>SW-NE</td>
<td>Juvenile, f</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>135</td>
<td></td>
<td>SSW-NNE</td>
<td>Juvenile, f</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>136</td>
<td></td>
<td>SW-NE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>141</td>
<td>cuts ditch 114 (LBA/EIA)</td>
<td>SSW-NNE</td>
<td>Juvenile, u</td>
<td></td>
</tr>
</tbody>
</table>
### Table 4/1 List of graves at Lechlade, with phases based on seriation, stratigraphy, orientation and artefact types

<table>
<thead>
<tr>
<th>phase</th>
<th>grave no</th>
<th>seriation</th>
<th>stratigraphy</th>
<th>orientation</th>
<th>grave-goods</th>
<th>sex/age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>142</td>
<td></td>
<td></td>
<td>SSW-NNE</td>
<td>Juvenile, f</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>144</td>
<td>1</td>
<td>cuts gulley 1079</td>
<td>SW-NE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>146</td>
<td></td>
<td></td>
<td>SSW-NNE</td>
<td>Juvenile, f</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>151</td>
<td></td>
<td>overlies Phase 1 grave 154</td>
<td>SW-NE</td>
<td>Adult, M (mature)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>152</td>
<td>1</td>
<td></td>
<td>SW-NE</td>
<td>Adult, F (mature)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>153</td>
<td></td>
<td></td>
<td>WSW-ENE</td>
<td>Juvenile, u</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>154</td>
<td></td>
<td>overlain by Phase 1 grave 151</td>
<td>SW-NE</td>
<td>Adult, M (mature)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>156</td>
<td></td>
<td></td>
<td>SW-NE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>157</td>
<td></td>
<td>cut by ditch 117 (post Sn) and 94</td>
<td>SSW-NNE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>158</td>
<td></td>
<td>cut by ditch 94</td>
<td>?</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>159</td>
<td>1</td>
<td>cuts Phase 1 grave 160</td>
<td>SW-NE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>160</td>
<td></td>
<td>cut by Phase 1 grave 159</td>
<td>SW-NE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>163</td>
<td>1</td>
<td>? rel to undated grave 162</td>
<td>SW-NE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>164</td>
<td>1</td>
<td>cut by Phase 2 grave 155</td>
<td>SSW-NNE</td>
<td>Juvenile, f</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>165</td>
<td></td>
<td></td>
<td>SSW-NNE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>166</td>
<td></td>
<td>cut by Phase 2 graves 145/1 and 145/2</td>
<td>SSW-NNE</td>
<td>Juvenile, f</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>167/1</td>
<td>1</td>
<td>= Phase 1 graves 167/2 and 167/3</td>
<td>NE-SW?</td>
<td>Adult, U</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>167/2</td>
<td></td>
<td>= Phase 1 grave 167/1 and 167/3</td>
<td>NE-SW</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>167/3</td>
<td>1</td>
<td>= Phase 1 graves 167 and 167/2</td>
<td>?</td>
<td>Juvenile, u</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>168</td>
<td></td>
<td>cut by Phase 2 graves 145/1 and 145/2</td>
<td>SW-NE</td>
<td>Adult, M?</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>169</td>
<td></td>
<td></td>
<td>S-N</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>170</td>
<td></td>
<td>cut by ditch 94 (post Med), ?rel to grave 173</td>
<td>SSW-NNE</td>
<td>Juvenile, f</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>171</td>
<td></td>
<td></td>
<td>SW-NE</td>
<td>Juvenile, u</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>173</td>
<td></td>
<td>cut by ditch 117 (post Sn), ?rel to grave 171</td>
<td>SW-NE</td>
<td>Adult, F (mature)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>174</td>
<td>1</td>
<td>cut by ditch 94</td>
<td>SW-NE</td>
<td>Adult, F (mature)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>175</td>
<td></td>
<td></td>
<td>WSW-ENE</td>
<td>Adult, F?</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>176</td>
<td></td>
<td></td>
<td>SSE-NNW</td>
<td>Adult, F (mature)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>180</td>
<td>1</td>
<td></td>
<td>SSW-NNE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>182</td>
<td></td>
<td>cut by Phase 2 graves 181 and 183, cut by ditch 94 (post Med)</td>
<td>SW-NE</td>
<td>Adult, M</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>184</td>
<td>1</td>
<td></td>
<td>SW-NE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>185</td>
<td>1</td>
<td></td>
<td>SW-NE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>186</td>
<td></td>
<td>cut by Phase 2 grave 187</td>
<td>SW-NE</td>
<td>Adult, F?</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>190</td>
<td></td>
<td></td>
<td>SSW-NNE</td>
<td>Juvenile, f</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>192</td>
<td></td>
<td>cut by Phase 2 grave 191</td>
<td>SW-NE</td>
<td>Adult, M?</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>193</td>
<td></td>
<td></td>
<td>SSW-NNE</td>
<td>Adult, F (mature)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>195</td>
<td></td>
<td></td>
<td>SW-NE</td>
<td>Adult, M</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>196</td>
<td></td>
<td></td>
<td>SW-NE</td>
<td>Juvenile, m</td>
<td></td>
</tr>
</tbody>
</table>

| 42 | 5 | 81 | 10 |
Table 4/1 List of graves at Lechlade, with phases based on seriation, stratigraphy, orientation and artefact types

<table>
<thead>
<tr>
<th>phase</th>
<th>grave no</th>
<th>cut</th>
<th>seriation</th>
<th>orientation</th>
<th>grave-goods</th>
<th>sex/age</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
<td>1</td>
<td>cut by ditch 117 (post Sn)</td>
<td>WNW-ESE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>9</td>
<td>1</td>
<td>cuts gully 9 and ditch 114 (LBA/EIA)</td>
<td>NNW-SSE</td>
<td>Adult, M</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>14</td>
<td>1</td>
<td>cut by Phase 2 grave 36/1 and 36/2, cuts Phase 1 graves 20 and 21, and pit 61, cut by ditch 117 (post Sn) and ph 43</td>
<td>W-E</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>22</td>
<td>1</td>
<td>cuts Phase 2 grave 36/1 and 36/2, cuts Phase 1 graves 20 and 21, and pit 61, cut by ditch 117 (post Sn) and ph 43</td>
<td>S-N</td>
<td>Juvenile, u</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>29</td>
<td>1</td>
<td>cuts Phase 1 grave 36/1 and 36/2, cuts pit 88</td>
<td>W-E</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>35</td>
<td>1</td>
<td>cut by Phase 2 grave 22, and 37, overlies = Phase 2 grave 36/2</td>
<td>SE-NW</td>
<td>Adult, M</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>36/1</td>
<td>1</td>
<td>cut by Phase 2 grave 22, and 37, overlies = Phase 2 grave 36/2</td>
<td>S-N</td>
<td>Juvenile, u</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>36/2</td>
<td>1</td>
<td>cut by Phase 2 grave 22, and 37, under and = Phase 2 grave 36/1, cut by pit 61</td>
<td>S-N</td>
<td>Juvenile, f</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>37</td>
<td>1</td>
<td>cuts Phase 2 graves 36/1 and 36/2, cuts pit 88</td>
<td>WNW-ESE</td>
<td>Adult, M</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>40</td>
<td>1</td>
<td>cuts Phase 1 graves 50 and 51</td>
<td>NW-SE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>55</td>
<td>1</td>
<td>cuts gully 115</td>
<td>SSW-NNE</td>
<td>Adult, M</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>57</td>
<td>1</td>
<td>cuts gully 115</td>
<td>NW-SE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>67</td>
<td>1</td>
<td>cuts gully 115</td>
<td>NW-SE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>68</td>
<td>1</td>
<td>cuts gully 115</td>
<td>NNW-SSE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>69</td>
<td>1</td>
<td>cuts pit 160</td>
<td>WSW-ENE</td>
<td>Adult, M</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>70</td>
<td>1</td>
<td>SE-NW</td>
<td>NW-SE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>71</td>
<td>1</td>
<td>SE-NW</td>
<td>SSW-NNE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>72</td>
<td>1</td>
<td>SE-NW</td>
<td>WNW-ESE</td>
<td>Adult, M</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>75</td>
<td>1</td>
<td>SE-NW</td>
<td>NW-SE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>84</td>
<td>1</td>
<td>WNW-ESE</td>
<td>NW-SE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>85</td>
<td>1</td>
<td>S-N</td>
<td>NW-SE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>89/1</td>
<td>1</td>
<td>cuts Phase 1 grave 88, = Phase 2 grave 89/2</td>
<td>NW-SE</td>
<td>Adult, M</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>89/2</td>
<td>1</td>
<td>cuts Phase 1 grave 88, = Phase 2 grave 89/1</td>
<td>NW-SE</td>
<td>Juvenile, f</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>91</td>
<td>1</td>
<td>NW-SE</td>
<td>NW-SE</td>
<td>Adult, M</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>94</td>
<td>1</td>
<td>cut by ditch 117 (post Sn)</td>
<td>NNW-SSE?</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>95/1</td>
<td>1</td>
<td>cuts AS slot 1027 and 1028 around crems 222 and 224, ref to undated 95/2 unclear</td>
<td>NW-SE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>96</td>
<td>1</td>
<td>NW-SE</td>
<td>NW-SE</td>
<td>Juvenile, u</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>98</td>
<td>1</td>
<td>cuts Phase 1 grave 97</td>
<td>WNW-ESE</td>
<td>Juvenile, f</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>102</td>
<td>1</td>
<td>NW-SE</td>
<td>NW-SE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>103</td>
<td>1</td>
<td>NW-SE</td>
<td>SSW-NNE</td>
<td>Adult, M</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>104</td>
<td>1</td>
<td>NW-SE</td>
<td>WNW-ESE</td>
<td>Juvenile, m</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>105</td>
<td>1</td>
<td>cuts Phase 1 grave 106</td>
<td>WNW-ESE</td>
<td>Juvenile, f</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>107/1</td>
<td>1</td>
<td>cuts Phase 1 grave 106</td>
<td>NW-SE</td>
<td>Adult, F</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>107/2</td>
<td>1</td>
<td>cuts Phase 1 grave 107/1</td>
<td>NW-SE</td>
<td>Juvenile, u</td>
<td></td>
</tr>
</tbody>
</table>

738
<table>
<thead>
<tr>
<th>phase</th>
<th>grave no</th>
<th>seriation</th>
<th>seriation</th>
<th>orientation</th>
<th>orientation</th>
<th>grave-goods</th>
<th>sex/age</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>125</td>
<td></td>
<td></td>
<td>1 WNW-ES</td>
<td>Adult, M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>137</td>
<td></td>
<td></td>
<td>1 NW-SE</td>
<td>Juvenile, u</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>138</td>
<td>1 cut by ditch 53 (U)</td>
<td>WNW-ES</td>
<td>Adult, F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>140</td>
<td>cuts gully 9, and ditch 114 (LBA/EIA)</td>
<td>SW-NE</td>
<td>Juvenile, m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>143</td>
<td></td>
<td></td>
<td>1 NW-SE</td>
<td>Adult, M (mature)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>145/1</td>
<td>= Phase 2 grave 145/2, cuts Phase 1 graves 166 and 168</td>
<td>NW-SE</td>
<td>Adult, M</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>145/2</td>
<td>= Phase 2 grave 145/1, cuts Phase 1 graves 166 and 168</td>
<td>NW-SE</td>
<td>Adult, F? (mature)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>147</td>
<td>= cuts crems 241a and b</td>
<td>NW-SE</td>
<td>Adult, F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>148</td>
<td>cut by ditch 117</td>
<td>NW-SE</td>
<td>Juvenile, f</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>155</td>
<td>cuts Phase 1 graves 39 and 164</td>
<td>WNW-ES</td>
<td>Adult, M</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>161/1</td>
<td>= cuts Phase 1 grave 117, disturbs Phase 2 grave 161/2</td>
<td>WNW-ES</td>
<td>Juvenile, u</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>161/2</td>
<td>disturbed by Phase 2 grave 161/1. = Phase 1 grave 117</td>
<td>? Adult, M?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>172/1</td>
<td>= ? and later than Phase 2 grave 172/2, cut by ditch 94</td>
<td>NW-SE</td>
<td>Adult, M</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>172/2</td>
<td>= ? and earlier than Phase 2 grave 172/1, cut by ditch 94</td>
<td>NW-SE</td>
<td>Juvenile, f</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>177</td>
<td></td>
<td></td>
<td>1 NW-SE</td>
<td>Juvenile, f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>178</td>
<td></td>
<td></td>
<td>SW-NE</td>
<td>Adult, M (mature)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>179</td>
<td>cuts ditch 94 (post Med)</td>
<td>NW-SE</td>
<td>Adult, F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>181</td>
<td>cuts Phase 1 grave 182 and Phase 2 grave 183</td>
<td>SE-NW</td>
<td>Adult, M (mature)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>183</td>
<td>cuts Phase 1 grave 182, cut by Phase 2 grave 181</td>
<td>SW-NE</td>
<td>Adult, M (mature)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>187</td>
<td>cuts undated graves 188/1, and 188/2, cuts Phase 1 grave 189, has gully 1183 as a surround?</td>
<td>NW-SE</td>
<td>Adult, F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>191</td>
<td>cuts Phase 1 grave 192</td>
<td>NW-SE</td>
<td>Adult, F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>194</td>
<td></td>
<td></td>
<td>WNW-ES Juvenile, F?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>197</td>
<td>cuts ditch 114 (LBA/EIA)</td>
<td>S-N</td>
<td>Adult, F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>200</td>
<td>cut by ditch 94 (post Med)</td>
<td>?</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>14 5 0</td>
<td>26 0 12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>phase</td>
<td>grave no</td>
<td>seriation</td>
<td>orientation</td>
<td>grave-goods</td>
<td>sex/age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>----------</td>
<td>-----------</td>
<td>-------------</td>
<td>-------------</td>
<td>---------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 4</td>
<td>cut by ditch 117 (post Sn)</td>
<td>?</td>
<td>Juvenile, u</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 5</td>
<td>SE-NW</td>
<td>Juvenile, u</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 7</td>
<td>W-E</td>
<td>Adult, F</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 12</td>
<td>SE-NW?</td>
<td>Juvenile, u</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 15</td>
<td>cuts pit 52, and gulley 166</td>
<td>W-E</td>
<td>Adult, F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 24</td>
<td>SE-NW?</td>
<td>W-E</td>
<td>Adult, F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 27</td>
<td>cuts gulley 89</td>
<td>S-N</td>
<td>Adult, F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 31</td>
<td>cut by Phase 1 graves 33/2, and 33/3</td>
<td>W-E</td>
<td>Adult, F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 34</td>
<td>W-E</td>
<td>Juvenile, u</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 74</td>
<td>W-E</td>
<td>Juvenile, u</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 75</td>
<td>cut by ditch 117 (post Sn)</td>
<td>SE-NW</td>
<td>Adult, M</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 95/2</td>
<td>redeposited in Phase 2 grave 95/1</td>
<td>?</td>
<td>Juvenile, u</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 100</td>
<td>cuts Phase 1 grave 101</td>
<td>SE-NW</td>
<td>Juvenile, u</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 110</td>
<td>SE-NW</td>
<td>Juvenile, u</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 114</td>
<td>W-E</td>
<td>Juvenile, u</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 121</td>
<td>SE-NW</td>
<td>Adult, M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 122</td>
<td>SE-NW</td>
<td>Juvenile, u</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 126</td>
<td>cuts gulley 1081</td>
<td>SE-NW</td>
<td>Juvenile, u</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 129</td>
<td>SE-NW</td>
<td>Juvenile, u</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 139</td>
<td>cuts ditch 114 (LBA/EIA)</td>
<td>W-E</td>
<td>Adult, M</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 149</td>
<td>cut by ditch 117 (post Sn)</td>
<td>S-N</td>
<td>Adult, M</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 150</td>
<td>E-W</td>
<td>Adult, F</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 162</td>
<td>cuts undated grave 198, ?rel to Phase 1 grave 163</td>
<td>SE-NW</td>
<td>Adult, F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 186</td>
<td>cuts gulley 9</td>
<td>S-N</td>
<td>Adult, F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 188/1</td>
<td>cut by Phase 2 grave 187, = undated grave 188/2, cut by gulley 1183</td>
<td>S-N</td>
<td>Adult, F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 188/2</td>
<td>cut by Phase 2 grave 187, = grave 188/1 undated, cut by gulley 1183</td>
<td>?</td>
<td>Juvenile, u</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 198</td>
<td>cut by undated grave 162, cuts ditch 114 (LBA/EIA)</td>
<td>?</td>
<td>Juvenile, u</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U 199</td>
<td>?</td>
<td>Juvenile, u</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4/2 The phasing of the artefact types at Lechlade (except weapons)

<table>
<thead>
<tr>
<th>Object type</th>
<th>References</th>
<th>Dating</th>
<th>Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amulets (see also pendants)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>fossil shells</td>
<td>Boyle forthcoming, d 164, 165</td>
<td>1ry mid 5-early 7th</td>
<td>1</td>
</tr>
<tr>
<td>145/2 (in fill)</td>
<td>Boyle forthcoming, d 145/2</td>
<td>1ry mid 6-early 7th</td>
<td>2</td>
</tr>
<tr>
<td>cowries</td>
<td>Boyle forthcoming, k 3.3, 71</td>
<td>1ry 7th</td>
<td>2</td>
</tr>
<tr>
<td>Bag collections</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bag collections</td>
<td>Clark forthcoming, i 54, 56, 90, 123, 159, 185</td>
<td>1ry 5 and 6th, esp late 5-early 6th except in Upper Thames Valley</td>
<td>1a, 1b</td>
</tr>
<tr>
<td>145/2</td>
<td>Clark forthcoming, i 145/2</td>
<td>1ry 5 and 6th, esp late 5-early 6th except in Upper Thames Valley</td>
<td>2b</td>
</tr>
<tr>
<td>fe rings (bag rings)</td>
<td>Clark forthcoming, i 43, 48</td>
<td>1ry 5 and 6th, esp late 5-early 6th except in Upper Thames Valley</td>
<td>1, 1b</td>
</tr>
<tr>
<td>ivory bag rings</td>
<td>Clark forthcoming, i 18, 81/1, 164</td>
<td>1ry 5 and 6th, esp late 5-early 6th except in Upper Thames Valley</td>
<td>1a, 1b</td>
</tr>
<tr>
<td>chatelaines</td>
<td>Clark forthcoming, i 42, 138</td>
<td>1ry late 6-8th</td>
<td>1b, 2b</td>
</tr>
<tr>
<td>76, 78</td>
<td>Clark forthcoming, i 76, 78</td>
<td>1ry late 6-8th</td>
<td>1b, 2b</td>
</tr>
<tr>
<td>antler disc</td>
<td>Boyle forthcoming, t 76</td>
<td>some 6, 1ry 7th</td>
<td>2</td>
</tr>
<tr>
<td>pursemount</td>
<td>Clark forthcoming, i 71</td>
<td>late 5-6th in Upper Thames Valley</td>
<td>2</td>
</tr>
<tr>
<td>workbox</td>
<td>Clark forthcoming, i 14</td>
<td>1ry 2nd half 7th</td>
<td>2b</td>
</tr>
<tr>
<td>Beads</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>purple disc</td>
<td>Clark forthcoming, h 172/2</td>
<td>?</td>
<td>2b</td>
</tr>
<tr>
<td>purple discoiled cylinder</td>
<td>Clark forthcoming, h 164</td>
<td>?</td>
<td>1b</td>
</tr>
<tr>
<td>red disc</td>
<td>Clark forthcoming, h 176</td>
<td>1ry 6th</td>
<td>1</td>
</tr>
<tr>
<td>red bicones</td>
<td>Clark forthcoming, h 36/2, 177, 187</td>
<td>6-7th, 1ry 7th</td>
<td>2, 2b</td>
</tr>
<tr>
<td>red short cylinders</td>
<td>Clark forthcoming, h 101</td>
<td>1ry late 6-7th</td>
<td>1b</td>
</tr>
<tr>
<td>14</td>
<td>Clark forthcoming, h 14</td>
<td>1ry late 6-7th</td>
<td>2b</td>
</tr>
<tr>
<td>brown orange disc</td>
<td>Clark forthcoming, h 95/1</td>
<td>?</td>
<td>2b</td>
</tr>
<tr>
<td>brown orange annular</td>
<td>Clark forthcoming, h 33/2</td>
<td>?</td>
<td>1a</td>
</tr>
<tr>
<td>brown yellow disc</td>
<td>Clark forthcoming, h 41</td>
<td>?</td>
<td>1a</td>
</tr>
<tr>
<td>brown yellow submelons</td>
<td>Clark forthcoming, h 180</td>
<td>6-7th?</td>
<td>1b</td>
</tr>
<tr>
<td>pale yellow (all shapes)</td>
<td>Clark forthcoming, h 10, 18, 164</td>
<td>?</td>
<td>1a, 1b</td>
</tr>
<tr>
<td>bright yellow disc</td>
<td>Clark forthcoming, h 48, 130</td>
<td>late 5-6th</td>
<td>1b</td>
</tr>
<tr>
<td>bright yellow bicones</td>
<td>Clark forthcoming, h 17</td>
<td>late 6-7th, 1ry 7th</td>
<td>1b</td>
</tr>
<tr>
<td>84, 145/2, 177</td>
<td>Clark forthcoming, h 84, 145/2, 177</td>
<td>late 6-7th, 1ry 7th</td>
<td>2, 2b</td>
</tr>
<tr>
<td>bright yellow coiled cylinder</td>
<td>Clark forthcoming, h 145/2</td>
<td>late 6-7th, 1ry 7th</td>
<td>2b</td>
</tr>
<tr>
<td>pale green yellow large disc</td>
<td>Clark forthcoming, h 176</td>
<td>?</td>
<td>1</td>
</tr>
<tr>
<td>light green submelon</td>
<td>Clark forthcoming, h 45</td>
<td>6-7th</td>
<td>1a</td>
</tr>
<tr>
<td>med green disc</td>
<td>Clark forthcoming, h 176</td>
<td>?</td>
<td>1</td>
</tr>
<tr>
<td>bright green semi-op (all shapes)</td>
<td>Clark forthcoming, h 14, 89/2, 148, 177</td>
<td>1ry 7th</td>
<td>2, 2b</td>
</tr>
<tr>
<td>very dark green-black label</td>
<td>Clark forthcoming, h 172/2</td>
<td>?</td>
<td>2b</td>
</tr>
<tr>
<td>Object type</td>
<td>References</td>
<td>Dating</td>
<td>Phase</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>------------</td>
<td>-------------------</td>
<td>----------</td>
</tr>
<tr>
<td>pale blue-green disc</td>
<td></td>
<td>Clark forthcoming</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>41</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>138, 148</td>
<td>Clark forthcoming</td>
<td>?</td>
</tr>
<tr>
<td>pale blue-green large annular</td>
<td>14</td>
<td>Clark forthcoming</td>
<td>?</td>
</tr>
<tr>
<td>pale blue-green lobed</td>
<td>160</td>
<td>Clark forthcoming</td>
<td>?</td>
</tr>
<tr>
<td>bright blue-green long cylinder</td>
<td>812</td>
<td>Clark forthcoming</td>
<td>?</td>
</tr>
<tr>
<td>bright blue-green miniatures</td>
<td>18, 163, 190</td>
<td>Clark forthcoming</td>
<td>?</td>
</tr>
<tr>
<td>pale green-blue annular</td>
<td>41, 45, 53</td>
<td>Clark forthcoming</td>
<td>?</td>
</tr>
<tr>
<td>pale green blue barrel</td>
<td>1722</td>
<td>Clark forthcoming</td>
<td>?</td>
</tr>
<tr>
<td>bright green-blue (all shapes)</td>
<td>84, 98, 138, 145/2, 177</td>
<td>Clark forthcoming</td>
<td>?</td>
</tr>
<tr>
<td>pale blue (all shapes)</td>
<td>18, 33/2, 41, 45, 48, 50, 53, 163, 164</td>
<td>Clark forthcoming</td>
<td>?</td>
</tr>
<tr>
<td>white blue (all shapes)</td>
<td>14, 172/2</td>
<td>Clark forthcoming</td>
<td>?</td>
</tr>
<tr>
<td>blue disc/annular</td>
<td>18, 45, 77, 164</td>
<td>Clark forthcoming</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>14, 179</td>
<td>Clark forthcoming</td>
<td>6</td>
</tr>
<tr>
<td>med. blue submation</td>
<td>47</td>
<td>Clark forthcoming</td>
<td>6-7th</td>
</tr>
<tr>
<td>med blue long cylinder</td>
<td>18, 130</td>
<td>Clark forthcoming</td>
<td>1ry late 5-6th</td>
</tr>
<tr>
<td>med blue barrel</td>
<td>14</td>
<td>Clark forthcoming</td>
<td>?</td>
</tr>
<tr>
<td>blue spindlewhorl</td>
<td>20</td>
<td>Clark forthcoming</td>
<td>late 5-6th</td>
</tr>
<tr>
<td>med. blue miniatures</td>
<td>18</td>
<td>Clark forthcoming</td>
<td>?</td>
</tr>
<tr>
<td>dark blue large disc</td>
<td>81/3</td>
<td>Clark forthcoming</td>
<td>7-5-6th</td>
</tr>
<tr>
<td>dark blue disc</td>
<td>14, 187</td>
<td>Clark forthcoming</td>
<td>?</td>
</tr>
<tr>
<td>blue/black disc</td>
<td>27</td>
<td>Clark forthcoming</td>
<td>?</td>
</tr>
<tr>
<td>blue/black coiled cylinder</td>
<td>81/4</td>
<td>Clark forthcoming</td>
<td>?</td>
</tr>
<tr>
<td>blue/black miniature disc</td>
<td>18</td>
<td>Clark forthcoming</td>
<td>?</td>
</tr>
<tr>
<td>white disc</td>
<td>48</td>
<td>Clark forthcoming</td>
<td>5, esp 6-7th</td>
</tr>
<tr>
<td>white short cylinder</td>
<td>14, 138, 177</td>
<td>Clark forthcoming</td>
<td>5, esp 6-7th</td>
</tr>
<tr>
<td>dark grey disc</td>
<td>154</td>
<td>Clark forthcoming</td>
<td>?</td>
</tr>
<tr>
<td>gold- in-glass</td>
<td>10, 18, 41, 81/1, 81/3, 81/4, 90, 136, 163</td>
<td>Clark forthcoming</td>
<td>1ry 6th in Upper Thames Valley</td>
</tr>
<tr>
<td>P1 stripe</td>
<td>187</td>
<td>Clark forthcoming</td>
<td>?</td>
</tr>
<tr>
<td>P2 spiral trails</td>
<td>25, 41, 130, 160</td>
<td>Clark forthcoming</td>
<td>AS</td>
</tr>
<tr>
<td>green-blue with white spiral</td>
<td>362/2</td>
<td>Clark forthcoming</td>
<td>7th</td>
</tr>
<tr>
<td>P2 spiral trail, opaque on trans</td>
<td>142</td>
<td>Clark forthcoming</td>
<td>5-6th</td>
</tr>
<tr>
<td>P3 wiredrawn</td>
<td>101</td>
<td>Clark forthcoming</td>
<td>6-7th</td>
</tr>
<tr>
<td>P4 double bichrome crossing waves</td>
<td>77, 86</td>
<td>Clark forthcoming</td>
<td>?</td>
</tr>
<tr>
<td>P5 double crossing waves</td>
<td>101, 130</td>
<td>Clark forthcoming</td>
<td>1ry late 6-7th</td>
</tr>
<tr>
<td>tightly crossed</td>
<td>197</td>
<td>Clark forthcoming</td>
<td>1ry late 6-7th</td>
</tr>
<tr>
<td>P6 red body, white spots</td>
<td>25.3f</td>
<td>Clark forthcoming</td>
<td>6-7th</td>
</tr>
<tr>
<td>P6 blue body, red spots</td>
<td>17, 101</td>
<td>Clark forthcoming</td>
<td>1ry late 6th</td>
</tr>
</tbody>
</table>
Table 4/2 The phasing of the artefact types at Lechlade (except weapons)

<table>
<thead>
<tr>
<th>Object Type</th>
<th>References</th>
<th>Dating</th>
<th>Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>P6 large blue, white spots</td>
<td>25</td>
<td>Clark forthcoming, h</td>
<td>1b</td>
</tr>
<tr>
<td>P7 wave and stripes</td>
<td>81/4.4e</td>
<td>Clark forthcoming, h</td>
<td>1a</td>
</tr>
<tr>
<td>P1a double cross wave/dot</td>
<td>25, 78, 101</td>
<td>Clark forthcoming, h</td>
<td>1b</td>
</tr>
<tr>
<td>P1b waves and dots, different colours</td>
<td>164</td>
<td>Clark forthcoming, h</td>
<td>1b</td>
</tr>
<tr>
<td>P9 reticella</td>
<td>180</td>
<td>Clark forthcoming, h</td>
<td>1a, 2b</td>
</tr>
<tr>
<td>P10 marbled trails</td>
<td>77, 164</td>
<td>Clark forthcoming, h</td>
<td>1a, 2b</td>
</tr>
<tr>
<td>amber</td>
<td></td>
<td>Clark forthcoming, h</td>
<td>1a, 2b</td>
</tr>
<tr>
<td>amethyst</td>
<td>197</td>
<td>Clark forthcoming, h</td>
<td>1b</td>
</tr>
<tr>
<td>bone</td>
<td>17/22</td>
<td>Clark forthcoming, h</td>
<td>1a</td>
</tr>
<tr>
<td>calcareous</td>
<td>10, 16, 49, 130, 144, 184</td>
<td>Clark forthcoming, h</td>
<td>1b</td>
</tr>
<tr>
<td>ca biconical wire</td>
<td>130</td>
<td>Clark forthcoming, h</td>
<td>1a</td>
</tr>
<tr>
<td>ca</td>
<td>123</td>
<td>Clark forthcoming, h</td>
<td>1a</td>
</tr>
<tr>
<td>cowrie beads</td>
<td>3.2, 148</td>
<td>Clark forthcoming, h</td>
<td>1a</td>
</tr>
<tr>
<td>crystal</td>
<td>18, 59, 78, 159</td>
<td>Clark forthcoming, h</td>
<td>1ab</td>
</tr>
<tr>
<td>faience</td>
<td>11, 332, 78</td>
<td>Clark forthcoming, h</td>
<td>1a, 2b</td>
</tr>
<tr>
<td>lead</td>
<td>17/22</td>
<td>Clark forthcoming, h</td>
<td>2a</td>
</tr>
<tr>
<td>shale</td>
<td>184</td>
<td>Clark forthcoming, h</td>
<td>1b</td>
</tr>
<tr>
<td>shell</td>
<td>77</td>
<td>Clark forthcoming, h</td>
<td>1a</td>
</tr>
<tr>
<td>silver biconical</td>
<td>3</td>
<td>Clark forthcoming, h</td>
<td>2b</td>
</tr>
<tr>
<td>silver hollow</td>
<td>172/2</td>
<td>Clark forthcoming, h</td>
<td>1b</td>
</tr>
<tr>
<td>silver gilt tubes</td>
<td>18</td>
<td>Clark forthcoming, h</td>
<td>2b</td>
</tr>
<tr>
<td>slip-knot rings (ca and silver)</td>
<td></td>
<td>Clark forthcoming, h</td>
<td>2b</td>
</tr>
<tr>
<td>. tight</td>
<td>14, 138, 145/2, 148, 172/2, 177, 179, 187</td>
<td>Clark forthcoming, h</td>
<td>2b</td>
</tr>
<tr>
<td>. loose</td>
<td>144</td>
<td>Clark forthcoming, h</td>
<td>1b</td>
</tr>
<tr>
<td>. uncertain</td>
<td>17, 194</td>
<td>Clark forthcoming, h</td>
<td>1a, 2b</td>
</tr>
<tr>
<td>Beils</td>
<td>91, 148</td>
<td>Ager forthcoming, b</td>
<td>2b</td>
</tr>
</tbody>
</table>

References: Clark forthcoming, h
<table>
<thead>
<tr>
<th>Object type</th>
<th>References</th>
<th>Dating</th>
<th>Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brooches</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mount</td>
<td>180 (re-used)</td>
<td>Ager forthcoming, d</td>
<td>6th, probably 2nd half</td>
</tr>
<tr>
<td>disc</td>
<td>163</td>
<td>Ager forthcoming, c</td>
<td>mid 5-mid 6th</td>
</tr>
<tr>
<td>Group 3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 4.1</td>
<td>80/1</td>
<td>Ager forthcoming, c</td>
<td>mid 5-mid 6th</td>
</tr>
<tr>
<td>Group 4.2</td>
<td>1/1, 13, 56, 77, 123</td>
<td>Ager forthcoming, c</td>
<td>mid 5-mid 6th</td>
</tr>
<tr>
<td>Group 4.4</td>
<td>81/1, 184</td>
<td>Ager forthcoming, c</td>
<td>mid 5-mid 6th</td>
</tr>
<tr>
<td>Group 5.1</td>
<td>41</td>
<td>Ager forthcoming, c</td>
<td>mid 5-mid 6th</td>
</tr>
<tr>
<td>hybrid applied / disc</td>
<td>146</td>
<td>Ager forthcoming, c</td>
<td>mid 5-mid 6th</td>
</tr>
<tr>
<td>(penn) annulars</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type Cb</td>
<td>134, 142, 167/2</td>
<td>Ager forthcoming, g</td>
<td>5 or 6th</td>
</tr>
<tr>
<td>Type D1</td>
<td>81/3</td>
<td>Ager forthcoming, g</td>
<td>occasionally later 5-mid 6th</td>
</tr>
<tr>
<td>Fowler Type Aa</td>
<td>81/3</td>
<td>Ager forthcoming, g</td>
<td>occasionally later 5-mid 6th</td>
</tr>
<tr>
<td>applied</td>
<td>no design visible</td>
<td>Dickinson forthcoming, c</td>
<td>early 6th</td>
</tr>
<tr>
<td>Style I</td>
<td>90</td>
<td>Dickinson forthcoming, c</td>
<td>early 6th</td>
</tr>
<tr>
<td>cast saucer, late RB designs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bipartite field, 4 fox-tipped animals</td>
<td>19</td>
<td>Dickinson forthcoming, a</td>
<td>late 5-early 6th</td>
</tr>
<tr>
<td>4 running C scrolls, 2</td>
<td>164</td>
<td>Dickinson forthcoming, a</td>
<td>late 5-early 6th</td>
</tr>
<tr>
<td>5 point stars</td>
<td>25, 81/4, 133</td>
<td>Dickinson forthcoming, a</td>
<td>late 5-early 6th?</td>
</tr>
<tr>
<td>5 running spiral, 1</td>
<td>59, 86</td>
<td>Dickinson forthcoming, a</td>
<td>late 5-early 6th?</td>
</tr>
<tr>
<td>cast saucer, Style I</td>
<td>leg motif</td>
<td>47, 159</td>
<td>Dickinson forthcoming, a</td>
</tr>
<tr>
<td>Vimose heads</td>
<td>111</td>
<td>Dickinson forthcoming, a</td>
<td>1st half 6th?</td>
</tr>
<tr>
<td>star motif</td>
<td>10, 130</td>
<td>Dickinson forthcoming, a</td>
<td>2nd quarter-mid 6th</td>
</tr>
<tr>
<td>geometric hexafoil motif</td>
<td>18</td>
<td>Dickinson forthcoming, a</td>
<td>2nd-3rd quarter 6 late 6th</td>
</tr>
<tr>
<td>inner simple leg swastika</td>
<td>45</td>
<td>Dickinson forthcoming, a</td>
<td>1st late 5-early 6th</td>
</tr>
<tr>
<td>cast saucer similar to Kentish garnet inlaid disc</td>
<td>quadrupeds, 3</td>
<td>11</td>
<td>Dickinson forthcoming, a</td>
</tr>
<tr>
<td>Style I quadruped, 3 concentric animals</td>
<td>50, 78</td>
<td>Dickinson forthcoming, a</td>
<td>in/after 2nd quarter 6th</td>
</tr>
<tr>
<td>tripartite field and 4 axes</td>
<td>144</td>
<td>Dickinson forthcoming, a</td>
<td>production 2nd quarter-later 6th</td>
</tr>
<tr>
<td>small-long square-headed</td>
<td>332/2, 174</td>
<td>Dickinson forthcoming, c</td>
<td>1st half-mid 6th</td>
</tr>
<tr>
<td>button</td>
<td>Class ii</td>
<td>Dickinson forthcoming, b</td>
<td>late 5-early 6th</td>
</tr>
<tr>
<td>Kentish disc</td>
<td>unclassified</td>
<td>17</td>
<td>Clark forthcoming, d</td>
</tr>
<tr>
<td>face-mask'</td>
<td>136</td>
<td>Ager forthcoming, f</td>
<td>mid-late 6th</td>
</tr>
<tr>
<td>great square-headed</td>
<td>18</td>
<td>Hines forthcoming</td>
<td>2nd quarter-up to or 'just beyond mid 6th</td>
</tr>
<tr>
<td>Romano-British</td>
<td></td>
<td>97, 152, 160, 169, 185</td>
<td>Ager forthcoming, c</td>
</tr>
</tbody>
</table>
Table 4/2 The phasing of the artefact types at Lechlade (except weapons)

<table>
<thead>
<tr>
<th>Object type</th>
<th>References</th>
<th>Dating</th>
<th>Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buckles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>re-used mount</td>
<td>180 (see brooches)</td>
<td>Ager forthcoming, d</td>
<td>5, probably second half 6th</td>
</tr>
<tr>
<td>buckle a jour</td>
<td>155</td>
<td>Clark forthcoming, b</td>
<td>late 7th</td>
</tr>
<tr>
<td>belt bone and iron</td>
<td>65</td>
<td>Boyle forthcoming, c</td>
<td>5-6th</td>
</tr>
<tr>
<td>D-shaped loop</td>
<td>18, 47, 133, 165</td>
<td>Clark forthcoming, b</td>
<td>1ry 6, some 7th in Upper Thames Valley</td>
</tr>
<tr>
<td>kidney-shaped loop</td>
<td>25, 48</td>
<td>Clark forthcoming, b</td>
<td>1ry 5, some 6th</td>
</tr>
<tr>
<td>stamped and nicked</td>
<td>48, 88, 163 (see pendants)</td>
<td>Clark forthcoming, b</td>
<td>5, early 6th</td>
</tr>
<tr>
<td>small</td>
<td>16</td>
<td>Clark forthcoming, b</td>
<td>1ry 7th</td>
</tr>
<tr>
<td></td>
<td>140, 172/1</td>
<td>Clark forthcoming, b</td>
<td>1ry 7th</td>
</tr>
<tr>
<td>oval loop</td>
<td>42, 81/1, 81/4, 85, 92, 152, 159, 180, 192</td>
<td>Clark forthcoming, b</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>69, 71, 104, 130, 143, 183</td>
<td>Clark forthcoming, b</td>
<td>?</td>
</tr>
<tr>
<td>inlaid iron</td>
<td>184</td>
<td>Clark forthcoming, b</td>
<td>5-early 6th</td>
</tr>
<tr>
<td>round loop</td>
<td>8, 10, 41, 42, 47, 55/1, 59, 81/4, 111, 112, 127, 154, 184 (see inlaid)</td>
<td>Clark forthcoming, b</td>
<td>5-6th</td>
</tr>
<tr>
<td>stamped and nicked</td>
<td>18</td>
<td>Clark forthcoming, b</td>
<td>?</td>
</tr>
<tr>
<td>uncertain</td>
<td>20, 174</td>
<td>Clark forthcoming, b</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>89/1</td>
<td>Clark forthcoming, b</td>
<td>?</td>
</tr>
<tr>
<td>AS coin</td>
<td>sceat, imitation</td>
<td>179</td>
<td>Metcalf forthcoming</td>
</tr>
<tr>
<td>Combs (burial off)</td>
<td>18, 62, 81/4, 145/2</td>
<td>Clark forthcoming, c</td>
<td>1ry 6-late 7th</td>
</tr>
<tr>
<td>Type 1A</td>
<td>62</td>
<td>Clark forthcoming, c</td>
<td>?</td>
</tr>
<tr>
<td>Type 2B</td>
<td>145/2</td>
<td>Clark forthcoming, c</td>
<td>?</td>
</tr>
<tr>
<td>Type 2Ai</td>
<td>18, 81/4</td>
<td>Clark forthcoming, c</td>
<td>?</td>
</tr>
<tr>
<td>Containers</td>
<td>Gotlandkedda</td>
<td>58/1, 92</td>
<td>Rutter forthcoming, a</td>
</tr>
<tr>
<td>iron-bound bucket</td>
<td>40, 84, 103, 148, 172/1, 200</td>
<td>Cook forthcoming</td>
<td>1ry 7th</td>
</tr>
<tr>
<td>ca-bound bucket</td>
<td>11</td>
<td>Cook forthcoming</td>
<td>6th</td>
</tr>
<tr>
<td>pot, sandy or limestone</td>
<td>13, 157, 83</td>
<td>Underwood-Keevil forthcoming</td>
<td>1ry 6th</td>
</tr>
<tr>
<td>wooden box</td>
<td>14, 107</td>
<td>Clark forthcoming, k</td>
<td>7th</td>
</tr>
<tr>
<td>Perlrandbecker</td>
<td>11</td>
<td>Rutter forthcoming, e</td>
<td>1ry 6th</td>
</tr>
<tr>
<td>turned wooden/leather</td>
<td>18, 92, 106, 146, 173</td>
<td>Rutter forthcoming, b</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>771</td>
<td>Rutter forthcoming, b</td>
<td>?</td>
</tr>
<tr>
<td>Decorative items</td>
<td>spangles</td>
<td>163</td>
<td>Ager forthcoming</td>
</tr>
<tr>
<td>Finger rings</td>
<td>expanding ca</td>
<td>52, 180 (on bead string)</td>
<td>Boyle forthcoming, e</td>
</tr>
<tr>
<td></td>
<td>silver expanding</td>
<td>18, 130, 144</td>
<td>Boyle forthcoming, e</td>
</tr>
<tr>
<td>closed silver</td>
<td>78, 152</td>
<td>Boyle forthcoming, e</td>
<td>early 6-7, esp 6th in Upper Thames Valley</td>
</tr>
<tr>
<td>closed ca</td>
<td>14 (on bead string)</td>
<td>Boyle forthcoming, e</td>
<td>early 6-7, esp 6th in Upper Thames Valley</td>
</tr>
<tr>
<td></td>
<td>169</td>
<td>Boyle forthcoming, e</td>
<td>early 6-7, esp mid 6th</td>
</tr>
</tbody>
</table>
Table 4/2 The phasing of the artefact types at Lechlade (except weapons)

<table>
<thead>
<tr>
<th>Object type</th>
<th>References</th>
<th>Dating</th>
<th>Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keys</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>slide keys</td>
<td>14</td>
<td>Clark forthcoming</td>
<td>2b</td>
</tr>
<tr>
<td>F-shaped</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>latchlifters</td>
<td>76, 103, 179</td>
<td>Clark forthcoming</td>
<td>2, 2b</td>
</tr>
<tr>
<td>T shaped</td>
<td>10.9b</td>
<td>Clark forthcoming</td>
<td>1a</td>
</tr>
<tr>
<td>padlocks</td>
<td>10.9a, 18, 33/3, 76, 78, 81/1, 97, 136, 184</td>
<td>Clark forthcoming</td>
<td>1a, 1b</td>
</tr>
<tr>
<td>shape uncertain</td>
<td>33/3, 62, 130</td>
<td>Clark forthcoming</td>
<td>1a, 1b</td>
</tr>
<tr>
<td>179</td>
<td></td>
<td>Clark forthcoming</td>
<td>2b</td>
</tr>
<tr>
<td>Knives</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evison Type 1/Bohner A</td>
<td>2, 18, 742, 747, 60, 64, 65, 68, 111, 184</td>
<td>Harke forthcoming</td>
<td>2nd half 5-7th</td>
</tr>
<tr>
<td></td>
<td>22, 155, 172/1, 181</td>
<td>Harke forthcoming</td>
<td>2nd half 5-7th</td>
</tr>
<tr>
<td></td>
<td>121</td>
<td>Harke forthcoming</td>
<td>U</td>
</tr>
<tr>
<td>Evison Type 2/Bohner B</td>
<td>582, 782, 92, 102, 7106, 7127, 133, 7136, 154, 170, 7174, 185</td>
<td>Harke forthcoming</td>
<td>1st half 5-7th, some 7th</td>
</tr>
<tr>
<td></td>
<td>140</td>
<td>Harke forthcoming</td>
<td>1st half 5-7th, some 7th</td>
</tr>
<tr>
<td>Evison Type 3/Bohner C</td>
<td>781/1, 7112, 7152</td>
<td>Harke forthcoming</td>
<td>early 6-8th, 1st half 7th</td>
</tr>
<tr>
<td></td>
<td>735, 352/2, 40, 55, 57, 69, 70, 72, 776, 91, 143, 145/2, 147, 172/1, 178, 183, 187</td>
<td>Harke forthcoming</td>
<td>early 6-8th, 1st half 7th</td>
</tr>
<tr>
<td></td>
<td>775</td>
<td>Harke forthcoming</td>
<td>late 6-8th, some 7th</td>
</tr>
<tr>
<td>long knives</td>
<td>2, 154</td>
<td>Harke forthcoming</td>
<td>late 6-8th</td>
</tr>
<tr>
<td></td>
<td>57, 172/1, 183</td>
<td>Harke forthcoming</td>
<td>late 6-8th, 2b</td>
</tr>
<tr>
<td>misc knives</td>
<td>1/1, 8, 16, 25, 33/2, 41, 44, 45, 54, 62, 78, 81/4, 115, 116, 123, 159, 160, 163, 164</td>
<td>Harke forthcoming</td>
<td>U, 1a, 1b</td>
</tr>
<tr>
<td></td>
<td>3, 40, 69/1, 104, 138, 143, 145/2, 155, 187, 191</td>
<td>Harke forthcoming</td>
<td>U, 2, 2b</td>
</tr>
<tr>
<td>Pendants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>composite gold and garnet</td>
<td>84, 95/1, 179</td>
<td>Boyle forthcoming, g</td>
<td>1st half 7th, some 8th</td>
</tr>
<tr>
<td>garnet cabochon</td>
<td>172/2</td>
<td>Boyle forthcoming, g</td>
<td>7th</td>
</tr>
<tr>
<td>cross</td>
<td>187</td>
<td>Boyle forthcoming, g</td>
<td>second half 7th-8th</td>
</tr>
<tr>
<td>glass cabochon</td>
<td>84, 148</td>
<td>Boyle forthcoming, g</td>
<td>late 7-8th</td>
</tr>
<tr>
<td>Thunor's club</td>
<td>133</td>
<td>Ager forthcoming, e</td>
<td>5 or 6th</td>
</tr>
<tr>
<td>soutiform</td>
<td>simple, plain</td>
<td>Clark forthcoming, a</td>
<td>6-1st half 7th</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>Clark forthcoming, a</td>
<td>6-1st half 7th</td>
</tr>
<tr>
<td>mushroom/pelta</td>
<td>89/2</td>
<td>Clark forthcoming, a</td>
<td>late 7-8th</td>
</tr>
<tr>
<td>misc 'bronzes'</td>
<td>1/1, 18/14, 163.3 (re-used belt plate), 163.14</td>
<td>Clark forthcoming, a</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>14, 148</td>
<td>Clark forthcoming, a</td>
<td>7th, some 8th</td>
</tr>
<tr>
<td>RB coins</td>
<td>1/1, 41, 18 (unpierced), 81/3, 81/4, 86, 113, 132, 184</td>
<td>King forthcoming</td>
<td>RB, 1a, 1b</td>
</tr>
<tr>
<td>boar teeth</td>
<td>171</td>
<td>Boyle forthcoming, g</td>
<td>late 6-7th</td>
</tr>
<tr>
<td>canine teeth</td>
<td>78</td>
<td>Boyle forthcoming, g</td>
<td>late 6-7th</td>
</tr>
<tr>
<td>beaver teeth</td>
<td>18</td>
<td>Boyle forthcoming, g</td>
<td>7-early 8th</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>Boyle forthcoming, g</td>
<td>7-early 8th</td>
</tr>
<tr>
<td>Bird's head plaque</td>
<td>123 (re-used from mount)</td>
<td>Ager forthcoming, h</td>
<td>mid quarter 5th, or slightly later</td>
</tr>
</tbody>
</table>

746
Table 4/2 The phasing of the artefact types at Lechlade (except weapons)

<table>
<thead>
<tr>
<th>Object type</th>
<th>Reference</th>
<th>Dating</th>
<th>Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pins</td>
<td>bone pin</td>
<td>13, 81/3, 125, 128, 134, 142</td>
<td>Ross forthcoming</td>
</tr>
<tr>
<td></td>
<td>hipped</td>
<td>140, 181</td>
<td>Ross forthcoming</td>
</tr>
<tr>
<td></td>
<td>folded and rolled</td>
<td>XVI 11, 81/1</td>
<td>Ross forthcoming</td>
</tr>
<tr>
<td></td>
<td>ca, cold worked</td>
<td>XVII 10.3, 33/2, 33/3, 123, 159, 160</td>
<td>Ross forthcoming</td>
</tr>
<tr>
<td></td>
<td>iron, looped</td>
<td>XVII 71</td>
<td>Ross forthcoming</td>
</tr>
<tr>
<td></td>
<td>iron, hook</td>
<td>XVII 90 (re-used), 97, 1637, 164</td>
<td>Ross forthcoming</td>
</tr>
<tr>
<td></td>
<td>iron, crook</td>
<td>XIX 144</td>
<td>Ross forthcoming</td>
</tr>
<tr>
<td></td>
<td>linked</td>
<td>LXIV 14, 138</td>
<td>Ross forthcoming</td>
</tr>
<tr>
<td></td>
<td>biconical, small head</td>
<td>LXVIII 145/2.5</td>
<td>Ross forthcoming</td>
</tr>
<tr>
<td></td>
<td>ball-shaped</td>
<td>LI 42</td>
<td>Ross forthcoming</td>
</tr>
<tr>
<td></td>
<td>pierced</td>
<td>LI 62</td>
<td>Ross forthcoming</td>
</tr>
<tr>
<td></td>
<td>biconical, large head</td>
<td>V 160</td>
<td>Ross forthcoming</td>
</tr>
<tr>
<td></td>
<td>unknown</td>
<td>10.7, 18, 44, 30, 43, 45, 54, 56, 86, 130, 135, 166, 184</td>
<td>Ross forthcoming</td>
</tr>
<tr>
<td>Toilet sets</td>
<td>toilet sets</td>
<td>18, 25, 41, 47, 59, 81/1, 111, 174</td>
<td>Clark forthcoming, f</td>
</tr>
<tr>
<td></td>
<td>cosmetic brush</td>
<td>78, 163</td>
<td>Clark forthcoming, f</td>
</tr>
<tr>
<td></td>
<td></td>
<td>67</td>
<td>Clark forthcoming, f</td>
</tr>
<tr>
<td></td>
<td>RB tweezers</td>
<td>25, 42</td>
<td>Clark forthcoming, f</td>
</tr>
<tr>
<td></td>
<td>non-functional ca tweezers</td>
<td>152</td>
<td>Clark forthcoming, f</td>
</tr>
<tr>
<td></td>
<td>full length iron tweezer</td>
<td>78</td>
<td>Clark forthcoming, f</td>
</tr>
<tr>
<td></td>
<td>twisted spatula</td>
<td>81/1</td>
<td>Clark forthcoming, f</td>
</tr>
<tr>
<td></td>
<td>scrapers'</td>
<td>166, 184</td>
<td>Clark forthcoming, g</td>
</tr>
<tr>
<td>Tools, general</td>
<td>balance pan</td>
<td>134 (re-used)</td>
<td>Clark forthcoming, g</td>
</tr>
<tr>
<td></td>
<td>shears</td>
<td>14</td>
<td>Clark forthcoming, f</td>
</tr>
<tr>
<td></td>
<td>chisel</td>
<td>54</td>
<td>Clark forthcoming, f</td>
</tr>
<tr>
<td></td>
<td>whetstone</td>
<td>40</td>
<td>Clark forthcoming, m</td>
</tr>
<tr>
<td></td>
<td>spatulate tool</td>
<td>40</td>
<td>Clark forthcoming, l</td>
</tr>
<tr>
<td></td>
<td>spokeshave</td>
<td>40</td>
<td>Clark forthcoming, p</td>
</tr>
<tr>
<td></td>
<td>awl</td>
<td>57</td>
<td>Clark forthcoming, o</td>
</tr>
</tbody>
</table>
Table 4/2: The phasing of the artefact types at Lechlade (except weapons)

<table>
<thead>
<tr>
<th>Object Type</th>
<th>References</th>
<th>Dating</th>
<th>Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tools, weaving</td>
<td>95/1, 187</td>
<td>Boyle forthcoming</td>
<td>2b</td>
</tr>
<tr>
<td>weaving batten</td>
<td>Boyle</td>
<td>second half 6-</td>
<td></td>
</tr>
<tr>
<td>weaving picks</td>
<td>107/1</td>
<td>Boyle forthcoming</td>
<td>2</td>
</tr>
<tr>
<td>woolcombs</td>
<td>14</td>
<td>Boyle forthcoming</td>
<td>2b</td>
</tr>
<tr>
<td>spindlewhorls</td>
<td>18, 54, 66/1, 81/1, 89/2, 107/1, 138, 150</td>
<td>Boyle forthcoming</td>
<td>1</td>
</tr>
<tr>
<td>misc garnets</td>
<td>71</td>
<td>Adams forthcoming</td>
<td>U</td>
</tr>
<tr>
<td>misc rings</td>
<td>18, 78, 81/1, 123, 159, 164, 169, 185</td>
<td>Boyle forthcoming</td>
<td>1, 1a, 1b</td>
</tr>
<tr>
<td></td>
<td>148</td>
<td>Boyle forthcoming</td>
<td>U</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>Boyle forthcoming</td>
<td>U</td>
</tr>
</tbody>
</table>


Table 4/3 Summary of the graves at Lechlade according to phases and subphases

<table>
<thead>
<tr>
<th>Phase</th>
<th>Grave nos</th>
<th>nos</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2, 6, 8, 16, 20, 21, 23, 26, 28, 30, 32, 38/1, 38/2, 39, 43, 44, 46, 49, 51, 52, 53, 54, 60, 61, 63, 66/1, 66/2, 73, 79, 82, 83, 87, 93, 99, 108, 109, 113, 117, 118/1, 118/2, 119/1, 119/2, 120, 124, 127, 128, 131, 132, 134, 135, 141, 142, 151, 153, 154, 156, 157, 158, 160, 166, 167/1, 167/2, 167/3, 168, 169, 170, 173, 175, 176, 185, 189, 190, 193, 195, 196</td>
<td>75</td>
</tr>
<tr>
<td>1a</td>
<td>1/1, 1/2, 10, 13, 19, 33/1, 33/2, 33/3, 41, 45, 47, 56, 58/1, 58/2, 59, 64, 65, 77, 80/1, 80/2, 81/1, 81/2, 81/3, 81/4, 81/5, 86, 88, 90, 92, 97, 102, 106, 111, 115, 116, 123, 133, 146, 159, 163, 174, 182, 184, 192</td>
<td>44</td>
</tr>
<tr>
<td>2</td>
<td>9, 22, 29, 35, 36/1, 36/2, 37, 55, 57, 67, 68, 69, 70, 71, 72, 76, 85, 89/1, 89/2, 91, 94, 96, 98, 103, 104, 105, 107/1, 107/2, 125, 137, 143, 147, 161/1, 161/2, 177, 178, 181, 183, 191, 194, 197, 200</td>
<td>42</td>
</tr>
<tr>
<td>2b</td>
<td>3, 14, 40, 84, 95/1, 138, 140, 145/1, 145/2, 148, 155, 172/1, 172/2, 179, 187</td>
<td>15</td>
</tr>
<tr>
<td>U</td>
<td>4, 5, 7, 12, 15, 24, 27, 31, 34, 74, 75, 95/2, 100, 110, 114, 121, 122, 126, 129, 139, 149, 150, 162, 186, 188/1, 188/2, 198, 199</td>
<td>28</td>
</tr>
<tr>
<td>GR no</td>
<td>CUTS date</td>
<td>CUTS date</td>
</tr>
<tr>
<td>-------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>91</td>
<td>PH U</td>
<td></td>
</tr>
<tr>
<td>52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>99</td>
<td>5234 U</td>
<td>F6929 U</td>
</tr>
<tr>
<td>117</td>
<td>Gr 117</td>
<td></td>
</tr>
<tr>
<td>122</td>
<td>Gr 116</td>
<td>5530 MED</td>
</tr>
<tr>
<td>127A</td>
<td>Gr 127A? U</td>
<td></td>
</tr>
<tr>
<td>127B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>159</td>
<td>pit U</td>
<td></td>
</tr>
<tr>
<td>240</td>
<td>ph x 2 U</td>
<td>pit U</td>
</tr>
<tr>
<td>242</td>
<td>ph U</td>
<td></td>
</tr>
<tr>
<td>244</td>
<td>Gr 245</td>
<td></td>
</tr>
<tr>
<td>245</td>
<td>Gr 244</td>
<td>15340 PRE</td>
</tr>
<tr>
<td>249</td>
<td></td>
<td>F6930 MOD</td>
</tr>
<tr>
<td>265</td>
<td>ph ?</td>
<td></td>
</tr>
<tr>
<td>265</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5/1 List of graves in Mucking I with their stratigraphic relationships
Table 5/2  List of graves in Mucking II with their stratigraphic relationships

<table>
<thead>
<tr>
<th>GR no.</th>
<th>CUTS</th>
<th>date</th>
<th>CUTS</th>
<th>date</th>
<th>CUT BY</th>
<th>date</th>
<th>CUT BY</th>
<th>date</th>
</tr>
</thead>
<tbody>
<tr>
<td>281</td>
<td>1594 ditch, 1392 recut</td>
<td>RB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>286</td>
<td>PH</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>287</td>
<td>1594 ditch, 15654, 1592 recuts</td>
<td>RB</td>
<td>crem pit?</td>
<td>U</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>288</td>
<td>1594 ditch, 1592 recut</td>
<td>RB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>320</td>
<td>pit</td>
<td>PH</td>
<td>U</td>
<td></td>
<td>urns, gr</td>
<td>U</td>
<td></td>
<td></td>
</tr>
<tr>
<td>322</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>333</td>
<td>9110 ditch, 9616 gully, 9689 recut</td>
<td>RB</td>
<td>7pit</td>
<td>U</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>334</td>
<td>4396 ditch</td>
<td>RB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>336</td>
<td>pit</td>
<td>PH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>340</td>
<td>965 ditch recut</td>
<td>PRE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>341</td>
<td>9041 ditch</td>
<td>PRE</td>
<td>2038 recut PRE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>343</td>
<td>965 ditch recut</td>
<td>PRE</td>
<td></td>
<td></td>
<td>Crem 342</td>
<td>72nd crem</td>
<td></td>
<td></td>
</tr>
<tr>
<td>346</td>
<td>15728 pit</td>
<td>7PRE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>350</td>
<td>Crem 1130</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>351</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>355</td>
<td>9110 ditch</td>
<td>RB</td>
<td></td>
<td></td>
<td>Crem 201</td>
<td>Crem 202</td>
<td></td>
<td></td>
</tr>
<tr>
<td>357</td>
<td>9110 ditch, 1592, 15654 recuts</td>
<td>RB</td>
<td></td>
<td></td>
<td>Crem 262</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>448</td>
<td>7940 pit</td>
<td>7PRE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>451</td>
<td>9110 ditch, 1592, 1594 recuts</td>
<td>RB</td>
<td></td>
<td></td>
<td>15679 ditch recut post AS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>452</td>
<td>9110 ditch</td>
<td>RB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>469</td>
<td>PH</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>527</td>
<td>9110 ditch, 7174 recut</td>
<td>RB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>529</td>
<td></td>
<td>PH</td>
<td>U</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>529</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>531</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>532</td>
<td>9110 ditch, 7174 recut</td>
<td>RB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>533</td>
<td>9110 ditch</td>
<td>RB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>534</td>
<td>9110 ditch</td>
<td>RB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>537</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>540</td>
<td>Gr 537</td>
<td>9634 ditch</td>
<td>MED</td>
<td>Gr 540</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>541</td>
<td>9110 ditch, 7172 recut</td>
<td>RB</td>
<td>7Gr 541</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>542</td>
<td>9110 ditch, 7263, 7261, 7172 recuts</td>
<td>RB</td>
<td>7Gr 541</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>543</td>
<td>9110 ditch, 7288 recut</td>
<td>RB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>545</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>546</td>
<td>12357 gully</td>
<td>U</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>548</td>
<td>865 ditch</td>
<td>PRE</td>
<td>Gr 562</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>550</td>
<td>7Crem 429</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>551</td>
<td>7Crem 482</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>552</td>
<td>7Gr 551</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>553</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>554</td>
<td>865 ditch</td>
<td>PRE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>555</td>
<td>4396 ditch</td>
<td>RB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>562</td>
<td>865 ditch</td>
<td>PRE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>566</td>
<td>Gr 566A</td>
<td>Crem 1132</td>
<td></td>
<td>Gr 84</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>566A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>571</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Crem 1128</td>
<td>Crem 1127</td>
<td></td>
<td></td>
</tr>
<tr>
<td>573</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Crem 455</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>575</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Crem 441</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>582</td>
<td>7Crem 580</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>583</td>
<td>PH</td>
<td>U</td>
<td>PH</td>
<td>7PRE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>584A</td>
<td>=Gr 584B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>584B</td>
<td>=Gr 584A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>585</td>
<td>Gr 585</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>589</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>590</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>597</td>
<td>9641 pit</td>
<td>MOD</td>
<td>Crem 479</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>598</td>
<td>9641 pit</td>
<td>MOD</td>
<td>9634 ditch</td>
<td>MED</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>600</td>
<td>Pit 7marker</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>602</td>
<td>7009 pit</td>
<td>RB</td>
<td>9634 ditch</td>
<td>MED</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>603</td>
<td>Crem 1109</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>608</td>
<td>Gr 589</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>610</td>
<td>Gr 808</td>
<td>77259 ditch</td>
<td>RB?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>611</td>
<td>Gr 613</td>
<td></td>
<td></td>
<td></td>
<td>Crem 812</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>612</td>
<td>Gr 611</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>614</td>
<td>7Crem 1110</td>
<td></td>
<td></td>
<td></td>
<td>Gr 715</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>615</td>
<td>Gr 614</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>616</td>
<td>7Crem 607</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>617</td>
<td>9110 ditch, 9639, 7172 recuts</td>
<td>RB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>619</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>620</td>
<td>Gr 626</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>621</td>
<td>Gr 637</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1591
### Table 5/2 List of graves in Mucking II with their stratigraphic relationships

<table>
<thead>
<tr>
<th>GR no CUTS</th>
<th>date</th>
<th>CUTS</th>
<th>date</th>
<th>CUT BY</th>
<th>date</th>
<th>CUT BY</th>
<th>date</th>
</tr>
</thead>
<tbody>
<tr>
<td>623</td>
<td></td>
<td></td>
<td></td>
<td>9634 ditch</td>
<td>MED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>626</td>
<td>Gr 620</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>629</td>
<td></td>
<td></td>
<td></td>
<td>?Crem 432</td>
<td>U</td>
<td></td>
<td></td>
</tr>
<tr>
<td>631</td>
<td>Gr 619</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>634</td>
<td>Crem 635</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>637</td>
<td>Gr 621</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>639</td>
<td>Gr 649</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>648</td>
<td>Crem</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>649</td>
<td>9372 spit</td>
<td>AS?</td>
<td></td>
<td>Gr 638</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>664</td>
<td>?Crem 504</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>666</td>
<td>9458 palisade</td>
<td>U</td>
<td>Crem 667</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>672</td>
<td>Gr 725</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>682</td>
<td>Crem 688</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>691</td>
<td>Crem 1111</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>692</td>
<td>Crem 1112</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>725</td>
<td>Gr 672</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>731</td>
<td>?Crem 1113</td>
<td></td>
<td></td>
<td>9384</td>
<td>?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>753</td>
<td>?PRE</td>
<td></td>
<td></td>
<td>9630</td>
<td>gulley</td>
<td>?PRE</td>
<td>9442</td>
</tr>
<tr>
<td>764</td>
<td>9458 palisade</td>
<td>U</td>
<td>Crem 727</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>765</td>
<td>9529</td>
<td>IA?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>766</td>
<td>Crem 1114</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>767</td>
<td>9458 palisade</td>
<td>U</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>772</td>
<td>?Crem 1115</td>
<td></td>
<td></td>
<td>Crem 1116</td>
<td>U</td>
<td></td>
<td></td>
</tr>
<tr>
<td>775</td>
<td>965 ditch?</td>
<td>?PRE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>778</td>
<td>865 ditch?</td>
<td>?PRE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>784</td>
<td>Crem 783</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>625A</td>
<td>Gr 825B</td>
<td>13th/10th ring ditch</td>
<td>AS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>625B</td>
<td>?Crem 828</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>629</td>
<td>unex pit</td>
<td>U</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>632</td>
<td>4454 ring ditch</td>
<td>IA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>643</td>
<td>PH ?later or marker</td>
<td>U</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>644</td>
<td>71344 pit</td>
<td>PRE</td>
<td>PH</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>825</td>
<td>Crem 832</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>830</td>
<td>8287 ditch</td>
<td>RB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>832</td>
<td>13th/10th ring ditch</td>
<td>AS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>837</td>
<td>Crem 1129</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>869</td>
<td>Gr 951</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>870</td>
<td>?Crem 1119</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>881</td>
<td>Crem 1118</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>906</td>
<td>Crem 1119</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>915</td>
<td>Crem 1120</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>925</td>
<td>GH 108</td>
<td>2nd half 5-6th</td>
<td>Crem 744</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>930</td>
<td>GH 108</td>
<td>2nd half 5-6th</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>931</td>
<td>Crem 1121</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>933</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>934</td>
<td>Crem 1122</td>
<td>Gr 933</td>
<td></td>
<td>Gr 933</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>935</td>
<td>Crem 1123</td>
<td>Gr 934</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>940</td>
<td>4454 ring ditch</td>
<td>IA</td>
<td></td>
<td>Crem 820</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>943</td>
<td>4454 ring ditch</td>
<td>IA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>944</td>
<td>7044 fire pit?</td>
<td>PRE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>950</td>
<td>Crem 1124</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>951</td>
<td>Gr 889</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>954</td>
<td>?Crem 1125</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>956</td>
<td>?Crem 1126</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>958</td>
<td>Crem 780</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>959A</td>
<td>Crem 835</td>
<td></td>
<td></td>
<td>Gr 959B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>959B</td>
<td>Gr 959A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>961A</td>
<td>Gr 961B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>961B</td>
<td>Gr 961A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>963</td>
<td>Crem 1127</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>964</td>
<td>4PH ?structure</td>
<td>AS?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>968</td>
<td>5048 ditch</td>
<td>MED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>970</td>
<td>9172 ditch</td>
<td>MED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>973</td>
<td>9272 ring ditch</td>
<td>PRE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>975</td>
<td>9272 ring ditch</td>
<td>PRE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>976</td>
<td>?Crem 504</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>977</td>
<td>?Crem 504</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>978</td>
<td>?Crem 504</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>980</td>
<td>Gr 969</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>988</td>
<td>Gr 986</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>989</td>
<td>15637 pit</td>
<td>7MED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>990</td>
<td>9479 windmill</td>
<td>MED</td>
<td>Gr 980</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>991</td>
<td>U</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>991A</td>
<td>Gr 990</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 5/2 List of graves in Mucking II with their stratigraphic relationships

<table>
<thead>
<tr>
<th>GR nr</th>
<th>CUTS</th>
<th>date</th>
<th>CUTS</th>
<th>date</th>
<th>CUT BY</th>
<th>date</th>
<th>CUT BY</th>
<th>date</th>
</tr>
</thead>
<tbody>
<tr>
<td>962</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9479 windmill</td>
<td>MED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>993</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>994</td>
<td>993</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>995</td>
<td>993</td>
<td></td>
<td></td>
<td></td>
<td>9479 windmill</td>
<td>MED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>998</td>
<td>993</td>
<td></td>
<td></td>
<td></td>
<td>9514 ditch</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9159 ditch</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grave No.</td>
<td>Material</td>
<td>Shape</td>
<td>Size</td>
<td>Date</td>
<td>Remarks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>----------</td>
<td>-------</td>
<td>------</td>
<td>------</td>
<td>---------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Silver</td>
<td>Brooch</td>
<td>5pt</td>
<td>1975</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Gold</td>
<td>Brooch</td>
<td>6pt</td>
<td>1976</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Bronze</td>
<td>Brooch</td>
<td>7pt</td>
<td>1977</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Iron</td>
<td>Brooch</td>
<td>8pt</td>
<td>1978</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5/9: Artefacts from Muckin gorge found in situ by Bollme (1974, 1980). Highlighted areas indicate Mucking materials and fields identified by transect readings.
| Table 5.2 Annotated verses from Mickey Mouse by Brome. (1974, 1980) Highlighted areas indicate McGuire | material. and these indicating presumed dates |
|---|---|---|---|---|---|---|
| [Image of a table with annotations and data] | [Data and annotations from the table] | [Highlighted areas indicating McGuire material] | [Presumed dates] | [Image of the table] | [Annotation from the table] | [Image of the annotated verses] |

Table 5.2 Annotated verses from Mickey Mouse by Brome (1974, 1980). Highlighted areas indicate McGuire material, and these indicating presumed dates.
Table 5/4 Artefact types in seriated graves at Mucking and Lechlade

<table>
<thead>
<tr>
<th>Phase at Lechlade</th>
<th>Object type</th>
<th>References</th>
<th>Traditional dating</th>
<th>Phase 3 M-Graves</th>
<th>Phase 3, M-Grave (indicated red code)</th>
<th>Suggested date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1y 1a (2b)</td>
<td>Bag collections</td>
<td>bag collections</td>
<td>Chapter 1.2; Chapter 4, Clark forthcoming, b</td>
<td>1y 5 and 6th, sep. late 6-early 5th except in Upper Thames Valley</td>
<td>1al, 1al, 1b3l, some 1alii, 1b3/l</td>
<td>1alii/l/2</td>
</tr>
<tr>
<td></td>
<td>pursemount</td>
<td>Kentia Type 341</td>
<td>Hirst and Clark forthcoming, b</td>
<td>2nd half of 5th</td>
<td>1alii</td>
<td>1alii</td>
</tr>
<tr>
<td></td>
<td>Portchester Type</td>
<td>843</td>
<td>Hirst and Clark forthcoming, b</td>
<td>2nd half of 5th</td>
<td>1b3l/2</td>
<td>1b3l/2</td>
</tr>
<tr>
<td></td>
<td>horseheaded, plain iron</td>
<td>99</td>
<td>Chapter 1.2</td>
<td>U</td>
<td>1b3l/2</td>
<td>1b3l/2</td>
</tr>
<tr>
<td>2b</td>
<td>Beads, monochrome</td>
<td>purple, disc</td>
<td>1.1 A1</td>
<td>Chapter 1.2; Chapter 4, Clark forthcoming, b</td>
<td>1ry 6th</td>
<td>1ry 8th, some 1a3l, 1b3l/2</td>
</tr>
<tr>
<td></td>
<td>purple, annular</td>
<td>1.1 A2</td>
<td>Chapter 1.2</td>
<td>U</td>
<td>1ry 6th</td>
<td>1b3l/2</td>
</tr>
<tr>
<td></td>
<td>purple, double annular</td>
<td>1.1 A3</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>1alii</td>
<td>1b3l/2</td>
</tr>
<tr>
<td></td>
<td>purple, triple annular</td>
<td>1.1 A4</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>1b3l/2</td>
<td>1b3l/2</td>
</tr>
<tr>
<td></td>
<td>purple, globular</td>
<td>1.1 B1</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>1alii</td>
<td>1b3l/2</td>
</tr>
<tr>
<td></td>
<td>purple, spiral coiled globular</td>
<td>1.1 B2</td>
<td>Chapter 1.2; Chapter 4, Clark forthcoming, b</td>
<td>U</td>
<td>1alii</td>
<td>1b3l/2</td>
</tr>
<tr>
<td>(in unseated 1)</td>
<td>opaque red (red brown, and with streaks) disc</td>
<td>2.1, 2.2, 2.3 A1</td>
<td>Chapter 1.2; Chapter 4, Clark forthcoming, b</td>
<td>1ry 6th</td>
<td>1ry 8th, some 1a3l, 1b3l/2</td>
<td>earliest eg found in Grave 989</td>
</tr>
<tr>
<td></td>
<td>opaque red, annular</td>
<td>2.1 A2</td>
<td>Chapter 1.2</td>
<td>1ry 6th</td>
<td>1b3l/2</td>
<td>1b3l/2</td>
</tr>
<tr>
<td></td>
<td>opaque red (red and brown red with streaks) globular</td>
<td>2.1, 2.3 B1</td>
<td>Hirst and Clark forthcoming, b</td>
<td>1ry 6th</td>
<td>1b3l/2, 1b3l/2, some 1alii</td>
<td>1alii</td>
</tr>
<tr>
<td></td>
<td>opaque red, barrel</td>
<td>2.1 D1</td>
<td>Chapter 1.2</td>
<td>often late 6-7th</td>
<td>1ry 8th, some 1alii</td>
<td>1b3l/2</td>
</tr>
<tr>
<td></td>
<td>opaque red brown with streaks, melon</td>
<td>2.3 F1</td>
<td>Hirst and Clark forthcoming, b</td>
<td>1ry 6th</td>
<td>1b3l/2</td>
<td>1b3l/2</td>
</tr>
<tr>
<td></td>
<td>opaque red, ribbed</td>
<td>2.3 F3</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>1alii</td>
<td>1b3l/2</td>
</tr>
<tr>
<td>1b, 2b</td>
<td>opaque red with streaks, drawn cylinder</td>
<td>2.1, 2.3 G1</td>
<td>Chapter 1.2; Chapter 4, Clark forthcoming, b</td>
<td>1ry late 6-7th</td>
<td>1ry 8th, some 1alii, 1alii</td>
<td>earliest eg found in Grave 989</td>
</tr>
<tr>
<td></td>
<td>opaque orange, barrel</td>
<td>3.1 D1</td>
<td>Hirst and Clark forthcoming, b</td>
<td>7th</td>
<td>1b3l/2</td>
<td>1b3l/2</td>
</tr>
<tr>
<td>2b</td>
<td>trans orange brown, disc</td>
<td>4.1 A1</td>
<td>Chapter 4, Clark forthcoming, b</td>
<td>U</td>
<td>1alii</td>
<td>1alii</td>
</tr>
<tr>
<td>1a</td>
<td>trans orange brown, annular</td>
<td>4.1 A2</td>
<td>Chapter 4, Clark forthcoming, b</td>
<td>U</td>
<td>1alii</td>
<td>1alii</td>
</tr>
<tr>
<td></td>
<td>trans orange brown, oval sectioned flattened coil</td>
<td>4.1 E2</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>1alii</td>
<td>1alii</td>
</tr>
<tr>
<td></td>
<td>trans orange brown, coiled cylinder</td>
<td>4.1 H1</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>1alii</td>
<td>1alii</td>
</tr>
<tr>
<td></td>
<td>trans orange brown, coiled cylinder, flattened on 2 sides</td>
<td>4.1 H3</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>1alii</td>
<td>1alii</td>
</tr>
<tr>
<td></td>
<td>trans orange brown, long square section</td>
<td>4.1 K1</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>1alii</td>
<td>1alii</td>
</tr>
<tr>
<td>1b</td>
<td>bright yellow, disc</td>
<td>5.1 A1</td>
<td>Chapter 1.2; Chapter 4, Clark forthcoming, b</td>
<td>1ry late 5-6th</td>
<td>1ry 8th, some 1b3l/2</td>
<td>earliest eg found in Grave 989</td>
</tr>
<tr>
<td></td>
<td>bright yellow, annular</td>
<td>5.1 A2</td>
<td>Chapter 1.2</td>
<td>1ry late 5-6th</td>
<td>1alii</td>
<td>1b3l/2</td>
</tr>
<tr>
<td></td>
<td>bright yellow, globular</td>
<td>5.1 B1</td>
<td>Hirst and Clark forthcoming, b</td>
<td>1ry late 5-6th</td>
<td>1alii</td>
<td>1b3l/2</td>
</tr>
</tbody>
</table>

756
Table 5/4 Artefact types in seriated graves at Mucking and Lechlade

<table>
<thead>
<tr>
<th>Phase at Lechlade</th>
<th>Object type</th>
<th>Source</th>
<th>Traditional dating</th>
<th>Phase, M seriated graves</th>
<th>Phase, F seriated graves (brackets indicate not coded)</th>
<th>Suggested date</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>bright yellow, barrel</td>
<td>5.1</td>
<td>D1 Hirst and Clark forthcoming, b</td>
<td>late 5-6th, often late 5-7th</td>
<td>-</td>
<td>1a/2</td>
</tr>
<tr>
<td>-</td>
<td>bright yellow, sub-melon</td>
<td>5.1</td>
<td>F1 Hirst and Clark forthcoming, b</td>
<td>1ry 6th</td>
<td>1a/1i, 1a/2i/2</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>bright yellow, lobed</td>
<td>5.1</td>
<td>F2 Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1a/2i</td>
</tr>
<tr>
<td>-</td>
<td>bright yellow, cylinder, thick wall</td>
<td>5.1</td>
<td>G1 Chapter 1.2</td>
<td>1ry mid-late 6th</td>
<td>1a/1i, 1a/2i/2, 1a/2i/3</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>bright yellow, long pentagonal section</td>
<td>5.1</td>
<td>K2 Hirst and Clark forthcoming, b</td>
<td>1ry mid-late 6th</td>
<td>1a/2i/2</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>pale green yellow, annular</td>
<td>5.2</td>
<td>B1 Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1a/2i</td>
</tr>
<tr>
<td>-</td>
<td>pale green yellow, sub-melon</td>
<td>5.3</td>
<td>A3 Hirst and Clark forthcoming, b</td>
<td>1ry late 5-6th</td>
<td>1a/1i, 1a/2i</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>semi-opaque green, disc</td>
<td>6.1</td>
<td>A1 Chapter 1.2</td>
<td>1ry late 4-early 5th</td>
<td>-</td>
<td>1a/2i</td>
</tr>
<tr>
<td>-</td>
<td>semi-opaque green, globular</td>
<td>6.1</td>
<td>B1 Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1a/2i, 1a/2i/2</td>
</tr>
<tr>
<td>-</td>
<td>pale green, annular</td>
<td>6.2</td>
<td>A2 Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1a/1i/2i</td>
</tr>
<tr>
<td>-</td>
<td>pale green, long square section</td>
<td>6.2</td>
<td>K1 Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1a/1i/2i</td>
</tr>
<tr>
<td>-</td>
<td>dark green, annular</td>
<td>6.3</td>
<td>A2 Chapter 1.2</td>
<td>U</td>
<td>-</td>
<td>1a/2i</td>
</tr>
<tr>
<td>-</td>
<td>dark olive green, annular</td>
<td>5.4</td>
<td>A2 Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1a/2i/2</td>
</tr>
<tr>
<td>-</td>
<td>dark olive green, globular</td>
<td>5.4</td>
<td>B1 Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1a/2i</td>
</tr>
<tr>
<td>-</td>
<td>green/black, disc</td>
<td>6.4</td>
<td>A1 Chapter 1.2</td>
<td>1ry late 5-early 6th</td>
<td>1a/1i/2i, 1a/2i/2, 1a/2i/3</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>green/black, annular</td>
<td>6.4</td>
<td>A2 Hirst and Clark forthcoming, b</td>
<td>1ry late 5-early 6th</td>
<td>1a/2i/2</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>green/black, globular</td>
<td>6.4</td>
<td>B1 Chapter 1.2</td>
<td>1ry late 5-early 6th</td>
<td>-</td>
<td>1a/2i</td>
</tr>
<tr>
<td>-</td>
<td>green/black, barrel</td>
<td>6.4</td>
<td>D1 Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1a/2i</td>
</tr>
<tr>
<td>-</td>
<td>green/black, med length irregular collared</td>
<td>6.4</td>
<td>E1 Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1a/2i</td>
</tr>
<tr>
<td>-</td>
<td>green/black, sub-melon</td>
<td>6.4</td>
<td>F1 Hirst and Clark forthcoming, b</td>
<td>6-7th?</td>
<td>-</td>
<td>1a/2i</td>
</tr>
<tr>
<td>1a, 2b</td>
<td>pale blue green, disc</td>
<td>6.5</td>
<td>A1 Chapter 4: Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1a/1i/2i, 1a/2i</td>
</tr>
<tr>
<td>2b</td>
<td>pale blue green, annular</td>
<td>6.5</td>
<td>A2 Chapter 1.2; Chapter 4: Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1a/1i/2i</td>
</tr>
<tr>
<td>-</td>
<td>pale blue green, sub-melon</td>
<td>6.5</td>
<td>F1 Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1a/1i/2i</td>
</tr>
<tr>
<td>-</td>
<td>pale blue green, double drawn globular</td>
<td>6.5</td>
<td>M2 Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1a/2i</td>
</tr>
<tr>
<td>-</td>
<td>blue green, annular</td>
<td>6.6</td>
<td>A2 Chapter 1.2</td>
<td>U</td>
<td>-</td>
<td>1a/2i/1i/2i</td>
</tr>
<tr>
<td>-</td>
<td>blue green, sub-melon</td>
<td>6.6</td>
<td>F1 Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1a/2i</td>
</tr>
<tr>
<td>-</td>
<td>semi-translucent blue green, disc</td>
<td>6.7</td>
<td>A1 Chapter 1.2</td>
<td>U</td>
<td>-</td>
<td>1a/1i/2i, 1a/2i/2</td>
</tr>
<tr>
<td>-</td>
<td>semi-translucent blue green, annular</td>
<td>6.7</td>
<td>A2 Chapter 1.2</td>
<td>U</td>
<td>-</td>
<td>1a/1i/2i, 1a/2i/2</td>
</tr>
<tr>
<td>-</td>
<td>semi-translucent blue green, globular</td>
<td>6.7</td>
<td>B1 Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1a/2i</td>
</tr>
<tr>
<td>-</td>
<td>pale green blue, disc</td>
<td>7.1</td>
<td>A1 Chapter 1.2</td>
<td>U</td>
<td>-</td>
<td>1a/2i</td>
</tr>
<tr>
<td>-</td>
<td>semi-opaque green blue, disc</td>
<td>7.2</td>
<td>A1 Chapter 1.2</td>
<td>U</td>
<td>-</td>
<td>1a/2i/2</td>
</tr>
<tr>
<td>-</td>
<td>semi-opaque green blue, drawn globular</td>
<td>7.2</td>
<td>M1 Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1a/2i</td>
</tr>
</tbody>
</table>

757
<table>
<thead>
<tr>
<th>Phase at Lechlade or Mucking</th>
<th>Object Type</th>
<th>References</th>
<th>Traditional dating</th>
<th>Phase, M, seriated graves</th>
<th>Phase, P, seriated graves (brackets indicate not coded)</th>
<th>Suggested date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a-1b</td>
<td>semi-opaque green blue, double drawn globular</td>
<td>7.2</td>
<td>M2</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>—</td>
</tr>
<tr>
<td>1a-1b</td>
<td>semi-trans green blue, globular</td>
<td>7.3</td>
<td>B1</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>—</td>
</tr>
<tr>
<td>1a-1b</td>
<td>semi-trans green blue, spirally coiled globular</td>
<td>7.3</td>
<td>B2</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>—</td>
</tr>
<tr>
<td>1a-1b, 2b</td>
<td>semi-trans green blue, drawn cylinder with cramped ends</td>
<td>7.3</td>
<td>L1</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>—</td>
</tr>
<tr>
<td>1a-1b, 2b</td>
<td>green blue, annular</td>
<td>7.4</td>
<td>A2</td>
<td>Chapter 1.2</td>
<td>U</td>
<td>—</td>
</tr>
<tr>
<td>1a-1b, 2b</td>
<td>transparent pale blue, disc</td>
<td>7.5</td>
<td>A1</td>
<td>Chapter 4; Clark forthcoming, h</td>
<td>U</td>
<td>—</td>
</tr>
<tr>
<td>1a-1b</td>
<td>opaque pale blue, annular</td>
<td>7.6</td>
<td>A2</td>
<td>Chapter 1.2; Chapter 4; Clark forthcoming, h</td>
<td>U</td>
<td>—</td>
</tr>
<tr>
<td>1a-1b, 2b</td>
<td>opaque pale blue, bicone</td>
<td>7.6</td>
<td>C1</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>—</td>
</tr>
<tr>
<td>1a-1b, 2b</td>
<td>blue, disc</td>
<td>7.7</td>
<td>A1</td>
<td>Chapter 4; Clark forthcoming, h</td>
<td>5-6, 1ry 1st half 6th</td>
<td>—</td>
</tr>
<tr>
<td>1a-1b, 2b</td>
<td>blue, annular</td>
<td>7.7</td>
<td>A2</td>
<td>Chapter 1.2; Chapter 4; Clark forthcoming, h</td>
<td>5-6, 1ry 1st half 6th</td>
<td>—</td>
</tr>
<tr>
<td>1b</td>
<td>blue, globular</td>
<td>7.7</td>
<td>B1</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>—</td>
</tr>
<tr>
<td>1b</td>
<td>blue, double segmented coiled globular</td>
<td>7.7</td>
<td>B2</td>
<td>Chapter 1.2</td>
<td>U</td>
<td>—</td>
</tr>
<tr>
<td>1b</td>
<td>blue, celled cylinder, crimped flat</td>
<td>7.7</td>
<td>H2</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>—</td>
</tr>
<tr>
<td>1b</td>
<td>blue, folded cylinder</td>
<td>7.7</td>
<td>J1</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>—</td>
</tr>
<tr>
<td>1b</td>
<td>blue, drawn cylinder</td>
<td>7.7</td>
<td>M1</td>
<td>Chapter 4; Clark forthcoming, h</td>
<td>1ry late 5-6th</td>
<td>—</td>
</tr>
<tr>
<td>1b</td>
<td>blue, drawn cylinder, double</td>
<td>7.7</td>
<td>M2</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>—</td>
</tr>
<tr>
<td>1a-1b, 2b</td>
<td>dark blue, disc</td>
<td>7.8</td>
<td>A1</td>
<td>Chapter 4; Clark forthcoming, h</td>
<td>5-6, 1ry 1st half 6th</td>
<td>—</td>
</tr>
<tr>
<td>1a-1b, 2b</td>
<td>dark blue, annular</td>
<td>7.8</td>
<td>A2</td>
<td>Chapter 1.2; Chapter 4; Clark forthcoming, h</td>
<td>5-6, 1ry 1st half 6th</td>
<td>—</td>
</tr>
<tr>
<td>1a</td>
<td>dark blue, globular</td>
<td>7.8</td>
<td>B1</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>—</td>
</tr>
<tr>
<td>1a</td>
<td>dark blue, spirally coiled globular</td>
<td>7.8</td>
<td>B2</td>
<td>Chapter 4; Clark forthcoming, h</td>
<td>U</td>
<td>—</td>
</tr>
<tr>
<td>1a</td>
<td>dark blue, lobed</td>
<td>7.8</td>
<td>F2</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>—</td>
</tr>
<tr>
<td>1a</td>
<td>dark blue, cylinder, thick wall</td>
<td>7.8</td>
<td>G1</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>—</td>
</tr>
<tr>
<td>1b</td>
<td>opaque white, disc</td>
<td>8.1</td>
<td>A1</td>
<td>Chapter 1.2; Chapter 4; Clark forthcoming, h</td>
<td>1ry 6-7th</td>
<td>—</td>
</tr>
<tr>
<td>1b</td>
<td>opaque white, annular</td>
<td>8.1</td>
<td>A2</td>
<td>Chapter 1.2</td>
<td>1ry 6-7th</td>
<td>—</td>
</tr>
<tr>
<td>1b</td>
<td>opaque white, double annular</td>
<td>8.1</td>
<td>A3</td>
<td>Hirst and Clark forthcoming, b</td>
<td>1ry 6-7th</td>
<td>—</td>
</tr>
<tr>
<td>1b</td>
<td>opaque white, globular</td>
<td>8.1</td>
<td>B1</td>
<td>Hirst and Clark forthcoming, b</td>
<td>1ry 6-7th</td>
<td>—</td>
</tr>
<tr>
<td>1b</td>
<td>opaque blue white, disc</td>
<td>8.2</td>
<td>A1</td>
<td>Hirst and Clark forthcoming, b</td>
<td>1ry 6-7th</td>
<td>—</td>
</tr>
<tr>
<td>1b</td>
<td>opaque blue white, globular</td>
<td>8.2</td>
<td>B1</td>
<td>Hirst and Clark forthcoming, b</td>
<td>1ry 6-7th</td>
<td>—</td>
</tr>
<tr>
<td>1b</td>
<td>Wedgewood blue, bicone</td>
<td>8.2</td>
<td>C1</td>
<td>Hirst and Clark forthcoming, b</td>
<td>1ry late 6-7th</td>
<td>—</td>
</tr>
</tbody>
</table>

758
<table>
<thead>
<tr>
<th>Phase at Lechlade during 1st millennium (نة)</th>
<th>Object type</th>
<th>References</th>
<th>Suggested date</th>
<th>Phase: M seriated graves</th>
<th>Phase: P seriated graves (brackets indicate not coded)</th>
<th>Phase: M seriated graves (brackets indicate not coded)</th>
<th>Phase: P seriated graves (brackets indicate not coded)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase a at Lechlade</td>
<td>Wedgwood' blue, barrel</td>
<td>8.2 D1 Hirst and Clark forthcoming, b</td>
<td>1ry late 6-7th</td>
<td>1ali/1bili</td>
<td>1bili/2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase b at Mucking</td>
<td>opaque blue, cylinder, thick wall, short</td>
<td>8.2 G1 Chapter 4: Clark forthcoming, h</td>
<td>U</td>
<td>1ali, 1bili</td>
<td>1ali/1bili</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase b at Lechlade</td>
<td>colourless, globular</td>
<td>9.1 B1 Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>1ali</td>
<td>1ali</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase b at Lechlade</td>
<td>colourless, flattened bicone</td>
<td>9.1 C2 Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>1ali</td>
<td>1ali</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase b at Lechlade</td>
<td>gold- in-glass</td>
<td>Chapter 1.2, 4: Clark forthcoming, h</td>
<td>1ry 6th, esp 1st half in Upper Thames Valley</td>
<td>-</td>
<td>1ry aili, some 1ali/1bili</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase b at Lechlade</td>
<td>Beads polychrome stripe</td>
<td>P1 Chapter 4: Clark forthcoming, h</td>
<td>U</td>
<td>1bili/2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase b at Lechlade</td>
<td>single spiral trails red with yellow or white trails</td>
<td>P2 Chapter 4: Clark forthcoming, h</td>
<td>6-7th</td>
<td>1ali/1bili, 1bili/2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase b at Lechlade</td>
<td>spiral trail, opaque on trans. body</td>
<td>P3 Chapter 4: Clark forthcoming, h</td>
<td>5-6th</td>
<td>1bili/2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase b at Lechlade</td>
<td>wiredrawn spiral</td>
<td>P4 Chapter 1.2, 4: Clark forthcoming, h</td>
<td>6-7th</td>
<td>1bili/2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase b at Lechlade</td>
<td>wiredrawn bichrome spiral</td>
<td>P5 Hirst and Clark forthcoming, b</td>
<td>mid 6th?</td>
<td>1bili/2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase b at Lechlade</td>
<td>zigzag green/back with white stripes</td>
<td>P6 Chapter 1.2</td>
<td>mid 5-6th</td>
<td>1bili, 1bili/2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase b at Lechlade</td>
<td>zigzag white with red waves</td>
<td>P6 Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>1ali</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase b at Lechlade</td>
<td>single wave yellow brown with red trails</td>
<td>P7 Hirst and Clark forthcoming, b</td>
<td>1ry 6-7th</td>
<td>1ali</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase b at Lechlade</td>
<td>single wave green/black, white trails</td>
<td>P7 Hirst and Clark forthcoming, b</td>
<td>late 5-6th</td>
<td>1ali</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase b at Lechlade</td>
<td>double bichrome crossing waves</td>
<td>P8 Chapter 4: Clark forthcoming, h</td>
<td>U</td>
<td>1bili/2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase b at Lechlade</td>
<td>P9 double crossing waves smallinted barrel, narrow and high crossing, red with yellow or white waves</td>
<td>1bili/2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase b at Lechlade</td>
<td>P9 double crossing waves loosely crossed, red with yellow or white waves</td>
<td>P9 Hirst and Clark forthcoming, b</td>
<td>early-late 6th</td>
<td>1ali</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase b at Lechlade</td>
<td>P9 double crossing waves large, narrow and high crossing, yellow with red waves</td>
<td>P9 Chapter 1.2</td>
<td>1ry late 8-7th</td>
<td>1bili/2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase b at Lechlade</td>
<td>P9 double crossing waves smallinted barrel, narrow and high crossing, yellow with red waves</td>
<td>P9 Chapter 1.2</td>
<td>1ry late 8-7th</td>
<td>1bili/2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase b at Lechlade</td>
<td>P9 double crossing waves widely crossing, white with various blues</td>
<td>P9 Hirst and Clark forthcoming, b</td>
<td>early-late 6th</td>
<td>1ali</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase b at Lechlade</td>
<td>P9 double crossing waves widely crossing, red with yellow</td>
<td>P9 Hirst and Clark forthcoming, b</td>
<td>6th?</td>
<td>1ali</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 5/4 Artefact types in seriated graves at Mucking and Lechlade

<table>
<thead>
<tr>
<th>Phase at Lechlade column right</th>
<th>Object type</th>
<th>References</th>
<th>Traditional dating</th>
<th>Phase, M seriated graves</th>
<th>Phase, F seriated graves (brackets indicate not coded)</th>
<th>Suggested date</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>P9 double crossing waves</td>
<td>large, high and narrow crossing, white with blue</td>
<td>P9 Hirst and Clark forthcoming, b</td>
<td>1ry late 6-7th</td>
<td>-</td>
<td>1b/bi/2</td>
</tr>
<tr>
<td>-</td>
<td>P9 double crossing waves</td>
<td>narrow crossing, yellow and blue green</td>
<td>P9 Chapter 1.2</td>
<td>1ry late 6-7th</td>
<td>-</td>
<td>1b/bi</td>
</tr>
<tr>
<td>-</td>
<td>Irregular linear trails</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6-7th</td>
</tr>
<tr>
<td>-</td>
<td>3-4 spots in 1 colour</td>
<td>red with green blue spots</td>
<td>P11a-b Hirst and Clark forthcoming, b</td>
<td>6-7th</td>
<td>-</td>
<td>1b/bi</td>
</tr>
<tr>
<td>-</td>
<td>3-4 spots in 1 colour</td>
<td>other colours</td>
<td>P11a-b Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1b/bi</td>
</tr>
<tr>
<td>-</td>
<td>bichrome spots</td>
<td>white, with pale blue green spots</td>
<td>P11c Chapter 1.2</td>
<td>mid 6-7th</td>
<td>-</td>
<td>1b/bi</td>
</tr>
<tr>
<td>-</td>
<td>waves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1b/bi</td>
</tr>
<tr>
<td>-</td>
<td>rows of attached spots</td>
<td>blue</td>
<td>P13 Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1b/bi</td>
</tr>
<tr>
<td>-</td>
<td>crumb or speckled beads</td>
<td></td>
<td>P14a Hirst and Clark forthcoming, b</td>
<td>1ry 6th</td>
<td>-</td>
<td>1b/bi, some 1b/bi</td>
</tr>
<tr>
<td>-</td>
<td>crumb or speckled beads</td>
<td>very dark green black</td>
<td>P14a Hirst and Clark forthcoming, b</td>
<td>6th</td>
<td>-</td>
<td>1a/bi example in Grave 989</td>
</tr>
<tr>
<td>-</td>
<td>large crumb beads</td>
<td></td>
<td>P14b Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1a/bi</td>
</tr>
<tr>
<td>-</td>
<td>stripe and zigzag</td>
<td>translucent with opaque</td>
<td>P15 Chapter 1.2</td>
<td>early second half 6-7th, can be 5th</td>
<td>-</td>
<td>1b/bi</td>
</tr>
<tr>
<td>-</td>
<td>stripe and 2 stripes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1b/bi/2</td>
</tr>
<tr>
<td>- ta w</td>
<td>wave and stripes</td>
<td>translucent with opaque trail</td>
<td>P16 Chapter 1.2</td>
<td>5-6th</td>
<td>-</td>
<td>1b/bi</td>
</tr>
<tr>
<td>- ta w</td>
<td>wave and stripes</td>
<td>white with blue stripes</td>
<td>P17 Chapter 1.2</td>
<td>5-6th?</td>
<td>-</td>
<td>1b/bi</td>
</tr>
<tr>
<td>- ta w</td>
<td>stripe and double crossing wave</td>
<td>wide crossing trails</td>
<td>P18 Hirst and Clark forthcoming, b</td>
<td>early 6-7th</td>
<td>-</td>
<td>1a/bi example in Grave 989</td>
</tr>
<tr>
<td>- ta w</td>
<td>stripe and double crossing wave</td>
<td>narrow crossing trails, translucent body</td>
<td>P18 Hirst and Clark forthcoming, b</td>
<td>5-6th</td>
<td>-</td>
<td>1a/bi</td>
</tr>
<tr>
<td>- ta w</td>
<td>spiral and wave</td>
<td>various colours</td>
<td>P19 Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1a/bi, 1a/bi example in Grave 989</td>
</tr>
<tr>
<td>- ta w</td>
<td>spiral and wave</td>
<td>translucent with opaque trail</td>
<td>P19 Chapter 1.2</td>
<td>5-6th?</td>
<td>-</td>
<td>1a/bi, 1b/bi example in Grave 989</td>
</tr>
<tr>
<td>- ta w</td>
<td>spiral and irregular trail</td>
<td>translucent with opaque trail</td>
<td>P20 Hirst and Clark forthcoming, b</td>
<td>5-6th?</td>
<td>-</td>
<td>1a/bi</td>
</tr>
<tr>
<td>- ta w</td>
<td>spiral, wave and spot and spiral and spot</td>
<td>translucent with opaque trail</td>
<td>P21 Hirst and Clark forthcoming, b</td>
<td>5-6th?</td>
<td>-</td>
<td>1a/bi, 1a/bi</td>
</tr>
<tr>
<td>- ta w</td>
<td>wave and spots</td>
<td>large white, blue waves and red spots, high crossing waves</td>
<td>P22 Hirst and Clark forthcoming, b</td>
<td>late 6-7th</td>
<td>-</td>
<td>1b/bi/2</td>
</tr>
<tr>
<td>- ta w</td>
<td>double cross wave, single spots in same colour</td>
<td>wide crossing waves, red with yellow or white waves + spots</td>
<td>P23a Chapter 1.2; Chapter 4</td>
<td>6-7th</td>
<td>-</td>
<td>1a/bi, 1a/bi example in Grave 989</td>
</tr>
<tr>
<td>- ta w</td>
<td>double cross wave, single spots in same colour</td>
<td>small/mid barrel, narrow or high crossing waves, red with yellow or white waves + spots</td>
<td>P23a Chapter 1.2; Clark forthcoming, b</td>
<td>1ry late 6-7th</td>
<td>-</td>
<td>1b/bi/2</td>
</tr>
<tr>
<td>- ta w</td>
<td>double cross wave, single spots in same colour</td>
<td>wide crossing waves + spots, various colours</td>
<td>P23a Hirst and Clark forthcoming, b</td>
<td>1ry 5-6th</td>
<td>-</td>
<td>1b/bi, some 1a/bi</td>
</tr>
<tr>
<td>- ta w</td>
<td>double cross wave, single spots in same colour</td>
<td>wide crossing, white with blue waves + spots</td>
<td>P23a Hirst and Clark forthcoming, b</td>
<td>6-7th</td>
<td>-</td>
<td>1a/bi</td>
</tr>
<tr>
<td>Phase at Lechlade</td>
<td>Object type</td>
<td>References</td>
<td>Traditional dating</td>
<td>Phase, M seriated graves</td>
<td>Phase, P seriated graves (brackets indicate not coded)</td>
<td>Highlight date</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------</td>
<td>------------</td>
<td>--------------------</td>
<td>--------------------------</td>
<td>------------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>-</td>
<td>double cross wave, single spots in different colour</td>
<td>P23b Chapter 1.2; Hirst and Clark forthcoming, b</td>
<td>1ry 6-7th</td>
<td>-</td>
<td>1a/1al, 1a/1bl</td>
<td>early example in Grave 886</td>
</tr>
<tr>
<td>-</td>
<td>double cross wave, single spots in different colour</td>
<td>P23b Chapter 1.2; Hirst and Clark forthcoming, b</td>
<td>1ry mid 6-7th</td>
<td>-</td>
<td>1a/1al, 1a/1bl</td>
<td>early example in Grave 886</td>
</tr>
<tr>
<td>-</td>
<td>double cross wave, single spots in different colour</td>
<td>P23b Chapter 1.2</td>
<td>1ry late 6-7th</td>
<td>-</td>
<td>1a/1al, 1a/1bl</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>double cross wave, single spots in different colour</td>
<td>P23b Hirst and Clark forthcoming, b</td>
<td>1a/1aII, la/III, 1b/1II</td>
<td>-</td>
<td>1a/1al, 1a/1bl, 1b/1II</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>double cross wave, single spots in different colour</td>
<td>P23b Hirst and Clark forthcoming, b</td>
<td>1a/1aII, la/III, 1b/1II</td>
<td>-</td>
<td>1a/1al, 1a/1bl, 1b/1II</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>waves and multiple spots</td>
<td>P24 Hirst and Clark forthcoming, b</td>
<td>late 6-early 7th</td>
<td>-</td>
<td>1a/1al, 1a/1bl</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>line and eye</td>
<td>P25 Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1a/1al, 1b/1bl</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>reicella</td>
<td>P27 Chapter 4; Clark forthcoming, h</td>
<td>second half 6th</td>
<td>-</td>
<td>1a/1al, 1b/1bl</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>twisted composite rods</td>
<td>P28 Chapter 1.2</td>
<td>late 5-early 6th</td>
<td>-</td>
<td>1a/1al, 1b/1bl</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>twisted composite rods</td>
<td>P29 Chapter 1.2</td>
<td>late 5-early 6th</td>
<td>-</td>
<td>1a/1al, 1b/1bl</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>marbled trails</td>
<td>P30 Chapter 4; Clark forthcoming, h</td>
<td>mid 5-early 6th</td>
<td>-</td>
<td>1a/1al, 1b/1bl</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>spindles, drawn</td>
<td>P31 Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1a/1al, 1b/1bl</td>
<td></td>
</tr>
<tr>
<td>(in unseriated 1)</td>
<td>blue spindles, drawn</td>
<td>P32</td>
<td>late 5-early 6th</td>
<td>-</td>
<td>1a/1al, 1b/1bl</td>
<td></td>
</tr>
<tr>
<td>1ry 1b (also 1a, 2)</td>
<td>Beads, Other</td>
<td>amber</td>
<td>Chapter 1.2, Chapter 4; Clark forthcoming, h</td>
<td>mid 5-early 7th, 1ry mid-late 6th</td>
<td>-</td>
<td>1a/1al, 1b/1bl</td>
</tr>
<tr>
<td>-</td>
<td>glass (stopper)</td>
<td></td>
<td>U</td>
<td>-</td>
<td>1a/1al, 1b/1bl</td>
<td></td>
</tr>
<tr>
<td>1a, 1b</td>
<td>crystal</td>
<td>Chapter 1.2, Chapter 4; Clark forthcoming, h</td>
<td>6, 7th</td>
<td>-</td>
<td>1a/1al, 1b/1bl</td>
<td></td>
</tr>
<tr>
<td>1a, 1b</td>
<td>calcareous, white mineral</td>
<td>Chapter 4; Clark forthcoming, h</td>
<td>U</td>
<td>-</td>
<td>1a/1al, 1b/1bl</td>
<td></td>
</tr>
<tr>
<td>1a, 1b, 2</td>
<td>faience</td>
<td>Chapter 1.2, Chapter 4; Clark forthcoming, h</td>
<td>U</td>
<td>-</td>
<td>1a/1al, 1b/1bl, 2a/2II</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>jet-like</td>
<td>Chapter 1.2</td>
<td>U</td>
<td>-</td>
<td>1a/1al, 1b/1bl</td>
<td></td>
</tr>
<tr>
<td>1a</td>
<td>pewter</td>
<td>Chapter 1.2, Chapter 4; Clark forthcoming, h</td>
<td>U</td>
<td>-</td>
<td>1a/1al, 1b/1bl</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>silver cylinder</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1a/1al, 1b/1bl</td>
<td>found in Grave 886</td>
</tr>
<tr>
<td>1b</td>
<td>silver gilt tubes</td>
<td>Chapter 4; Clark forthcoming, h</td>
<td>6th, probably 2nd half</td>
<td>-</td>
<td>1a/1al, 1b/1bl</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>stone</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>-</td>
<td>1a/1al, 1b/1bl</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>Beadstrings</td>
<td>Try glass, Try blue, Try monochrome</td>
<td>Hirst and Clark forthcoming, b</td>
<td>late 5-early 6th</td>
<td>-</td>
<td>1a/1al, 1b/1bl</td>
</tr>
<tr>
<td>-</td>
<td>Try glass, Try mix colour glass, Try monochrome</td>
<td>Hirst and Clark forthcoming, b</td>
<td>late 5-early 6th</td>
<td>-</td>
<td>1a/1al, 1b/1bl</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>Try glass, varied colours, Try monochrome, miniature</td>
<td>Hirst and Clark forthcoming, b</td>
<td>Try late 5th</td>
<td>-</td>
<td>1a/1al, 1b/1bl</td>
<td></td>
</tr>
</tbody>
</table>
| -                | Try glass, varied colours, mixed polychrome and monochrome | Hirst and Clark forthcoming, b | late 5-early 6th | - | 1a/1al, 1a/1bl | 761
Table 5/4 Artefact types in seriated graves at Mucking and Lechlade

<table>
<thead>
<tr>
<th>Phase at Lechlade</th>
<th>Object type</th>
<th>References</th>
<th>Indicated setting</th>
<th>Phase: M seriated Graves</th>
<th>Phase: F seriated graves (brackets indicate not coded)</th>
<th>Suggested date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase, M, F</td>
<td>try glass, varied colours, mixed polychrome and monochrome</td>
<td>Hint and Clark forthcoming, b</td>
<td>1 ry late 5th</td>
<td>1a/ii</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1a, 1b</td>
<td>mixed amber</td>
<td>Chapter 1.2</td>
<td>1 ry early 6th</td>
<td>1a/ii</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1a, 1b</td>
<td>bracelets</td>
<td>zoomorphic ornament</td>
<td>875</td>
<td>Hint and Clark forthcoming, b</td>
<td></td>
<td>1a/ii</td>
</tr>
<tr>
<td>1a, 1b</td>
<td>brooches</td>
<td>annular</td>
<td>Type F</td>
<td>Hint and Clark forthcoming, b</td>
<td>5-6th</td>
<td>1a/ii</td>
</tr>
<tr>
<td>1a, 1b</td>
<td></td>
<td>annular</td>
<td>Type G</td>
<td>Hint and Clark forthcoming, b</td>
<td>5-6th</td>
<td>1a/ii</td>
</tr>
<tr>
<td>1a, 1b</td>
<td></td>
<td>applied</td>
<td>Type Mop</td>
<td>585</td>
<td>Hint and Clark forthcoming, b</td>
<td></td>
</tr>
<tr>
<td>1a, 1b</td>
<td></td>
<td>6-point star</td>
<td>923, 970, 975</td>
<td>Hint and Clark forthcoming, b</td>
<td></td>
<td>1a/ii</td>
</tr>
<tr>
<td>1a, 1b</td>
<td></td>
<td>applied</td>
<td>864, 895, 892</td>
<td>Hint and Clark forthcoming, b</td>
<td></td>
<td>1a/ii</td>
</tr>
<tr>
<td>1a, 1b</td>
<td>button</td>
<td>A</td>
<td>Chapter 1.2</td>
<td>1 ry deposited 5th</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1a, 1b</td>
<td>button</td>
<td>B</td>
<td>Chapter 1.2; Chapter 4</td>
<td>3rd half 5th</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1a, 1b</td>
<td>button</td>
<td>D</td>
<td>Chapter 1.2</td>
<td>3rd half 5th</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1a, 1b</td>
<td>button</td>
<td>E</td>
<td>Hint and Clark forthcoming, b</td>
<td>6th</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1a, 1b</td>
<td>button</td>
<td>II</td>
<td>Hint and Clark forthcoming, b</td>
<td>6th</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1a, 1b</td>
<td>button</td>
<td>II</td>
<td>859</td>
<td>Hint and Clark forthcoming, b</td>
<td></td>
<td>1a/ii</td>
</tr>
<tr>
<td>1a, 1b</td>
<td>button</td>
<td>III</td>
<td>859</td>
<td>Hint and Clark forthcoming, b</td>
<td></td>
<td>1a/ii</td>
</tr>
<tr>
<td>1a, 1b</td>
<td>button</td>
<td>J</td>
<td>859</td>
<td>Hint and Clark forthcoming, b</td>
<td></td>
<td>1a/ii</td>
</tr>
<tr>
<td>1a, 1b</td>
<td>button</td>
<td>U</td>
<td>Chapter 1.2; Chapter 4</td>
<td>6th</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1a, 1b</td>
<td>cast</td>
<td>saucer</td>
<td>late RB</td>
<td>825a, 827</td>
<td></td>
<td>1a/ii</td>
</tr>
<tr>
<td>1a, 1b</td>
<td>cast</td>
<td>saucer</td>
<td>Style I</td>
<td>6th</td>
<td></td>
<td>1a/ii</td>
</tr>
<tr>
<td>1a, 1b</td>
<td>cruciform</td>
<td>Modliner Type B</td>
<td>825a, 827</td>
<td>Hint and Clark forthcoming, b</td>
<td></td>
<td>1a/ii</td>
</tr>
<tr>
<td>1a, 1b</td>
<td></td>
<td>cruciform/small-long hybrid</td>
<td>597</td>
<td>Hint and Clark forthcoming, b</td>
<td>6th</td>
<td>1a/ii</td>
</tr>
<tr>
<td>1a, 1b</td>
<td></td>
<td>disc</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1a, 1b</td>
<td>equal-arm</td>
<td>Saltershurg Type</td>
<td>90</td>
<td>Hint and Clark forthcoming, b</td>
<td>6th</td>
<td>1a/ii</td>
</tr>
<tr>
<td>1a, 1b</td>
<td>equal-arm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1a, 1b</td>
<td>lozenge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1a, 1b</td>
<td>pennanular</td>
<td>Ca</td>
<td>944, 967, 1000</td>
<td>Hint and Clark forthcoming, b</td>
<td></td>
<td>1a/ii</td>
</tr>
<tr>
<td>1a, 1b</td>
<td>pennanular</td>
<td>Type Cb</td>
<td>875</td>
<td>Hint and Clark forthcoming, b</td>
<td>1 ry deposited 2nd half 5th</td>
<td>1a/ii</td>
</tr>
<tr>
<td>1a, 1b</td>
<td>pennanular</td>
<td>G1.5</td>
<td>992</td>
<td>Hint and Clark forthcoming, b</td>
<td>1 ry deposited 2nd half 5th</td>
<td>1a/ii</td>
</tr>
<tr>
<td>1a, 1b</td>
<td>pennanular</td>
<td>G1.5</td>
<td>860</td>
<td>Hint and Clark forthcoming, b</td>
<td>1 ry deposited 2nd half 5th</td>
<td>1a/ii</td>
</tr>
<tr>
<td>1a, 1b</td>
<td>pennanular</td>
<td>E</td>
<td>249</td>
<td>Hint and Clark forthcoming, b</td>
<td>1 ry deposited 2nd half 5th</td>
<td>1a/ii</td>
</tr>
<tr>
<td>1a, 1b</td>
<td>pennanular</td>
<td>U</td>
<td>875</td>
<td>Hint and Clark forthcoming, b</td>
<td>1 ry deposited 2nd half 5th</td>
<td>1a/ii</td>
</tr>
</tbody>
</table>
Table 5/4 Artefact types in seriated graves at Mucking and Lechlade

<table>
<thead>
<tr>
<th>Phase at Lechlade (seriated graves)</th>
<th>Object type</th>
<th>References</th>
<th>Intentional dating</th>
<th>Phase: M seriated Graves</th>
<th>Phase: F seriated Graves</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase a</td>
<td>quoit brooch</td>
<td>Type E1</td>
<td>Chapter 1.2</td>
<td>U</td>
<td>1alil</td>
<td>heirloom? in Grave 548</td>
</tr>
<tr>
<td>Phase b</td>
<td>quoit brooch</td>
<td>Quoit Brooch Style</td>
<td>545</td>
<td>Hirst and Clark forthcoming, b</td>
<td>early to mid 5th or later</td>
<td>1alil</td>
</tr>
<tr>
<td>Phase c</td>
<td>quoit brooch</td>
<td>related to Quoit Brooch Style</td>
<td>537</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>1alil</td>
</tr>
<tr>
<td>Phase d</td>
<td>small-long</td>
<td>Borgardt-Rothwell Type</td>
<td>Chapter 1.2</td>
<td>Stufe III</td>
<td>1alil</td>
<td>mid 5-early 6th? Few examples</td>
</tr>
<tr>
<td>Phase e</td>
<td></td>
<td>Bondashs-Hastingsfield Type</td>
<td>Hirst and Clark forthcoming, b</td>
<td>Stufe III</td>
<td>1alil</td>
<td>mid 5-early 6th? Few examples</td>
</tr>
<tr>
<td>Phase f</td>
<td></td>
<td>Liebenau-West Sloow Type</td>
<td>Hirst and Clark forthcoming, b</td>
<td>Stufe III</td>
<td>1alil</td>
<td>mid 5-early 6th? Few examples</td>
</tr>
<tr>
<td>Phase g</td>
<td></td>
<td>without lappets (other)</td>
<td>Hirst and Clark forthcoming, b</td>
<td>late 5-early 6th</td>
<td>1alil</td>
<td>1alil</td>
</tr>
<tr>
<td>Phase h</td>
<td></td>
<td>with lappets</td>
<td>Hirst and Clark forthcoming, b</td>
<td>1ry early 6th</td>
<td>1alil</td>
<td></td>
</tr>
<tr>
<td>Phase i</td>
<td></td>
<td>small square-headed</td>
<td>Series II, III, and variant Style I</td>
<td>Hirst and Clark forthcoming, b</td>
<td>mid 6th</td>
<td>1bl/bil</td>
</tr>
<tr>
<td>Phase j</td>
<td></td>
<td>supporting-arm</td>
<td>Mahndorf / Perlbetg Type</td>
<td>Hirst and Clark forthcoming, b</td>
<td>Stufe II</td>
<td>1alil</td>
</tr>
<tr>
<td>Phase k</td>
<td></td>
<td>reused horse harness</td>
<td>Style I</td>
<td>Hirst and Clark forthcoming, b</td>
<td>late 6th</td>
<td>1bl/bil</td>
</tr>
<tr>
<td>Phase l</td>
<td>Buckles</td>
<td>IIA</td>
<td>589</td>
<td>Hirst and Clark forthcoming, b</td>
<td>Stufe III</td>
<td>(1alil)</td>
</tr>
<tr>
<td>Phase m</td>
<td></td>
<td>IB</td>
<td>587</td>
<td>Hirst and Clark forthcoming, b</td>
<td>early 5th</td>
<td>1alil</td>
</tr>
<tr>
<td>Phase n</td>
<td></td>
<td>IIB Hallow</td>
<td>579</td>
<td>Hirst and Clark forthcoming, b</td>
<td>Stufe III</td>
<td>1alil</td>
</tr>
<tr>
<td>Phase o</td>
<td></td>
<td>Quoit Brooch Style D-sectioned tubes</td>
<td>637, 843</td>
<td>Hirst and Clark forthcoming, b</td>
<td>early to mid 5th or later</td>
<td>1alil</td>
</tr>
<tr>
<td>Phase p</td>
<td></td>
<td>Quoit Brooch Style buckle</td>
<td>117</td>
<td>Chapter 1.2</td>
<td>early to mid 5th or later</td>
<td>1alil</td>
</tr>
<tr>
<td>Phase q</td>
<td></td>
<td>heavy cast</td>
<td>Chapter 1.2</td>
<td>6th</td>
<td>1bl/bil</td>
<td>1bl/bil</td>
</tr>
<tr>
<td>Phase r</td>
<td></td>
<td>heavy cast</td>
<td>square plates</td>
<td>533</td>
<td>Hirst and Clark forthcoming, b</td>
<td>early -mid 5th?</td>
</tr>
<tr>
<td>Phase s</td>
<td></td>
<td>D-shaped loop</td>
<td>Chapter 1.2; Chapter 4: Clark forthcoming, b</td>
<td>1ry 9, some 5th in Upper Thames Valley</td>
<td>1alil</td>
<td>1alil-1bl/bil</td>
</tr>
<tr>
<td>Phase t</td>
<td></td>
<td></td>
<td>1alil</td>
<td>1alil, 1 in 1bl/bil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase u</td>
<td></td>
<td></td>
<td>1alil-1bl/bil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase v</td>
<td></td>
<td>oval loop</td>
<td>Chapter 1.2; Chapter 4: Clark forthcoming, b</td>
<td>U</td>
<td>1alil</td>
<td>1alil, 1bl/bil</td>
</tr>
<tr>
<td>Phase w</td>
<td></td>
<td>inlaid/dotted iron</td>
<td>Chapter 1.2; Chapter 4: Clark forthcoming, b</td>
<td>5-early 6th</td>
<td>1alil</td>
<td>1st half in 1bl/bil</td>
</tr>
<tr>
<td>Phase x</td>
<td></td>
<td>Style I garnet</td>
<td>Hirst and Clark forthcoming, b</td>
<td>early 6th</td>
<td>1bl/bil</td>
<td></td>
</tr>
<tr>
<td>Phase y</td>
<td></td>
<td>heart-shaped plates</td>
<td>Hirst and Clark forthcoming, b</td>
<td>late 5-1st half 6th</td>
<td>1alil</td>
<td></td>
</tr>
<tr>
<td>Phase z</td>
<td></td>
<td>round loop</td>
<td>Chapter 1.2; Chapter 4: Clark forthcoming, b</td>
<td>5-6th</td>
<td>1alil</td>
<td>1alil</td>
</tr>
<tr>
<td>Phase {</td>
<td></td>
<td>Combs</td>
<td>Chapter 1.2</td>
<td>U</td>
<td>(1alil)</td>
<td></td>
</tr>
<tr>
<td>Phase</td>
<td></td>
<td>Containers</td>
<td>bucket/titop, Frankish ca-bound</td>
<td>246, 908</td>
<td>Chapter 1.2</td>
<td>late 5-6th</td>
</tr>
<tr>
<td>Phase</td>
<td></td>
<td></td>
<td>bucket, Frankish imitation?</td>
<td>ca-bound</td>
<td>553, 600</td>
<td>Hirst and Clark forthcoming, b</td>
</tr>
<tr>
<td>Phase</td>
<td></td>
<td></td>
<td>bucket</td>
<td>ca-bound</td>
<td>588, 825B</td>
<td>Hirst and Clark forthcoming, b</td>
</tr>
<tr>
<td>Phase</td>
<td></td>
<td></td>
<td>cup</td>
<td>583</td>
<td>Hirst and Clark forthcoming, b</td>
<td>2nd half 5th</td>
</tr>
<tr>
<td>Phase</td>
<td></td>
<td></td>
<td>pot</td>
<td>sandy</td>
<td>Hirst and Clark forthcoming, b</td>
<td>1ry 6th</td>
</tr>
<tr>
<td>Phase</td>
<td></td>
<td></td>
<td>pot</td>
<td>grass-tempered</td>
<td>Hirst and Clark forthcoming, b</td>
<td>1ry 6-7th</td>
</tr>
<tr>
<td>Phase</td>
<td></td>
<td></td>
<td>pot</td>
<td>other</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
</tr>
</tbody>
</table>

763
Table 5/4 Artefact types in seriated graves at Mucking and Lechlade

<table>
<thead>
<tr>
<th>Phase at Lechlade</th>
<th>Object type</th>
<th>Reference</th>
<th>Indicated dating</th>
<th>Phase 1: standard graves</th>
<th>Phase 1: seriated graves (indicated not coded)</th>
<th>Indicated date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a, 1b (unseriated 2)</td>
<td>lathed wooden vessels</td>
<td>Chapter 1.2</td>
<td>U</td>
<td>(1a, 1b, 2b)</td>
<td>1bi, 1bii, 1biii, 1biv, 1bv, 1bw, 1bx, 1by, 1bz, 1bca</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>Glass</td>
<td>claw beaker, unique</td>
<td>843</td>
<td>Hirst and Clark forthcoming, b</td>
<td>early 8th?</td>
<td>-</td>
</tr>
<tr>
<td>-</td>
<td>bowl</td>
<td>99</td>
<td>Chapter 1.2</td>
<td>late 5-6th</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>cone</td>
<td>982</td>
<td>Hirst and Clark forthcoming, b</td>
<td>late 4-5th?</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>Kampton type cone</td>
<td>924B</td>
<td>Hirst and Clark forthcoming, b</td>
<td>early 5-early 6th</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>2, 2b</td>
<td>wooden box</td>
<td>Chapter 4: Clark forthcoming, b</td>
<td>7th</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1b Finger rings</td>
<td>expanding ca</td>
<td>Chapter 4</td>
<td>1ry 5, but 5-7th</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1b</td>
<td>silver expanding</td>
<td>Chapter 1.2, Chapter 4</td>
<td>1ry 6-7th</td>
<td>1b/bii</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>solid</td>
<td>933</td>
<td>Hirst and Clark forthcoming, b</td>
<td>5th</td>
<td>1b/bii</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>wire</td>
<td>Hirst and Clark forthcoming, b</td>
<td>U</td>
<td>1b/bii</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>sold, with bezel</td>
<td>979</td>
<td>Hirst and Clark forthcoming, b</td>
<td>late 4-5th?</td>
<td>1a/1aii</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>sold, with bezel</td>
<td>982</td>
<td>Hirst and Clark forthcoming, b</td>
<td>late 4-5th?</td>
<td>1a/1aii</td>
<td></td>
</tr>
<tr>
<td>2, 2b (1a)</td>
<td>Keys</td>
<td>slide</td>
<td>Chapter 4: Clark forthcoming, a</td>
<td>U</td>
<td>1a/bii-1a/biii</td>
<td></td>
</tr>
<tr>
<td>1a, 1b, 2, 2b</td>
<td>padlocks</td>
<td>Chapter 4: Clark forthcoming, e</td>
<td>U</td>
<td>1a/1aii</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>finger rings</td>
<td>Chapter 4</td>
<td>1ry 6-7th</td>
<td>1b/bii</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>padlocks</td>
<td>Chapter 4: Clark forthcoming, e</td>
<td>U</td>
<td>1a/1aii</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>knobs</td>
<td>Chapter 4: Clark forthcoming, b</td>
<td>Stufe III</td>
<td>1a/1aii</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1a, 1b, 2, 2b</td>
<td>Knives</td>
<td>Evison Type 1/Bohner A</td>
<td>Chapter 1.2, Chapter 4</td>
<td>2nd half 5-7th</td>
<td>1a/1aii, 1a/bii, 1b/bii</td>
<td></td>
</tr>
<tr>
<td>1ry 1, and 1a (1b, 2b)</td>
<td>Evison Type 2/Bohner B</td>
<td>Chapter 1.2, Chapter 4</td>
<td>1ry second half 5-6, some 7th</td>
<td>1b/bii</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Evison Type 3/Bohner C</td>
<td>Chapter 1.2, Chapter 4</td>
<td>early 6-8th, 1ry 7, 76th</td>
<td>1b/bii-1b/bii</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2, 2b (1a, 1b)</td>
<td>Type 4/ Bohner C</td>
<td>Chapter 1.2, Chapter 4</td>
<td>early 6-8th, 1ry 7, 76th</td>
<td>1b/bii</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1b7</td>
<td>Type 5/Bohner C</td>
<td>Chapter 1.2, Chapter 4</td>
<td>early 6-8th, 1ry 7, 76th</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>Type 6</td>
<td>Chapter 1.2</td>
<td>late 5-7th (previously 7-8th)</td>
<td>1b/bii-1b/bii</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>Type 7</td>
<td>Chapter 1.2</td>
<td>U</td>
<td>1b/bii</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>Type 8</td>
<td>Chapter 1.2</td>
<td>U</td>
<td>1b/bii</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2, 2b (also unseriated 3)</td>
<td>long knives</td>
<td>Chapter 4</td>
<td>late 5-8th</td>
<td>(1a/2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>other</td>
<td>975, 976</td>
<td>Hirst and Clark forthcoming, b</td>
<td>late 4th</td>
<td>1a/1aii, 1a/1aii</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>other</td>
<td>975, 997, 7967</td>
<td>Hirst and Clark forthcoming, b</td>
<td>late 4-early 5th</td>
<td>1a/1aii, 1a/1aii</td>
<td></td>
</tr>
<tr>
<td>2, 2b</td>
<td>Pendants</td>
<td>slip-knot rings</td>
<td>silver, small</td>
<td>Chapter 4</td>
<td>5-8th, 1ry 7-8th</td>
<td>-</td>
</tr>
<tr>
<td>1a-1b</td>
<td>slip-knot rings</td>
<td>ca, large</td>
<td>Chapter 4</td>
<td>5-8th, 1ry 7-8th</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>scutiform</td>
<td>simple, ornamental</td>
<td>Hirst and Clark forthcoming, b</td>
<td>6-1st half 7th</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>pins</td>
<td>headed</td>
<td>IV</td>
<td>Hirst and Clark forthcoming, b</td>
<td>late 5-6th</td>
<td>-</td>
</tr>
<tr>
<td>-</td>
<td>expanded headed, spatulate, pierced</td>
<td>VI.ii</td>
<td>Hirst and Clark forthcoming, b</td>
<td>late 5-6th</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>curled</td>
<td>XII.ii.b</td>
<td>Hirst and Clark forthcoming, b</td>
<td>early-mid 8th</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>1ry 1a (1b)</td>
<td>iron, hook</td>
<td>Chapter 4</td>
<td>late 5-8th</td>
<td>1a/1aii</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1ry 1a (1b)</td>
<td>iron, hook</td>
<td>Chapter 4</td>
<td>late 5-8th</td>
<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

764
<table>
<thead>
<tr>
<th>Phase at Lechlade</th>
<th>Object Type</th>
<th>Reference</th>
<th>Traditional dating</th>
<th>Phase, M seriated graves</th>
<th>Phase, F seriated graves (brackets indicate not coded)</th>
<th>Suggested date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase a at Lechlade</td>
<td>iron, looped</td>
<td>XVIII</td>
<td>Chapter 4</td>
<td>2nd half 5-8th</td>
<td>1st/1st</td>
<td>1st</td>
</tr>
<tr>
<td>Phase b at Lechlade</td>
<td>iron, crook, XIX</td>
<td>Chapter 1, 2, Chapter 4</td>
<td>1st 6th</td>
<td>1st/1st</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Phase c at Lechlade</td>
<td>hall</td>
<td>LXX.II</td>
<td>Chapter 1, 2</td>
<td>7-8th?</td>
<td>1st-1st/bibib</td>
<td>late 5-6th</td>
</tr>
</tbody>
</table>

1a, 1b, 2

<table>
<thead>
<tr>
<th>Object Type</th>
<th>Reference</th>
<th>Traditional dating</th>
<th>Phase, M seriated graves</th>
<th>Phase, F seriated graves (brackets indicate not coded)</th>
<th>Suggested date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toilet sets</td>
<td>traditional dating</td>
<td>1y 5 or 8th</td>
<td>1st-1st/bibib</td>
<td>late 5-6th</td>
<td>(1st)</td>
</tr>
<tr>
<td>Cosmetic brush</td>
<td>Chapter 4, Clark</td>
<td>5 and 8th</td>
<td>U</td>
<td>(1st)</td>
<td></td>
</tr>
<tr>
<td>Tweezers</td>
<td>Chapter 4, Clark</td>
<td>8th</td>
<td>U</td>
<td>(1st)</td>
<td></td>
</tr>
<tr>
<td>Full length iron</td>
<td>Chapter 4, Clark</td>
<td>U</td>
<td>U</td>
<td>(1st)</td>
<td></td>
</tr>
<tr>
<td>Scissors</td>
<td>Chapter 4, Clark</td>
<td>prob. 8th</td>
<td>(1st-1st/bibib)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tools, general</td>
<td>Chapter 4, Clark</td>
<td>1y late 7-early 8th</td>
<td>U</td>
<td>early in Grave 99</td>
<td></td>
</tr>
<tr>
<td>Axe</td>
<td>Chapter 4, Clark</td>
<td>1y 7th</td>
<td>1st-1st/bibib</td>
<td>(1st)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Object Type</th>
<th>Reference</th>
<th>Traditional dating</th>
<th>Phase, M seriated graves</th>
<th>Phase, F seriated graves (brackets indicate not coded)</th>
<th>Suggested date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swords</td>
<td>Chapter 4, Clark</td>
<td>1y 6-7th</td>
<td>1st-1st/bibib</td>
<td>(1st)</td>
<td></td>
</tr>
<tr>
<td>H1</td>
<td>Chapter 1, 2</td>
<td>5-7, 1y 7th</td>
<td>1st-1st/bibib</td>
<td>(1st)</td>
<td></td>
</tr>
<tr>
<td>H2</td>
<td>Chapter 1, 2</td>
<td>1y 7th</td>
<td>1st-1st/bibib</td>
<td>(1st)</td>
<td></td>
</tr>
<tr>
<td>H3</td>
<td>Chapter 1, 2</td>
<td>1y late 6-7th</td>
<td>1st-1st/bibib</td>
<td>(1st)</td>
<td></td>
</tr>
<tr>
<td>H1</td>
<td>Chapter 1, 2</td>
<td>1y late 6-7th</td>
<td>1st-1st/bibib</td>
<td>(1st)</td>
<td></td>
</tr>
<tr>
<td>H2</td>
<td>Chapter 1, 2</td>
<td>1y 6-7th</td>
<td>1st-1st/bibib</td>
<td>(1st)</td>
<td></td>
</tr>
<tr>
<td>H3</td>
<td>Chapter 1, 2</td>
<td>1y 6-7th</td>
<td>1st-1st/bibib</td>
<td>(1st)</td>
<td></td>
</tr>
<tr>
<td>H1</td>
<td>Chapter 1, 2</td>
<td>1y mid 5-6th</td>
<td>1st-1st/bibib</td>
<td>(1st)</td>
<td></td>
</tr>
<tr>
<td>H2</td>
<td>Chapter 1, 2</td>
<td>1y mid 5-6th</td>
<td>1st-1st/bibib</td>
<td>(1st)</td>
<td></td>
</tr>
<tr>
<td>2-pronged, C2</td>
<td>Chapter 1, 2</td>
<td>1y 5 or 7th</td>
<td>1st-1st/bibib</td>
<td>(1st)</td>
<td></td>
</tr>
<tr>
<td>Elbe-Loire</td>
<td>Chapter 1, 2</td>
<td>1y late 6-7th</td>
<td>1st-1st/bibib</td>
<td>(1st)</td>
<td></td>
</tr>
<tr>
<td>Sens.</td>
<td>Chapter 1, 2</td>
<td>1y mid 5-6th</td>
<td>1st-1st/bibib</td>
<td>(1st)</td>
<td></td>
</tr>
<tr>
<td>Shields</td>
<td>Chapter 1, 2</td>
<td>1y mid 5-6th</td>
<td>1st-1st/bibib</td>
<td>(1st)</td>
<td></td>
</tr>
<tr>
<td>Rhenen-Vermand</td>
<td>Chapter 1, 2</td>
<td>1y 5-6th</td>
<td>1st-1st/bibib</td>
<td>(1st)</td>
<td></td>
</tr>
<tr>
<td>Axe/Flamisch</td>
<td>Chapter 1, 2</td>
<td>1y 5-6th</td>
<td>1st-1st/bibib</td>
<td>(1st)</td>
<td></td>
</tr>
<tr>
<td>Arrowheads</td>
<td>Chapter 1, 2</td>
<td>1y 5-6th</td>
<td>1st-1st/bibib</td>
<td>(1st)</td>
<td></td>
</tr>
<tr>
<td>Misc</td>
<td>Chapter 1, 2</td>
<td>1y 5-6th</td>
<td>1st-1st/bibib</td>
<td>(1st)</td>
<td></td>
</tr>
<tr>
<td>Day</td>
<td>Duration</td>
<td>Device</td>
<td>Setting</td>
<td>Method</td>
<td>Notes</td>
</tr>
<tr>
<td>-----</td>
<td>----------</td>
<td>--------</td>
<td>---------</td>
<td>--------</td>
<td>-------</td>
</tr>
<tr>
<td>1</td>
<td>00:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>00:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>00:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1: List of patient arrivals in ICU, according to schedule and protocol dates.
<table>
<thead>
<tr>
<th>No.</th>
<th>PHASE 1a</th>
<th>PHASE 1b</th>
<th>PHASE 1c</th>
<th>PHASE 1d</th>
<th>PHASE 1e</th>
<th>PHASE 1f</th>
<th>PHASE 1g</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>W</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>12</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>13</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>14</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>15</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>16</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>17</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>18</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>19</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>20</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>21</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>22</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>23</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>24</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>25</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>26</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>27</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>28</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>29</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>30</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
</tbody>
</table>

Table 5/6: Summary list of phased graves in Muqaiyin I. The highlighted graves are selected.
Table 5: List of phased graves in Mucking II, according to seriation and absolute dates
Table 5: List of phased graves in Mucking II, according to seriation and absolute dates
Table 5/7: List of phased graves in Mucking. Il, according to seriation and absolute dates.
Table 5: List of phased graves in Mucking II, according to seriation and absolute dates.

<table>
<thead>
<tr>
<th>Date of Grave (An.-Sterisk)</th>
<th>Stratigraphic Relationship to Phase</th>
<th>Absolute Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>773</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The table continues with detailed entries for each grave.
Table 5/7 List of phased graves in Mucking II, according to seriation and absolute dates
Table 5: List of phased graves in Mucking II, according to seriation and absolute dates.
Table 5: List of phased graves in Mucking II, according to seriation and absolute dates

<table>
<thead>
<tr>
<th>No.</th>
<th>Phased Grave</th>
<th>Seriation Phase</th>
<th>Absolute Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Table continues on the next page.
<table>
<thead>
<tr>
<th>No.</th>
<th>Phase</th>
<th>Seriation</th>
<th>Absolute Date</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>B</td>
<td>123</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>B</td>
<td>C</td>
<td>456</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>C</td>
<td>D</td>
<td>789</td>
<td></td>
</tr>
</tbody>
</table>

Table 5/7: List of phased graves in Mucking II, according to seriation and absolute dates.
<table>
<thead>
<tr>
<th>No.</th>
<th>Phase</th>
<th>Sex/Gender</th>
<th>Seriation</th>
<th>Absolute Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Male</td>
<td>2023</td>
<td>2023</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Female</td>
<td>2024</td>
<td>2024</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Male</td>
<td>2025</td>
<td>2025</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>Female</td>
<td>2026</td>
<td>2026</td>
</tr>
</tbody>
</table>

Table 5: List of phased graves in Mucking II, according to seriation and absolute dates.
Table 5/7 List of phased graves in Mucking II, according to seriation and absolute dates.
<table>
<thead>
<tr>
<th>Sex/Gender</th>
<th>Date of Grave</th>
<th>Seriation</th>
<th>Absolute Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>1000</td>
<td>2000</td>
<td>3000</td>
</tr>
<tr>
<td>F</td>
<td>1500</td>
<td>2500</td>
<td>3500</td>
</tr>
</tbody>
</table>

Table 5: List of phased graves in Mucking I, according to seriation and absolute dates.
Table 5/8 Summary list of phased graves in Mucking II. The highlighted graves are seriated

<table>
<thead>
<tr>
<th>Phase</th>
<th>Phase</th>
<th>Phase</th>
<th>Phase</th>
<th>Phase</th>
<th>Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>592</td>
<td>U</td>
<td>333</td>
<td>M</td>
<td>322</td>
<td>M</td>
</tr>
<tr>
<td>572</td>
<td>M</td>
<td>499</td>
<td>M</td>
<td>323</td>
<td>F</td>
</tr>
<tr>
<td>588</td>
<td>F</td>
<td>534</td>
<td>M</td>
<td>324</td>
<td>F</td>
</tr>
<tr>
<td>502</td>
<td>U</td>
<td>583</td>
<td>M</td>
<td>336</td>
<td>F</td>
</tr>
<tr>
<td>519</td>
<td>U</td>
<td>584</td>
<td>U</td>
<td>341</td>
<td>F</td>
</tr>
<tr>
<td>631</td>
<td>F</td>
<td>730</td>
<td>M</td>
<td>343</td>
<td>M</td>
</tr>
<tr>
<td>589</td>
<td>U</td>
<td>6268</td>
<td>M</td>
<td>351</td>
<td>F</td>
</tr>
<tr>
<td>522</td>
<td>M</td>
<td>844</td>
<td>M</td>
<td>355</td>
<td>F</td>
</tr>
<tr>
<td>669</td>
<td>F</td>
<td>863</td>
<td>M</td>
<td>356</td>
<td>U</td>
</tr>
<tr>
<td>876</td>
<td>F</td>
<td>976</td>
<td>M</td>
<td>374</td>
<td>F</td>
</tr>
<tr>
<td>684</td>
<td>U</td>
<td>993</td>
<td>M</td>
<td>397</td>
<td>F</td>
</tr>
<tr>
<td>925</td>
<td>F</td>
<td>557</td>
<td>M</td>
<td>448</td>
<td>F</td>
</tr>
<tr>
<td>937</td>
<td>F</td>
<td>576</td>
<td>M</td>
<td>577</td>
<td>M</td>
</tr>
<tr>
<td>579</td>
<td>F</td>
<td>615</td>
<td>F</td>
<td>618</td>
<td>F</td>
</tr>
<tr>
<td>852</td>
<td>U</td>
<td>622</td>
<td>F</td>
<td>841</td>
<td>F</td>
</tr>
<tr>
<td>585</td>
<td>F</td>
<td>657</td>
<td>M</td>
<td>668</td>
<td>M</td>
</tr>
<tr>
<td>594</td>
<td>F</td>
<td>676</td>
<td>M</td>
<td>592</td>
<td>M</td>
</tr>
<tr>
<td>597</td>
<td>F</td>
<td>545</td>
<td>U</td>
<td>574</td>
<td>F</td>
</tr>
<tr>
<td>686</td>
<td>F</td>
<td>548</td>
<td>F</td>
<td>588</td>
<td>M</td>
</tr>
<tr>
<td>892</td>
<td>F</td>
<td>553</td>
<td>F</td>
<td>590</td>
<td>F</td>
</tr>
<tr>
<td>566</td>
<td>F</td>
<td>600</td>
<td>M</td>
<td>771</td>
<td>U</td>
</tr>
<tr>
<td>574</td>
<td>F</td>
<td>614</td>
<td>U</td>
<td>777</td>
<td>M</td>
</tr>
<tr>
<td>573</td>
<td>F</td>
<td>615</td>
<td>F</td>
<td>627</td>
<td>M</td>
</tr>
<tr>
<td>582</td>
<td>F</td>
<td>622</td>
<td>F</td>
<td>841</td>
<td>F</td>
</tr>
<tr>
<td>564</td>
<td>F</td>
<td>634</td>
<td>F</td>
<td>845</td>
<td>M</td>
</tr>
<tr>
<td>620</td>
<td>U</td>
<td>643</td>
<td>U</td>
<td>851</td>
<td>U</td>
</tr>
<tr>
<td>624</td>
<td>F</td>
<td>670</td>
<td>U</td>
<td>981</td>
<td>U</td>
</tr>
<tr>
<td>609</td>
<td>F</td>
<td>646</td>
<td>U</td>
<td>868</td>
<td>F</td>
</tr>
<tr>
<td>692</td>
<td>F</td>
<td>794</td>
<td>M</td>
<td>867</td>
<td>U</td>
</tr>
<tr>
<td>633</td>
<td>F</td>
<td>764</td>
<td>M</td>
<td>825</td>
<td>U</td>
</tr>
<tr>
<td>634</td>
<td>F</td>
<td>798</td>
<td>M</td>
<td>873</td>
<td>U</td>
</tr>
<tr>
<td>637</td>
<td>F</td>
<td>867</td>
<td>F</td>
<td>883</td>
<td>M</td>
</tr>
<tr>
<td>648</td>
<td>F</td>
<td>778</td>
<td>F</td>
<td>914</td>
<td>F</td>
</tr>
<tr>
<td>649</td>
<td>F</td>
<td>814</td>
<td>F</td>
<td>920</td>
<td>U</td>
</tr>
<tr>
<td>650</td>
<td>F</td>
<td>843</td>
<td>F</td>
<td>931</td>
<td>U</td>
</tr>
<tr>
<td>658</td>
<td>U</td>
<td>849</td>
<td>U</td>
<td>952</td>
<td>U</td>
</tr>
<tr>
<td>725</td>
<td>U</td>
<td>858</td>
<td>M</td>
<td>935</td>
<td>U</td>
</tr>
<tr>
<td>761</td>
<td>U</td>
<td>859</td>
<td>M</td>
<td>950</td>
<td>M</td>
</tr>
<tr>
<td>784</td>
<td>F</td>
<td>908</td>
<td>F</td>
<td>931</td>
<td>U</td>
</tr>
<tr>
<td>785</td>
<td>F</td>
<td>933</td>
<td>M</td>
<td>954</td>
<td>M</td>
</tr>
<tr>
<td>826A</td>
<td>F</td>
<td>934</td>
<td>M</td>
<td>959A</td>
<td>U</td>
</tr>
<tr>
<td>845</td>
<td>F</td>
<td>936</td>
<td>F</td>
<td>999U</td>
<td>U</td>
</tr>
<tr>
<td>845</td>
<td>F</td>
<td>939</td>
<td>M</td>
<td>961A</td>
<td>M</td>
</tr>
<tr>
<td>859</td>
<td>M</td>
<td>947</td>
<td>U</td>
<td>962</td>
<td>U</td>
</tr>
<tr>
<td>857</td>
<td>M</td>
<td>948</td>
<td>U</td>
<td>967</td>
<td>F</td>
</tr>
<tr>
<td>860</td>
<td>F</td>
<td>965</td>
<td>M</td>
<td>995</td>
<td>F</td>
</tr>
<tr>
<td>871</td>
<td>F</td>
<td>994</td>
<td>F</td>
<td>911</td>
<td>F</td>
</tr>
<tr>
<td>894</td>
<td>F</td>
<td>956</td>
<td>U</td>
<td>995</td>
<td>F</td>
</tr>
<tr>
<td>874</td>
<td>F</td>
<td>965</td>
<td>U</td>
<td>931</td>
<td>U</td>
</tr>
<tr>
<td>877</td>
<td>M</td>
<td>966</td>
<td>U</td>
<td>931</td>
<td>U</td>
</tr>
<tr>
<td>878</td>
<td>F</td>
<td>964</td>
<td>U</td>
<td>931</td>
<td>U</td>
</tr>
<tr>
<td>924B</td>
<td>F</td>
<td>979</td>
<td>F</td>
<td>979</td>
<td>F</td>
</tr>
<tr>
<td>926</td>
<td>U</td>
<td>880</td>
<td>U</td>
<td>931</td>
<td>U</td>
</tr>
<tr>
<td>941</td>
<td>F</td>
<td>911</td>
<td>U</td>
<td>931</td>
<td>U</td>
</tr>
<tr>
<td>952</td>
<td>F</td>
<td>882</td>
<td>U</td>
<td>931</td>
<td>U</td>
</tr>
<tr>
<td>909</td>
<td>F</td>
<td>911</td>
<td>U</td>
<td>931</td>
<td>U</td>
</tr>
<tr>
<td>994</td>
<td>F</td>
<td>913</td>
<td>U</td>
<td>931</td>
<td>U</td>
</tr>
<tr>
<td>997</td>
<td>F</td>
<td>915</td>
<td>U</td>
<td>931</td>
<td>U</td>
</tr>
<tr>
<td>998</td>
<td>F</td>
<td>917</td>
<td>U</td>
<td>931</td>
<td>U</td>
</tr>
</tbody>
</table>

781
Table 5/9 lists the absolute dates and their uncertainties. The table structure allows easy comparison and visualization.
<table>
<thead>
<tr>
<th>Phase</th>
<th>Absolute Date</th>
<th>Cut By</th>
<th>Phase</th>
<th>Absolute Date</th>
<th>Cut By</th>
<th>Phase</th>
<th>Absolute Date</th>
<th>Cut By</th>
<th>Overall Date</th>
<th>Phase</th>
<th>Absolute Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>�</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase</td>
<td>Feature</td>
<td>Quantity</td>
<td>Description</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>---------</td>
<td>----------</td>
<td>-------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>bosses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>cordons</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>line</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>groove</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>combs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>stamps</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>pedestal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>base</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>carinated</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>bicor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>straight</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ovoid</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>zoomorphic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>phase</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>phase</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>phase</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Potters</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5/9: List of physical conditions and their stratigraphic relationships in Table 11. An asterisk denotes the data cited or narrated down by stratiographic relationships.
<table>
<thead>
<tr>
<th>Phase</th>
<th>Absolute Date</th>
<th>Style/Decoration</th>
<th>Fabric Type</th>
<th>Color</th>
<th>Overall Date</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early</td>
<td>500 BC</td>
<td>Straight sided</td>
<td>Fabric 1</td>
<td>Green</td>
<td>400 BC</td>
<td></td>
</tr>
<tr>
<td>Early</td>
<td>500 BC</td>
<td>Bicor</td>
<td>Fabric 2</td>
<td>Blue</td>
<td>300 BC</td>
<td></td>
</tr>
<tr>
<td>Mid</td>
<td>250 BC</td>
<td>Comb stamps</td>
<td>Fabric 3</td>
<td>Brown</td>
<td>200 BC</td>
<td></td>
</tr>
<tr>
<td>Late</td>
<td>50 BC</td>
<td>Pedestal base</td>
<td>Fabric 4</td>
<td>Orange</td>
<td>100 BC</td>
<td></td>
</tr>
</tbody>
</table>

Note: The table 5/9 lists the phases and their corresponding relationships in the text. The table data is derived from an archaeological excavation.
Table 5/37 of the document includes a list of phase correlations and their stratigraphic relationships in dating the site. It also includes the date derived at or narrowed down by stratigraphic relationships.
<table>
<thead>
<tr>
<th>Phase</th>
<th>Absolute Date</th>
<th>Fabric</th>
<th>Fired?</th>
<th>Color</th>
<th>Model Code</th>
<th>Fabric Type</th>
<th>Number of Textiles</th>
<th>Color of Textile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase A</td>
<td>1990-1995</td>
<td>Red</td>
<td>Yes</td>
<td>Natural</td>
<td>Red</td>
<td>Red</td>
<td>10</td>
<td>Red</td>
</tr>
<tr>
<td>Phase B</td>
<td>1996-2000</td>
<td>Blue</td>
<td>No</td>
<td>Dyed</td>
<td>Blue</td>
<td>Blue</td>
<td>5</td>
<td>Blue</td>
</tr>
<tr>
<td>Phase C</td>
<td>2001-2005</td>
<td>Green</td>
<td>Yes</td>
<td>Printed</td>
<td>Green</td>
<td>Green</td>
<td>8</td>
<td>Green</td>
</tr>
<tr>
<td>Phase D</td>
<td>2006-2010</td>
<td>Yellow</td>
<td>No</td>
<td>Woven</td>
<td>Yellow</td>
<td>Yellow</td>
<td>2</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

Table 5/9: List of textile documents and their stratigraphic relationships in building II. An asterisk denotes the dates are derived by statistical relationships.

769
Table 5.9: List of phase combinations and their stratigraphic relationships in Middle II. The asterisk denotes the date arrived at or narrowed down by stratigraphic relationships.
Table 5/9 List of physical characteristics and their stratigraphic relationships in brackets. (A) An asterisk denotes the data edited or rearranged down by stratigraphic relationships.
Table 5/9: List of phased cremations and their stratigraphic relationships in Mucking II. An asterisk denotes the date arrived at or narrowed down by stratigraphic relationships.

<table>
<thead>
<tr>
<th>Crem</th>
<th>Overall date</th>
<th>Artfact date</th>
<th>Fabric</th>
<th>Fabric date</th>
<th>Bosses</th>
<th>Cordons</th>
<th>Line and groove</th>
<th>Comb Stamps</th>
<th>Pedestal base</th>
<th>Carinated and bevel</th>
<th>Straight sided ovoid</th>
<th>Zooorphic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FABRIC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cuts</th>
<th>Absolute date</th>
<th>Phase</th>
<th>Cuts</th>
<th>Absolute date</th>
<th>Phase</th>
<th>Cuts</th>
<th>Absolute date</th>
<th>Phase</th>
<th>Cut by</th>
<th>Absolute date</th>
<th>Phase</th>
<th>Potters</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Crema artefeact No.</th>
<th>Crem</th>
<th>Overall date</th>
<th>Artfact date</th>
<th>Fabric</th>
<th>Fabric date</th>
<th>Bosses</th>
<th>Cordons</th>
<th>Line and groove</th>
<th>Comb Stamps</th>
<th>Pedestal base</th>
<th>Carinated and bevel</th>
<th>Straight sided ovoid</th>
<th>Zooomorphic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

792
Table 6/1: Palaeodemographic structure of Anglo-Saxon sites with 50 or more individuals, sorted by preservation conditions.

<table>
<thead>
<tr>
<th>Site</th>
<th>Preservation Condition</th>
<th>30-34</th>
<th>&gt;35</th>
<th>35-39</th>
<th>&gt;40</th>
<th>Total No.</th>
<th>% of Total</th>
<th>% of 30-34</th>
<th>% of &gt;35</th>
<th>% of 35-39</th>
<th>% of &gt;40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site A</td>
<td>Good</td>
<td>20</td>
<td>10</td>
<td>15</td>
<td>10</td>
<td>60</td>
<td>33.3</td>
<td>50.0</td>
<td>25.0</td>
<td>25.0</td>
<td>25.0</td>
</tr>
<tr>
<td>Site B</td>
<td>Poor</td>
<td>10</td>
<td>5</td>
<td>7</td>
<td>5</td>
<td>27</td>
<td>33.3</td>
<td>18.5</td>
<td>26.2</td>
<td>22.2</td>
<td>11.1</td>
</tr>
<tr>
<td>Site C</td>
<td>Very poor</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>15</td>
<td>33.3</td>
<td>40.0</td>
<td>26.6</td>
<td>20.0</td>
<td>13.3</td>
</tr>
</tbody>
</table>

Note: Preservation conditions are categorized as:
- Good: High preservation, minimal distortion
- Poor: Moderate preservation, some distortion
- Very poor: Low preservation, significant distortion
| Site Name | County | Site Type | Site Name | County | Site Type | Site Name | County | Site Type | Site Name | County | Site Type | Site Name | County | Site Type | Site Name | County | Site Type | Site Name | County | Site Type | Site Name | County | Site Type | Site Name | County | Site Type | Site Name | County | Site Type | Site Name | County | Site Type |
|-----------|--------|-----------|-----------|--------|-----------|-----------|--------|-----------|-----------|--------|-----------|-----------|--------|-----------|-----------|--------|-----------|-----------|--------|-----------|-----------|--------|-----------|-----------|--------|-----------|-----------|--------|-----------|-----------|--------|-----------|-----------|--------|-----------|
| Greenend | Kent   | Founding  | Kent      | Kent   | Founding  | Kent      | Kent   | Founding  | Kent      | Kent   | Founding  | Kent      | Kent   | Founding  | Kent      | Kent   | Founding  | Kent      | Kent   | Founding  | Kent      | Kent   | Founding  | Kent      | Kent   | Founding  | Kent      | Kent   | Founding  | Kent      | Kent   | Founding  | Kent      | Kent   | Founding  |
| Rogerson  | Kent   | Founding  | Kent      | Kent   | Founding  | Kent      | Kent   | Founding  | Kent      | Kent   | Founding  | Kent      | Kent   | Founding  | Kent      | Kent   | Founding  | Kent      | Kent   | Founding  | Kent      | Kent   | Founding  | Kent      | Kent   | Founding  | Kent      | Kent   | Founding  | Kent      | Kent   | Founding  | Kent      | Kent   | Founding  |

Table 6/1: Palaeodemographic structure of Anglo-Saxon sites with 50 or more individuals, sorted by preservation conditions.
Table 6/1  Palaeoecological structure of Anglo-Saxon sites with 50 or more individuals, sorted by preservation conditions

<table>
<thead>
<tr>
<th>Site</th>
<th>Preservation Condition</th>
<th>100%</th>
<th>80%</th>
<th>70%</th>
<th>60%</th>
<th>50%</th>
<th>40%</th>
<th>30%</th>
<th>20%</th>
<th>10%</th>
<th>0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kingsworthy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worthy Park</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muckin I</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spong Hill</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J T</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morning Thorpe Beckford II</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muckin II</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hants</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norfolk</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northants</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norfolk</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hereford end</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worcs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>county</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>date</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>zo</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4th</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5th</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6th</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7th</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References:
- Molleson 1991
- McKinley 1994
- McKinley 1997
- Walls 1996
- Mays forthoming
<table>
<thead>
<tr>
<th>Condition of Bone</th>
<th>Total</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Range of Depth (m)</th>
<th>Average Depth (m)</th>
<th>Adult</th>
<th>Adolescent</th>
<th>Child 1</th>
<th>Child 2</th>
<th>Infant</th>
<th>Unknown Age</th>
<th>Condition of Bone</th>
</tr>
</thead>
<tbody>
<tr>
<td>No bone</td>
<td>11</td>
<td>0</td>
<td>11</td>
<td>4</td>
<td>0.9</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Poor</td>
<td>43</td>
<td>11</td>
<td>1</td>
<td>6</td>
<td>0.1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fair</td>
<td>16</td>
<td>4</td>
<td>12</td>
<td>7</td>
<td>0.2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Good</td>
<td>47</td>
<td>14</td>
<td>33</td>
<td>19</td>
<td>0.4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 6/2: Condition of bone at leashade in relation to the numbers and percentage of age groups, grave depths and phase

77
<table>
<thead>
<tr>
<th>Condition of Bone</th>
<th>No Bone or Stain</th>
<th>Stain Only</th>
<th>Teeth Only</th>
<th>Bone Only</th>
<th>Teeth and Bone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0.31</td>
<td>0.37</td>
<td>0.34</td>
<td>0.37</td>
</tr>
</tbody>
</table>

Table 6.3: Summary of bone preservation in MacKirk 1 in relation to the numbers and percentages of grave features, vegetation, animal disturbance, and average depth of grave (m).
Table 6/4 Depth of graves, and percentages of juveniles in shared graves at Lechlade, and in selected Migration and Conversion Period settlements.

| Settlement       | 0.00-0.05 | 0.05-0.10 | 0.10-0.15 | 0.15-0.20 | 0.20-0.25 | 0.25-0.30 | 0.30-0.35 | 0.35-0.40 | 0.40-0.45 | 0.45-0.50 | 0.50-0.55 | 0.55-0.60 | 0.60-0.65 | 0.65-0.70 | 0.70-0.75 | 0.75-0.80 | 0.80-0.85 | 0.85-0.90 | 0.90-0.95 | 0.95-1.00 | 1.00-1.05 | 1.05-1.10 | 1.10-1.15 | 1.15-1.20 | 1.20-1.25 |
|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Barton-on-Humber | 33        | 33        | 33        | 33        | 33        | 33        | 33        | 33        | 33        | 33        | 33        | 33        | 33        | 33        | 33        | 33        | 33        | 33        | 33        | 33        | 33        | 33        | 33        |
| Buckland, Dover  | 0.02      | 0.03      | 0.04      | 0.05      | 0.06      | 0.07      | 0.08      | 0.09      | 0.10      | 0.11      | 0.12      | 0.13      | 0.14      | 0.15      | 0.16      | 0.17      | 0.18      | 0.19      | 0.20      | 0.21      | 0.22      | 0.23      | 0.24      |
| Polhill          | 0.08      | 0.09      | 0.10      | 0.11      | 0.12      | 0.13      | 0.14      | 0.15      | 0.16      | 0.17      | 0.18      | 0.19      | 0.20      | 0.21      | 0.22      | 0.23      | 0.24      | 0.25      | 0.26      | 0.27      | 0.28      | 0.29      | 0.30      |
| Berinsfield      | 0.05      | 0.06      | 0.07      | 0.08      | 0.09      | 0.10      | 0.11      | 0.12      | 0.13      | 0.14      | 0.15      | 0.16      | 0.17      | 0.18      | 0.19      | 0.20      | 0.21      | 0.22      | 0.23      | 0.24      | 0.25      | 0.26      | 0.27      |
| Lechlade         | 0.03      | 0.04      | 0.05      | 0.06      | 0.07      | 0.08      | 0.09      | 0.10      | 0.11      | 0.12      | 0.13      | 0.14      | 0.15      | 0.16      | 0.17      | 0.18      | 0.19      | 0.20      | 0.21      | 0.22      | 0.23      | 0.24      | 0.25      |

Note: The table does not include the percentages of juveniles in adult graves.
<table>
<thead>
<tr>
<th>Phase 2 (c. 600-early 8th)</th>
<th>Lechlade site</th>
<th>Phase 1 (late 5-early 8th)</th>
<th>Lechlade site</th>
</tr>
</thead>
<tbody>
<tr>
<td>date</td>
<td></td>
<td>date</td>
<td></td>
</tr>
<tr>
<td>no of grave cuts</td>
<td></td>
<td>nos of unaged skeletons</td>
<td></td>
</tr>
<tr>
<td>57</td>
<td>138</td>
<td>138</td>
<td>0</td>
</tr>
<tr>
<td>57</td>
<td>0</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>0%</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>2%</td>
<td>0%</td>
<td>12</td>
<td>0%</td>
</tr>
<tr>
<td>Total no of skeletons</td>
<td></td>
<td>nos of juveniles</td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>16</td>
<td>75</td>
<td>7</td>
</tr>
<tr>
<td>16</td>
<td>&gt;18</td>
<td>28</td>
<td>&gt;18</td>
</tr>
<tr>
<td>&gt;29%</td>
<td>29%</td>
<td>37%</td>
<td>41%</td>
</tr>
<tr>
<td>nos of infants (&gt;2 yrs)</td>
<td></td>
<td>age range</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4%</td>
<td>8%</td>
<td>9%</td>
</tr>
<tr>
<td>2%</td>
<td>9%</td>
<td>8%</td>
<td>9%</td>
</tr>
<tr>
<td>% of infants (as part of aged popn)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>11</td>
<td>68</td>
<td>68%</td>
</tr>
<tr>
<td>total nos adults</td>
<td></td>
<td>% of juveniles (as part of aged individuals)</td>
<td></td>
</tr>
<tr>
<td>135</td>
<td>125</td>
<td>10</td>
<td>54</td>
</tr>
<tr>
<td>10</td>
<td>75</td>
<td>28</td>
<td>54</td>
</tr>
<tr>
<td>&gt;18</td>
<td>43%</td>
<td>37%</td>
<td>41%</td>
</tr>
<tr>
<td>total nos of aged adults</td>
<td></td>
<td>nos of 35+</td>
<td></td>
</tr>
<tr>
<td>125</td>
<td>10</td>
<td>54</td>
<td>43%</td>
</tr>
<tr>
<td>nos of 35+</td>
<td></td>
<td>% of 35+</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>10</td>
<td>54</td>
<td>43%</td>
</tr>
<tr>
<td>21%</td>
<td>22%</td>
<td>22%</td>
<td>22%</td>
</tr>
<tr>
<td>nos of 45+</td>
<td></td>
<td>% of 45+</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>16</td>
<td>55</td>
<td>55</td>
</tr>
<tr>
<td>16%</td>
<td>16%</td>
<td>55</td>
<td>55</td>
</tr>
<tr>
<td>% of 45+</td>
<td></td>
<td>% of females (of sexed ads)</td>
<td></td>
</tr>
<tr>
<td>16%</td>
<td>21%</td>
<td>55</td>
<td>55</td>
</tr>
<tr>
<td>% of females</td>
<td></td>
<td>% of females (of sexed ads)</td>
<td></td>
</tr>
<tr>
<td>21%</td>
<td>52%</td>
<td>55</td>
<td>55</td>
</tr>
<tr>
<td>nos of females</td>
<td></td>
<td>% of females (of sexed ads)</td>
<td></td>
</tr>
<tr>
<td>55%</td>
<td>64%</td>
<td>85</td>
<td>85</td>
</tr>
</tbody>
</table>

Table 6.5 Palaeodemographic profile at Lechlade per phase
<table>
<thead>
<tr>
<th>Site</th>
<th>Number of Aged Individuals</th>
<th>% 25yo</th>
<th>% 15yo</th>
<th>% 18yo</th>
<th>% 31yo</th>
<th>% 32yo</th>
<th>% 36yo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Castledyke, Barton</td>
<td>622</td>
<td>9</td>
<td>15</td>
<td>18</td>
<td>24</td>
<td>22</td>
<td>30</td>
</tr>
<tr>
<td>Buckland, Dover</td>
<td>73</td>
<td>40</td>
<td>66</td>
<td>22</td>
<td>22</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>St Peter's Tip</td>
<td>310</td>
<td>30</td>
<td>30</td>
<td>40</td>
<td>20</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Polhill</td>
<td>122</td>
<td>30</td>
<td>20</td>
<td>40</td>
<td>30</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lechlade (Phase 2)</td>
<td>66</td>
<td>40</td>
<td>16</td>
<td>30</td>
<td>20</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>References</th>
<th>% of Infants (as part of aged popn)</th>
<th>% of Juveniles (as part of aged individuals)</th>
<th>Total no of aged individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2%</td>
<td>15%</td>
<td>622</td>
</tr>
<tr>
<td></td>
<td>1%</td>
<td>15%</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>1%</td>
<td>33%</td>
<td>310</td>
</tr>
<tr>
<td>Hawkes 1973, Philp 1979</td>
<td>0%</td>
<td>30%</td>
<td>122</td>
</tr>
<tr>
<td></td>
<td>2%</td>
<td>29%</td>
<td>66</td>
</tr>
</tbody>
</table>

Table 6.6 Percentage of juveniles in Concession Period crematoria, and Concession Period graves in crematoria that begin in the Migration Period.
Table 6/7: Summary of frequency of artefact types at Lochaloch, in graves sorted by age. The percentages denote the number of individuals within an age group with a particular artefact type.
Table 6/7 Summary of frequency of artefact types at Lechtade, in graves sorted by age. The percentages denote the number of individuals within an age group with a particular artefact type.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Grave Goods</td>
<td>10%</td>
<td>20%</td>
<td>30%</td>
<td>40%</td>
<td>50%</td>
<td>60%</td>
<td>70%</td>
<td>80%</td>
</tr>
<tr>
<td>Grave No.</td>
<td>1%</td>
<td>2%</td>
<td>3%</td>
<td>4%</td>
<td>5%</td>
<td>6%</td>
<td>7%</td>
<td>8%</td>
</tr>
<tr>
<td>Phase</td>
<td>0%</td>
<td>10%</td>
<td>20%</td>
<td>30%</td>
<td>40%</td>
<td>50%</td>
<td>60%</td>
<td>70%</td>
</tr>
<tr>
<td>Types</td>
<td>0%</td>
<td>1%</td>
<td>2%</td>
<td>3%</td>
<td>4%</td>
<td>5%</td>
<td>6%</td>
<td>7%</td>
</tr>
</tbody>
</table>

Table 6/8: Summary of variables at Lechlade amongst all age groups, such as grave size, numbers and types of artefacts, and body position related to age. The percentages of grave goods is per all graves in each age group.
Table 6/8 Summary of variables at Lechlade amongst all age groups, such as grave size, numbers and types of artefacts, and body position related to age. The proportion of grave goods in per all graves in each age group.
Table 6/9 List of brooch variables at Lechlade Against Age. N/A = not in use as part of the costume

<table>
<thead>
<tr>
<th>No.</th>
<th>Compounded (1)</th>
<th>Fixed (2)</th>
<th>Site</th>
<th>Add. Material (3)</th>
<th>Ameliorated (4)</th>
<th>N</th>
<th>Age (centuries)</th>
<th>N. Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25-30</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25-30</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25-30</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25-30</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25-30</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25-30</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25-30</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25-30</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25-30</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25-30</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25-30</td>
<td></td>
</tr>
</tbody>
</table>

806
Table 6/9 List of brooch variables at Lechlade against age. N/A = not in use as part of the costume.

| Brooch | Very old (no. 1) | Old (no. 2) | Broken (no. 3) | Brooch (no. 4) | Brooch | Brooch | Brooch | Brooch | Brooch | Brooch | Brooch | Brooch | Brooch | Brooch |
|--------|------------------|-------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Bronze  | not cleaned      | not cleaned | not cleaned    | not cleaned    | not cleaned    | not cleaned    | not cleaned    | not cleaned    | not cleaned    | not cleaned    | not cleaned    | not cleaned    | not cleaned    | not cleaned    |
| Copper  | gilded           | gilded      | gilded         | gilded         | gilded         | gilded         | gilded         | gilded         | gilded         | gilded         | gilded         | gilded         | gilded         | gilded         |
| Brass   | worn (both)      | worn (both) | worn (both)    | worn (both)    | worn (both)    | worn (both)    | worn (both)    | worn (both)    | worn (both)    | worn (both)    | worn (both)    | worn (both)    | worn (both)    | worn (both)    |
| Metal   | not deamed       | not deamed  | not deamed     | not deamed     | not deamed     | not deamed     | not deamed     | not deamed     | not deamed     | not deamed     | not deamed     | not deamed     | not deamed     | not deamed     | not deamed     |
Table 6/10 The size of spearheads ranged according to age at Lechlade

<table>
<thead>
<tr>
<th>Age</th>
<th>Phase</th>
<th>mm</th>
<th>mm (some estimated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Older Child</td>
<td>140</td>
<td>2</td>
<td>9-10</td>
</tr>
<tr>
<td>Adolescents</td>
<td>88</td>
<td>1</td>
<td>11-12</td>
</tr>
<tr>
<td></td>
<td>196</td>
<td>1</td>
<td>14-15</td>
</tr>
<tr>
<td></td>
<td>39</td>
<td>1</td>
<td>16-18</td>
</tr>
<tr>
<td></td>
<td>92</td>
<td>1</td>
<td>16-18</td>
</tr>
<tr>
<td></td>
<td>105</td>
<td>2</td>
<td>16-18</td>
</tr>
<tr>
<td>Adults</td>
<td>168</td>
<td>1</td>
<td>17-19</td>
</tr>
<tr>
<td></td>
<td>112</td>
<td>1</td>
<td>20-25</td>
</tr>
<tr>
<td></td>
<td>121</td>
<td></td>
<td>20-25</td>
</tr>
<tr>
<td></td>
<td>35</td>
<td>2</td>
<td>30-35</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>2</td>
<td>30-35</td>
</tr>
<tr>
<td></td>
<td>58/1</td>
<td>1</td>
<td>30-35</td>
</tr>
<tr>
<td></td>
<td>115</td>
<td>1</td>
<td>30-35</td>
</tr>
<tr>
<td></td>
<td>155</td>
<td>2</td>
<td>30-35</td>
</tr>
<tr>
<td></td>
<td>172/1</td>
<td>2</td>
<td>30-35</td>
</tr>
<tr>
<td></td>
<td>21</td>
<td>1</td>
<td>35-40</td>
</tr>
<tr>
<td></td>
<td>49</td>
<td>1</td>
<td>45+</td>
</tr>
<tr>
<td></td>
<td>104</td>
<td>2</td>
<td>40-45</td>
</tr>
<tr>
<td></td>
<td>106</td>
<td>1</td>
<td>40-45</td>
</tr>
<tr>
<td></td>
<td>154</td>
<td>1</td>
<td>45+</td>
</tr>
<tr>
<td></td>
<td>161</td>
<td>2</td>
<td>45+</td>
</tr>
<tr>
<td></td>
<td>65</td>
<td>1</td>
<td>45+</td>
</tr>
<tr>
<td></td>
<td>102</td>
<td>1</td>
<td>adult</td>
</tr>
<tr>
<td></td>
<td>162</td>
<td>1</td>
<td>adult</td>
</tr>
<tr>
<td></td>
<td>192</td>
<td>1</td>
<td>adult</td>
</tr>
</tbody>
</table>

Average: 204

Total: 1702

Average: 243

Total: 1799

Average: 300

Total: 445

Average: 222
<table>
<thead>
<tr>
<th>age/sex</th>
<th>YOUNG AD M</th>
<th>MIDDLE AD M</th>
<th>ADOL</th>
<th>CHD 1</th>
<th>CHD 2</th>
<th>INF</th>
<th>No. of graves</th>
<th>No. of beads</th>
<th>average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>22</td>
<td>231</td>
<td>9</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>1733</td>
<td>34</td>
<td>8.5</td>
</tr>
<tr>
<td></td>
<td>85</td>
<td>788</td>
<td>25.7</td>
<td>13.0</td>
<td>5.3</td>
<td>5.0</td>
<td>6</td>
<td>32</td>
<td>20</td>
</tr>
<tr>
<td>Phase</td>
<td>Young</td>
<td>Older</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Posy</td>
<td>4</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Droxford</td>
<td>3</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collingbourne E.</td>
<td>6</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aiton</td>
<td>4</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W. E.</td>
<td>2</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leetchup Phases</td>
<td>52</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ditton</td>
<td>6</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Thames</td>
<td>3</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apple Down</td>
<td>1</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Thames</td>
<td>3</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Millennials</td>
<td>7</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Willow Hill</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buckland Down</td>
<td>8</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**MALE**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Young</th>
<th>Older</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stowey</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Aiton</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Bottorpe Lodge</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>E.</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Great Chesterford</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Ennorton</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Ennorton II</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Buntingon A</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Buntingon B</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**FEMALE**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Young</th>
<th>Older</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posy</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Droxford</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Collingbourne E.</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Aiton</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>W. E.</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Leetchup Phases</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ditton</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Upper Thames</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Apple Down</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lower Thames</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Millennials</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Willow Hill</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Buckland Down</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 6/12: The average numbers of types of objects with Migration Period females in various cemeteries. The average is based on graves with artefact types only.
<p>| Item | 0% | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% | 11% | 12% | 13% | 14% | 15% | 16% | 17% | 18% | 19% | 20% | 21% | 22% | 23% | 24% | 25% | 26% | 27% | 28% | 29% | 30% | 31% | 32% | 33% | 34% | 35% | 36% | 37% | 38% | 39% | 40% | 41% | 42% | 43% | 44% | 45% | 46% | 47% | 48% | 49% | 50% | 51% | 52% | 53% | 54% | 55% | 56% | 57% | 58% | 59% | 60% | 61% | 62% | 63% | 64% | 65% | 66% | 67% | 68% | 69% | 70% | 71% | 72% | 73% | 74% | 75% | 76% | 77% | 78% | 79% | 80% | 81% | 82% | 83% | 84% | 85% | 86% | 87% | 88% | 89% | 90% | 91% | 92% | 93% | 94% | 95% | 96% | 97% | 98% | 99% | 100% |
|------|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----- |</p>
<table>
<thead>
<tr>
<th>Region</th>
<th>Site</th>
<th>Bone Length (m)</th>
<th>Bone Depth (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wessex</td>
<td>Polhill</td>
<td>0.91</td>
<td>0.23</td>
</tr>
<tr>
<td></td>
<td>Lechlade Phase 1</td>
<td>1.05</td>
<td>0.18</td>
</tr>
<tr>
<td></td>
<td>Lechlade Phase 2</td>
<td>1.03</td>
<td>0.17</td>
</tr>
<tr>
<td></td>
<td>Westump</td>
<td>1.00</td>
<td>0.16</td>
</tr>
<tr>
<td></td>
<td>Bottor</td>
<td>1.00</td>
<td>0.16</td>
</tr>
<tr>
<td></td>
<td>Barton-on-Humber (phased)</td>
<td>0.99</td>
<td>0.17</td>
</tr>
<tr>
<td></td>
<td>Barton-on-Humber</td>
<td>0.98</td>
<td>0.16</td>
</tr>
<tr>
<td></td>
<td>Bowling</td>
<td>0.97</td>
<td>0.16</td>
</tr>
<tr>
<td></td>
<td>Great Chesterford</td>
<td>0.94</td>
<td>0.15</td>
</tr>
<tr>
<td></td>
<td>Barton-on-Humber (phased)</td>
<td>0.93</td>
<td>0.16</td>
</tr>
<tr>
<td></td>
<td>Great Chesterford</td>
<td>0.92</td>
<td>0.15</td>
</tr>
<tr>
<td></td>
<td>Barton-on-Humber</td>
<td>0.91</td>
<td>0.16</td>
</tr>
</tbody>
</table>

*Note: The table compares average lengths and depths of grave lengths and depths from Migration Period cemeteries (or phased graves from long-lived cemeteries), compared to Conversion Period cemeteries, with an average length and depth for each region.*
<table>
<thead>
<tr>
<th>Phase</th>
<th>Age Category</th>
<th>Combination</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Middle adult</td>
<td>Seax + 2 spear</td>
</tr>
<tr>
<td>2</td>
<td>Young adult</td>
<td>Shield + 2 seax</td>
</tr>
<tr>
<td>3</td>
<td>Adolescent</td>
<td>Seax + 2 spear</td>
</tr>
</tbody>
</table>

Table 6/15: Weapon combinations in both phases at locomotion against age thresholds.
<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>6</th>
<th>12</th>
<th>17</th>
<th>22</th>
<th>27</th>
<th>32</th>
<th>37</th>
<th>42</th>
<th>47</th>
<th>52</th>
<th>57</th>
<th>62</th>
<th>67</th>
<th>72</th>
<th>77</th>
<th>82</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.9</td>
<td>2.0</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>1.87</td>
<td>0.78</td>
<td>0.33</td>
<td>2.0</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Non-weapon males</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Average</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2</td>
<td>2</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Weapon males</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Average</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2</td>
<td>2</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Non-weapon males</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Average</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1</td>
<td>1</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>No of types</td>
<td>1</td>
<td>1</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>No of artefacts</td>
<td>1</td>
<td>1</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>No of artifacts</td>
<td>1</td>
<td>1</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Phase</td>
<td></td>
<td></td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 6/16 Summary of variables at Letchade site: percentages and types of artefacts, and body position related to graves with weapons and those without amongst adult males in both phases.
<table>
<thead>
<tr>
<th>Group</th>
<th>Infant</th>
<th>Child 1</th>
<th>Child 2</th>
<th>Adolescent</th>
<th>Adult Female</th>
<th>Adult Male</th>
<th>D. Unaccompanied Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. No Sex</td>
<td>6</td>
<td>29</td>
<td>4</td>
<td>7</td>
<td>18</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>B. Accompanied Females</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>C. Neutral</td>
<td>2</td>
<td>17</td>
<td>8</td>
<td>33</td>
<td>33</td>
<td>75</td>
<td>40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group</th>
<th>Infant</th>
<th>Child 1</th>
<th>Child 2</th>
<th>Adolescent</th>
<th>Adult Female</th>
<th>Adult Male</th>
<th>A. Weapon Burial</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. No Sex</td>
<td>60</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>15</td>
<td>60</td>
</tr>
</tbody>
</table>

Table 6.17 Groups A to D subdivided by individuals of known age and gender at Lochbaid
<table>
<thead>
<tr>
<th>%</th>
<th>0%</th>
<th>0%</th>
<th>10%</th>
<th>2%</th>
<th>7%</th>
<th>2%</th>
<th>4%</th>
<th>0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>nos</td>
<td>2</td>
<td>18</td>
<td>18</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>%</td>
<td>0%</td>
<td>0%</td>
<td>10%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>nos</td>
<td>1</td>
<td>10</td>
<td>10</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>body unknown</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>prone</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>on L side</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>on R side</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>supine</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>sitting up</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>cremated</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>grave length</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>grave width</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>grave depth</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>internal furniture</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>external furniture</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>unoccupied</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The thresholds amongst adult females in both phases.

Table 6/18: Summary of variables at Letchfield, such as grave size, and body position related to graves with artefacts and those without. Both ranged against age.
<table>
<thead>
<tr>
<th>County</th>
<th>Site</th>
<th>Date</th>
<th>Range (m)</th>
<th>Average (m)</th>
<th>Male (m)</th>
<th>Female (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kent</td>
<td>Broadstairs</td>
<td>1974</td>
<td>160.0-172.0</td>
<td>169.0-183.0</td>
<td>156.0-170.0</td>
<td>160.0-182.0</td>
</tr>
<tr>
<td>Kent</td>
<td>Chingford</td>
<td>1974</td>
<td>160.0-172.0</td>
<td>169.0-183.0</td>
<td>156.0-170.0</td>
<td>160.0-182.0</td>
</tr>
<tr>
<td>Kent</td>
<td>Dover</td>
<td>1974</td>
<td>160.0-172.0</td>
<td>169.0-183.0</td>
<td>156.0-170.0</td>
<td>160.0-182.0</td>
</tr>
<tr>
<td>Kent</td>
<td>East and WestKent</td>
<td>1974</td>
<td>160.0-172.0</td>
<td>169.0-183.0</td>
<td>156.0-170.0</td>
<td>160.0-182.0</td>
</tr>
<tr>
<td>Kent</td>
<td>Exton</td>
<td>1974</td>
<td>160.0-172.0</td>
<td>169.0-183.0</td>
<td>156.0-170.0</td>
<td>160.0-182.0</td>
</tr>
<tr>
<td>Kent</td>
<td>Finglesham</td>
<td>1974</td>
<td>160.0-172.0</td>
<td>169.0-183.0</td>
<td>156.0-170.0</td>
<td>160.0-182.0</td>
</tr>
<tr>
<td>Kent</td>
<td>Heckington</td>
<td>1974</td>
<td>160.0-172.0</td>
<td>169.0-183.0</td>
<td>156.0-170.0</td>
<td>160.0-182.0</td>
</tr>
<tr>
<td>Kent</td>
<td>Hinton</td>
<td>1974</td>
<td>160.0-172.0</td>
<td>169.0-183.0</td>
<td>156.0-170.0</td>
<td>160.0-182.0</td>
</tr>
<tr>
<td>Kent</td>
<td>Irby</td>
<td>1974</td>
<td>160.0-172.0</td>
<td>169.0-183.0</td>
<td>156.0-170.0</td>
<td>160.0-182.0</td>
</tr>
<tr>
<td>Kent</td>
<td>Ivinghoe</td>
<td>1974</td>
<td>160.0-172.0</td>
<td>169.0-183.0</td>
<td>156.0-170.0</td>
<td>160.0-182.0</td>
</tr>
<tr>
<td>Kent</td>
<td>Kentish</td>
<td>1974</td>
<td>160.0-172.0</td>
<td>169.0-183.0</td>
<td>156.0-170.0</td>
<td>160.0-182.0</td>
</tr>
<tr>
<td>Kent</td>
<td>Little Irthol</td>
<td>1974</td>
<td>160.0-172.0</td>
<td>169.0-183.0</td>
<td>156.0-170.0</td>
<td>160.0-182.0</td>
</tr>
<tr>
<td>Kent</td>
<td>Monkton</td>
<td>1974</td>
<td>160.0-172.0</td>
<td>169.0-183.0</td>
<td>156.0-170.0</td>
<td>160.0-182.0</td>
</tr>
<tr>
<td>Kent</td>
<td>Poxwell</td>
<td>1974</td>
<td>160.0-172.0</td>
<td>169.0-183.0</td>
<td>156.0-170.0</td>
<td>160.0-182.0</td>
</tr>
<tr>
<td>Kent</td>
<td>Ramsgate</td>
<td>1974</td>
<td>160.0-172.0</td>
<td>169.0-183.0</td>
<td>156.0-170.0</td>
<td>160.0-182.0</td>
</tr>
<tr>
<td>Kent</td>
<td>Riverhill</td>
<td>1974</td>
<td>160.0-172.0</td>
<td>169.0-183.0</td>
<td>156.0-170.0</td>
<td>160.0-182.0</td>
</tr>
<tr>
<td>Kent</td>
<td>Stretton-on-Fosse</td>
<td>1974</td>
<td>160.0-172.0</td>
<td>169.0-183.0</td>
<td>156.0-170.0</td>
<td>160.0-182.0</td>
</tr>
<tr>
<td>Kent</td>
<td>Swaffham</td>
<td>1974</td>
<td>160.0-172.0</td>
<td>169.0-183.0</td>
<td>156.0-170.0</td>
<td>160.0-182.0</td>
</tr>
<tr>
<td>Kent</td>
<td>Waltham</td>
<td>1974</td>
<td>160.0-172.0</td>
<td>169.0-183.0</td>
<td>156.0-170.0</td>
<td>160.0-182.0</td>
</tr>
<tr>
<td>East and West</td>
<td></td>
<td>1974</td>
<td>160.0-172.0</td>
<td>169.0-183.0</td>
<td>156.0-170.0</td>
<td>160.0-182.0</td>
</tr>
<tr>
<td>East and West</td>
<td></td>
<td>1974</td>
<td>160.0-172.0</td>
<td>169.0-183.0</td>
<td>156.0-170.0</td>
<td>160.0-182.0</td>
</tr>
</tbody>
</table>

Table 7.1: Stature ranges and averages in various Anglo-Saxon cemeteries, arranged by area of commonality.
Table 71: Stature ranges and averages in various Anglo-Saxon cemeteries. Arranged by area of community.

<table>
<thead>
<tr>
<th>Site</th>
<th>5th-6th Cent.</th>
<th>7th-8th Cent.</th>
<th>9th-10th Cent.</th>
<th>11th-12th Cent.</th>
<th>13th-14th Cent.</th>
<th>Average</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kent</td>
<td>159.0-170.0</td>
<td>165.0-175.0</td>
<td>170.0-180.0</td>
<td>175.0-185.0</td>
<td>180.0-190.0</td>
<td>175.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Essex</td>
<td>158.0-168.0</td>
<td>164.0-174.0</td>
<td>170.0-180.0</td>
<td>175.0-185.0</td>
<td>180.0-190.0</td>
<td>175.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Suffolk</td>
<td>157.0-167.0</td>
<td>163.0-173.0</td>
<td>169.0-179.0</td>
<td>174.0-184.0</td>
<td>179.0-189.0</td>
<td>175.0</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Note: The table includes data from various Anglo-Saxon cemeteries, arranged by area of community.
Table 7/2 List of graves sorted by age at Lechlade with body lengths and stature

<table>
<thead>
<tr>
<th>Phase</th>
<th>Grave no</th>
<th>AGE (BONE)</th>
<th>stature</th>
<th>body length</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFANTS</td>
<td>1</td>
<td>119/2</td>
<td>4-8 MONTHS</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>132</td>
<td>6-12 MONTHS</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>120</td>
<td>6-12 MONTHS</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>141</td>
<td>12-15 MONTHS</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>93</td>
<td>12-18 MONTHS</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1/2</td>
<td>15-18 MONTHS</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>26</td>
<td>15-18 MONTHS</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>43</td>
<td>15-18 MONTHS</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>173</td>
<td>15-18 MONTHS</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>81/5</td>
<td>15-18 MONTHS</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>48</td>
<td>1-2</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>53</td>
<td>1.25-1.5</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>113</td>
<td>1.5-2</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>23</td>
<td>&lt;3</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>124</td>
<td>2-3</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>190</td>
<td>2-3</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>81/2</td>
<td>2.5-3</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>13</td>
<td>2.5-3.5</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>92</td>
<td>4-5</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>166</td>
<td>4-5</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>33/3</td>
<td>4-5</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>17</td>
<td>4-5</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>118/2</td>
<td>4-5</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>52</td>
<td>4-5</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>38/2</td>
<td>5.5-6.5</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>81/3</td>
<td>6-7</td>
<td>?</td>
</tr>
<tr>
<td>CHILD 1</td>
<td>1</td>
<td>11</td>
<td>6-8</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>167/3</td>
<td>6-7</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>109</td>
<td>7-8</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>131</td>
<td>7-8</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>58/2</td>
<td>7-10</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>153</td>
<td>8-9</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>33/1</td>
<td>9-10</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>128</td>
<td>9-10</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>135</td>
<td>9-10</td>
<td>?</td>
</tr>
<tr>
<td>ADOLESCENT</td>
<td>1</td>
<td>171</td>
<td>11-12</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>118/1</td>
<td>11-12</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>88</td>
<td>11-12</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>28</td>
<td>12-13</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>170</td>
<td>13-14</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>63</td>
<td>13-14</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>51</td>
<td>14-15</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>46</td>
<td>14-15</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>83</td>
<td>14-15</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1/1</td>
<td>14-15</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>196</td>
<td>14-15</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>32</td>
<td>14-16</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>109</td>
<td>14-16</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>134</td>
<td>14-16</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>88/1</td>
<td>14-16</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>146</td>
<td>15-17</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>164</td>
<td>15-18</td>
<td>1.55</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>97</td>
<td>16-18</td>
<td>1.50</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>142</td>
<td>16-18</td>
<td>1.63</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>39</td>
<td>16-18</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>92</td>
<td>16-18</td>
<td>1.74</td>
</tr>
<tr>
<td>YOUNG ADULT F</td>
<td>1</td>
<td>50</td>
<td>17-20</td>
<td>1.56</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>160</td>
<td>17-20</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>81/1</td>
<td>18-20</td>
<td>1.60</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>157</td>
<td>18-22</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>133</td>
<td>18-22</td>
<td>1.70</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>167/2</td>
<td>19-22</td>
<td>1.58</td>
</tr>
</tbody>
</table>
Table 7/2 List of graves sorted by age at Lechlade with body lengths and stature

<table>
<thead>
<tr>
<th>Phase</th>
<th>Grave no</th>
<th>AGE (BONE)</th>
<th>stature</th>
<th>body length</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>123</td>
<td>20-25</td>
<td>1.62</td>
<td>1.60</td>
</tr>
<tr>
<td>1</td>
<td>130</td>
<td>20-25</td>
<td>1.57</td>
<td>1.60</td>
</tr>
<tr>
<td>1</td>
<td>196</td>
<td>20-25</td>
<td>1.56</td>
<td>1.54</td>
</tr>
<tr>
<td>1</td>
<td>165</td>
<td>20-25</td>
<td>1.59</td>
<td>1.54</td>
</tr>
<tr>
<td>1</td>
<td>154</td>
<td>20-25</td>
<td>1.55</td>
<td>1.54</td>
</tr>
<tr>
<td>1</td>
<td>123</td>
<td>20-25</td>
<td>1.62</td>
<td>1.60</td>
</tr>
<tr>
<td>1</td>
<td>130</td>
<td>20-25</td>
<td>1.62</td>
<td>1.60</td>
</tr>
<tr>
<td>1</td>
<td>180</td>
<td>20-25</td>
<td>1.57</td>
<td>1.56</td>
</tr>
<tr>
<td>1</td>
<td>19</td>
<td>25+</td>
<td>1.59</td>
<td>?</td>
</tr>
<tr>
<td>1</td>
<td>99</td>
<td>25-30</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>1</td>
<td>10</td>
<td>25-30</td>
<td>1.74</td>
<td>1.70</td>
</tr>
<tr>
<td>1</td>
<td>78</td>
<td>25-30</td>
<td>1.60</td>
<td>1.56</td>
</tr>
<tr>
<td>1</td>
<td>144</td>
<td>25-30</td>
<td>1.67</td>
<td>1.64</td>
</tr>
<tr>
<td>1</td>
<td>18</td>
<td>25-30</td>
<td>1.60</td>
<td>1.64</td>
</tr>
<tr>
<td>1</td>
<td>81/4</td>
<td>25-30</td>
<td>1.60</td>
<td>1.62</td>
</tr>
<tr>
<td>1</td>
<td>127</td>
<td>25-30</td>
<td>1.66</td>
<td>1.66</td>
</tr>
<tr>
<td>1</td>
<td>98/2</td>
<td>25-30</td>
<td>1.62</td>
<td>1.66</td>
</tr>
<tr>
<td>1</td>
<td>159</td>
<td>25-30</td>
<td>1.51</td>
<td>1.55</td>
</tr>
<tr>
<td>1</td>
<td>45</td>
<td>25-30</td>
<td>1.74</td>
<td>1.74</td>
</tr>
<tr>
<td>1</td>
<td>184</td>
<td>30-35</td>
<td>1.60</td>
<td>1.58</td>
</tr>
<tr>
<td>1</td>
<td>33/2</td>
<td>30-35</td>
<td>1.55</td>
<td>1.55</td>
</tr>
<tr>
<td>1</td>
<td>30</td>
<td>30-35</td>
<td>1.61</td>
<td>1.70</td>
</tr>
<tr>
<td>1</td>
<td>61</td>
<td>30-35</td>
<td>1.58</td>
<td>1.50</td>
</tr>
<tr>
<td>1</td>
<td>90</td>
<td>30-35</td>
<td>1.57</td>
<td>1.54</td>
</tr>
<tr>
<td>1</td>
<td>79</td>
<td>30-35</td>
<td>1.53</td>
<td>1.54</td>
</tr>
<tr>
<td>1</td>
<td>163</td>
<td>30-35</td>
<td>1.67</td>
<td>1.66</td>
</tr>
<tr>
<td>1</td>
<td>6</td>
<td>30-35</td>
<td>1.70</td>
<td>1.60?</td>
</tr>
<tr>
<td>1</td>
<td>42</td>
<td>30-35</td>
<td>1.62</td>
<td>1.72</td>
</tr>
<tr>
<td>MIDDLE ADULT F</td>
<td>77</td>
<td>35-40</td>
<td>1.69</td>
<td>1.68</td>
</tr>
<tr>
<td>1</td>
<td>185</td>
<td>35-40</td>
<td>1.64</td>
<td>1.68</td>
</tr>
<tr>
<td>1</td>
<td>47</td>
<td>35-40</td>
<td>1.66</td>
<td>1.70</td>
</tr>
<tr>
<td>1</td>
<td>175</td>
<td>35-40</td>
<td>1.59</td>
<td>1.60</td>
</tr>
<tr>
<td>1</td>
<td>155</td>
<td>35-45</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>1</td>
<td>20</td>
<td>40+</td>
<td>1.55</td>
<td>?</td>
</tr>
<tr>
<td>1</td>
<td>152</td>
<td>40+</td>
<td>1.66</td>
<td>1.62</td>
</tr>
<tr>
<td>1</td>
<td>60</td>
<td>45+</td>
<td>1.63</td>
<td>1.56</td>
</tr>
<tr>
<td>1</td>
<td>62</td>
<td>45+</td>
<td>1.57</td>
<td>1.60</td>
</tr>
<tr>
<td>1</td>
<td>193</td>
<td>45+</td>
<td>1.58</td>
<td>1.50</td>
</tr>
<tr>
<td>1</td>
<td>111</td>
<td>45+</td>
<td>1.62</td>
<td>1.60</td>
</tr>
<tr>
<td>1</td>
<td>178</td>
<td>45+</td>
<td>?</td>
<td>1.66</td>
</tr>
<tr>
<td>1</td>
<td>174</td>
<td>45+</td>
<td>1.62</td>
<td>?</td>
</tr>
<tr>
<td>1</td>
<td>25</td>
<td>45+</td>
<td>1.60</td>
<td>1.64</td>
</tr>
<tr>
<td>1</td>
<td>41</td>
<td>45+</td>
<td>1.67</td>
<td>1.64</td>
</tr>
<tr>
<td>1</td>
<td>59</td>
<td>45+</td>
<td>1.65</td>
<td>1.54</td>
</tr>
<tr>
<td>1</td>
<td>101</td>
<td>45+</td>
<td>1.61</td>
<td>1.60</td>
</tr>
<tr>
<td>MATURE ADULT F</td>
<td>86</td>
<td>50+</td>
<td>1.64</td>
<td>1.60</td>
</tr>
<tr>
<td>ADULT M</td>
<td>158</td>
<td>ADULT</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>1</td>
<td>189</td>
<td>ADULT</td>
<td>1.61</td>
<td>?</td>
</tr>
<tr>
<td>YOUNG ADULT M</td>
<td>195</td>
<td>16-20</td>
<td>1.70</td>
<td>1.66</td>
</tr>
<tr>
<td>1</td>
<td>168</td>
<td>17-19</td>
<td>1.73</td>
<td>1.66</td>
</tr>
</tbody>
</table>
Table 7/2 List of graves sorted by age at Lechlade with body lengths and stature

<table>
<thead>
<tr>
<th>Phase</th>
<th>Grave no</th>
<th>AGE (SEX)</th>
<th>stature</th>
<th>body length</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 94</td>
<td>20-24</td>
<td>1.76</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1 80/2</td>
<td>20-25</td>
<td>1.74</td>
<td>1.70</td>
</tr>
<tr>
<td></td>
<td>1 112</td>
<td>20-25</td>
<td>1.72</td>
<td>1.65</td>
</tr>
<tr>
<td></td>
<td>1 117</td>
<td>30-35</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1 119/1</td>
<td>30-35</td>
<td>1.81</td>
<td>1.75</td>
</tr>
<tr>
<td></td>
<td>1 118</td>
<td>30-35</td>
<td>1.73</td>
<td>1.75</td>
</tr>
<tr>
<td></td>
<td>1 115</td>
<td>30-35</td>
<td>1.73</td>
<td>1.70</td>
</tr>
<tr>
<td></td>
<td>1 38/1</td>
<td>30-35</td>
<td>1.59</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1 2</td>
<td>30-35</td>
<td>1.66</td>
<td>1.62</td>
</tr>
<tr>
<td></td>
<td>1 58/1</td>
<td>30-35</td>
<td>1.66</td>
<td>1.62</td>
</tr>
<tr>
<td>MIDDLE ADULT M</td>
<td>1 21</td>
<td>35-40</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1 8</td>
<td>35-40</td>
<td>1.71</td>
<td>1.70</td>
</tr>
<tr>
<td></td>
<td>1 16</td>
<td>35-40</td>
<td>1.77</td>
<td>1.84</td>
</tr>
<tr>
<td></td>
<td>1 106</td>
<td>40-45</td>
<td>1.63</td>
<td>1.62</td>
</tr>
<tr>
<td></td>
<td>1 151</td>
<td>40-45</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1 87</td>
<td>45+</td>
<td>1.69</td>
<td>1.60</td>
</tr>
<tr>
<td></td>
<td>1 44</td>
<td>45+</td>
<td>1.66</td>
<td>1.64</td>
</tr>
<tr>
<td></td>
<td>1 65</td>
<td>45+</td>
<td>1.70</td>
<td>1.65</td>
</tr>
<tr>
<td></td>
<td>1 154</td>
<td>45+</td>
<td>1.85</td>
<td>1.82</td>
</tr>
<tr>
<td></td>
<td>1 49</td>
<td>45+</td>
<td>1.73</td>
<td>1.74</td>
</tr>
<tr>
<td>ADULT M</td>
<td>1 182</td>
<td>ADULT</td>
<td>1.79</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1 102</td>
<td>ADULT</td>
<td>1.65</td>
<td>1.68?</td>
</tr>
<tr>
<td></td>
<td>1 192</td>
<td>ADULT</td>
<td>1.69</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>? 1 80/1</td>
<td>AD?</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>1 167/1</td>
<td>AD</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>INFANTS</td>
<td>2 107/2</td>
<td>NEWBORN</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>2 98</td>
<td>NEWBORN</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>CHILD 1</td>
<td>2 98</td>
<td>2.5-3.5</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>2b 84</td>
<td>2.5-3.5</td>
<td>?</td>
<td>0.95</td>
</tr>
<tr>
<td></td>
<td>2 177</td>
<td>2.5-3.5</td>
<td>?</td>
<td>0.80</td>
</tr>
<tr>
<td></td>
<td>2b 172/2</td>
<td>2.5-3.5</td>
<td>?</td>
<td>0.86?</td>
</tr>
<tr>
<td></td>
<td>2 161/1</td>
<td>3.5-4</td>
<td>?</td>
<td>0.94</td>
</tr>
<tr>
<td>CHILD 2</td>
<td>2b 148</td>
<td>8-9</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>2 137</td>
<td>8-9</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>2 140</td>
<td>9-10</td>
<td>?</td>
<td>1.16</td>
</tr>
<tr>
<td>ADOLESCENTS</td>
<td>2 89/2</td>
<td>13-14</td>
<td>?</td>
<td>1.25</td>
</tr>
<tr>
<td></td>
<td>2b 36/2</td>
<td>13-15</td>
<td>?</td>
<td>1.44</td>
</tr>
<tr>
<td></td>
<td>2 194</td>
<td>14-16</td>
<td>?</td>
<td>1.70</td>
</tr>
<tr>
<td></td>
<td>2 14</td>
<td>14-16</td>
<td>?</td>
<td>1.50</td>
</tr>
<tr>
<td></td>
<td>2 105</td>
<td>16-18</td>
<td>?</td>
<td>1.55</td>
</tr>
<tr>
<td></td>
<td>2 36/1</td>
<td>16-19</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>YOUNG ADULT F</td>
<td>2 22</td>
<td>18-20</td>
<td>1.63</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>2 191</td>
<td>20-25</td>
<td>1.65</td>
<td>1.62</td>
</tr>
<tr>
<td></td>
<td>2 67</td>
<td>20-25</td>
<td>1.59</td>
<td>1.68</td>
</tr>
<tr>
<td></td>
<td>2 70</td>
<td>25-30</td>
<td>1.65</td>
<td>1.66</td>
</tr>
<tr>
<td></td>
<td>2 107/1</td>
<td>25-30</td>
<td>1.68</td>
<td>1.60</td>
</tr>
<tr>
<td></td>
<td>2b 138</td>
<td>25-30</td>
<td>1.56</td>
<td>1.547</td>
</tr>
<tr>
<td></td>
<td>2 197</td>
<td>30-35</td>
<td>1.56</td>
<td>1.50</td>
</tr>
<tr>
<td></td>
<td>2 68</td>
<td>30-35</td>
<td>1.61</td>
<td>1.60</td>
</tr>
<tr>
<td></td>
<td>2 37</td>
<td>30-35</td>
<td>1.58</td>
<td>1.54</td>
</tr>
<tr>
<td></td>
<td>2b 187</td>
<td>30-35</td>
<td>1.61</td>
<td>1.66</td>
</tr>
<tr>
<td>MIDDLE ADULT F</td>
<td>2b 3</td>
<td>35-40</td>
<td>1.64</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>2b 179</td>
<td>35-40</td>
<td>1.55</td>
<td>1.52</td>
</tr>
</tbody>
</table>
Table 7/2 List of graves sorted by age at Lechlade with body lengths and stature

<table>
<thead>
<tr>
<th>Phase</th>
<th>Grave no</th>
<th>AGE (BONE)</th>
<th>stature</th>
<th>body length</th>
</tr>
</thead>
<tbody>
<tr>
<td>2b</td>
<td>95/1</td>
<td>35-40</td>
<td>1.68</td>
<td>1.70</td>
</tr>
<tr>
<td>2</td>
<td>147</td>
<td>35-40</td>
<td>1.68</td>
<td>1.66</td>
</tr>
<tr>
<td>2</td>
<td>85</td>
<td>40-45</td>
<td>1.84</td>
<td>1.65</td>
</tr>
<tr>
<td>2</td>
<td>55</td>
<td>40-45</td>
<td>1.61</td>
<td>1.54</td>
</tr>
<tr>
<td>2</td>
<td>71</td>
<td>40-45</td>
<td>1.65</td>
<td>1.68</td>
</tr>
<tr>
<td>2</td>
<td>103</td>
<td>40-45</td>
<td>1.70</td>
<td>1.75</td>
</tr>
<tr>
<td>2</td>
<td>145/2</td>
<td>40-45</td>
<td>1.62</td>
<td>1.60</td>
</tr>
<tr>
<td>2</td>
<td>76</td>
<td>45+</td>
<td>1.75</td>
<td>1.66</td>
</tr>
<tr>
<td>ADULT</td>
<td>2</td>
<td>94</td>
<td>ADULT</td>
<td>?</td>
</tr>
<tr>
<td>YOUNG ADULT M</td>
<td>2</td>
<td>91 .</td>
<td>20-25</td>
<td>1.76</td>
</tr>
<tr>
<td>YOUNG ADULT M</td>
<td>2</td>
<td>125 .</td>
<td>20-25</td>
<td>1.77</td>
</tr>
<tr>
<td>YOUNG ADULT M</td>
<td>2</td>
<td>145/1</td>
<td>25-30</td>
<td>1.70</td>
</tr>
<tr>
<td>YOUNG ADULT M</td>
<td>2</td>
<td>9</td>
<td>25-30</td>
<td>1.77</td>
</tr>
<tr>
<td>YOUNG ADULT M</td>
<td>2b</td>
<td>155</td>
<td>30-35</td>
<td>1.73</td>
</tr>
<tr>
<td>YOUNG ADULT M</td>
<td>2</td>
<td>172/1</td>
<td>30-35</td>
<td>1.73</td>
</tr>
<tr>
<td>YOUNG ADULT M</td>
<td>2b</td>
<td>40</td>
<td>30-35</td>
<td>1.72</td>
</tr>
<tr>
<td>YOUNG ADULT M</td>
<td>2</td>
<td>35</td>
<td>30-35</td>
<td>1.77</td>
</tr>
<tr>
<td>YOUNG ADULT M</td>
<td>2</td>
<td>57</td>
<td>30-35</td>
<td>1.79</td>
</tr>
<tr>
<td>MIDDLE ADULT M</td>
<td>2</td>
<td>69</td>
<td>40+</td>
<td>1.77</td>
</tr>
<tr>
<td>MIDDLE ADULT M</td>
<td>2</td>
<td>183</td>
<td>40+</td>
<td>1.72</td>
</tr>
<tr>
<td>MIDDLE ADULT M</td>
<td>2</td>
<td>72</td>
<td>40-45</td>
<td>1.78</td>
</tr>
<tr>
<td>MIDDLE ADULT M</td>
<td>2</td>
<td>104</td>
<td>40-45</td>
<td>1.72</td>
</tr>
<tr>
<td>MIDDLE ADULT M</td>
<td>2</td>
<td>29</td>
<td>45+</td>
<td>1.87</td>
</tr>
<tr>
<td>MIDDLE ADULT M</td>
<td>2</td>
<td>143</td>
<td>45+</td>
<td>1.69</td>
</tr>
<tr>
<td>MIDDLE ADULT M</td>
<td>2</td>
<td>89/1</td>
<td>45+</td>
<td>1.78</td>
</tr>
<tr>
<td>MIDDLE ADULT M</td>
<td>2</td>
<td>178</td>
<td>45+</td>
<td>1.65</td>
</tr>
<tr>
<td>MIDDLE ADULT M</td>
<td>2</td>
<td>181</td>
<td>45+</td>
<td>1.72</td>
</tr>
<tr>
<td>ADULT M</td>
<td>2</td>
<td>181/2</td>
<td>ADULT</td>
<td>1.65</td>
</tr>
<tr>
<td>?</td>
<td>2</td>
<td>200</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>INFANTS</td>
<td>U</td>
<td>12</td>
<td>NEWBORN</td>
<td>?</td>
</tr>
<tr>
<td>INFANTS</td>
<td>U</td>
<td>5</td>
<td>NEWBORN</td>
<td>?</td>
</tr>
<tr>
<td>INFANTS</td>
<td>U</td>
<td>188/2</td>
<td>NEWBORN</td>
<td>?</td>
</tr>
<tr>
<td>INFANTS</td>
<td>U</td>
<td>198</td>
<td>6-7 MONTHS</td>
<td>?</td>
</tr>
<tr>
<td>INFANTS</td>
<td>U</td>
<td>95/2</td>
<td>7 MONTHS</td>
<td>?</td>
</tr>
<tr>
<td>INFANTS</td>
<td>U</td>
<td>122</td>
<td>8-12 MONTHS</td>
<td>?</td>
</tr>
<tr>
<td>INFANTS</td>
<td>U</td>
<td>129</td>
<td>1.2-1.5</td>
<td>?</td>
</tr>
<tr>
<td>CHILD 1</td>
<td>U</td>
<td>4</td>
<td>1.5-2</td>
<td>?</td>
</tr>
<tr>
<td>CHILD 1</td>
<td>U</td>
<td>114</td>
<td>1.5-2.5</td>
<td>?</td>
</tr>
<tr>
<td>CHILD 1</td>
<td>U</td>
<td>110</td>
<td>2.5-3</td>
<td>?</td>
</tr>
<tr>
<td>CHILD 1</td>
<td>U</td>
<td>199</td>
<td>3-5</td>
<td>?</td>
</tr>
<tr>
<td>CHILD 2</td>
<td>U</td>
<td>34</td>
<td>7-8</td>
<td>?</td>
</tr>
<tr>
<td>CHILD 2</td>
<td>U</td>
<td>100</td>
<td>7-8</td>
<td>?</td>
</tr>
<tr>
<td>CHILD 2</td>
<td>U</td>
<td>74</td>
<td>9-10</td>
<td>?</td>
</tr>
<tr>
<td>ADOLESCENT</td>
<td>U</td>
<td>126</td>
<td>14-15</td>
<td>?</td>
</tr>
<tr>
<td>YOUNG ADULT F</td>
<td>U</td>
<td>188/1</td>
<td>25-30</td>
<td>?</td>
</tr>
<tr>
<td>YOUNG ADULT F</td>
<td>U</td>
<td>186</td>
<td>30+</td>
<td>1.62</td>
</tr>
<tr>
<td>MIDDLE ADULT F</td>
<td>U</td>
<td>162</td>
<td>40+</td>
<td>1.56</td>
</tr>
<tr>
<td>MIDDLE ADULT F</td>
<td>U</td>
<td>15</td>
<td>40+</td>
<td>1.60</td>
</tr>
<tr>
<td>MIDDLE ADULT F</td>
<td>U</td>
<td>7</td>
<td>40-45</td>
<td>1.50</td>
</tr>
<tr>
<td>MIDDLE ADULT F</td>
<td>U</td>
<td>31</td>
<td>45+</td>
<td>1.51</td>
</tr>
<tr>
<td>MIDDLE ADULT F</td>
<td>U</td>
<td>150</td>
<td>45+</td>
<td>1.60</td>
</tr>
<tr>
<td>MIDDLE ADULT F</td>
<td>U</td>
<td>24</td>
<td>45+</td>
<td>1.56</td>
</tr>
<tr>
<td>ADULT F</td>
<td>U</td>
<td>27</td>
<td>ADULT</td>
<td>1.65</td>
</tr>
<tr>
<td>YOUNG ADULT M</td>
<td>U</td>
<td>121</td>
<td>20-25</td>
<td>1.83</td>
</tr>
<tr>
<td>YOUNG ADULT M</td>
<td>U</td>
<td>75</td>
<td>30-35</td>
<td>?</td>
</tr>
<tr>
<td>MIDDLE ADULT M</td>
<td>U</td>
<td>149</td>
<td>45+</td>
<td>?</td>
</tr>
<tr>
<td>MIDDLE ADULT M</td>
<td>U</td>
<td>139</td>
<td>45+</td>
<td>1.71</td>
</tr>
<tr>
<td>Group</td>
<td>Infant</td>
<td>Child 1</td>
<td>Child 2</td>
<td>Adolescent</td>
</tr>
<tr>
<td>---------------</td>
<td>-------</td>
<td>---------</td>
<td>---------</td>
<td>------------</td>
</tr>
<tr>
<td>Mucking I</td>
<td>71.56-1.77</td>
<td>1.44-1.75</td>
<td>1.30-1.97</td>
<td>0.80-1.05</td>
</tr>
<tr>
<td>Mucking II</td>
<td>as above</td>
<td>1.50-1.74</td>
<td>1.59-1.75</td>
<td>0.80-1.05</td>
</tr>
<tr>
<td>Lechlede</td>
<td>71.56-1.77</td>
<td>1.44-1.75</td>
<td>1.30-1.97</td>
<td>0.80-1.05</td>
</tr>
<tr>
<td></td>
<td>as above</td>
<td>as above</td>
<td>as above</td>
<td>as above</td>
</tr>
</tbody>
</table>
Table 7.4 Graves in Mucking I, sorted according to age, sex, and gender.
<table>
<thead>
<tr>
<th>Model</th>
<th>Age</th>
<th>Sex</th>
<th>Score</th>
<th>No. of Burials</th>
<th>Score</th>
<th>Sex</th>
<th>Score</th>
<th>No. of Burials</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>7</td>
<td>m</td>
<td>1</td>
<td>0.95</td>
<td>1.1</td>
<td>m</td>
<td>1</td>
<td>0.98</td>
</tr>
<tr>
<td>1.2</td>
<td>7</td>
<td>m</td>
<td>1</td>
<td>0.95</td>
<td>1.2</td>
<td>m</td>
<td>1</td>
<td>0.98</td>
</tr>
<tr>
<td>1.3</td>
<td>7</td>
<td>m</td>
<td>1</td>
<td>0.95</td>
<td>1.3</td>
<td>m</td>
<td>1</td>
<td>0.98</td>
</tr>
<tr>
<td>1.4</td>
<td>7</td>
<td>m</td>
<td>1</td>
<td>0.95</td>
<td>1.4</td>
<td>m</td>
<td>1</td>
<td>0.98</td>
</tr>
</tbody>
</table>

Table 7: Graves in Mucking I, sorted according to age, sex and gender.
Table 7. Graves in Mucking I, sorted according to age, sex, and gender.
Table 7/5 List of graves in Mucking | sorted by age, sex and gender
**Table 7.5: List of graves in Mucking II, sorted by age, sex and gender**
<table>
<thead>
<tr>
<th>Grave</th>
<th>Age</th>
<th>Sex</th>
<th>Occupation</th>
<th>Grave Goods</th>
<th>Other Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 7/5: List of graves in Mucking Hill, sorted by age, sex and gender.
Table 7/5: List of graves in Mucking II, sorted by age and gender.
Table 7/5: List of Graves in Muqting | Il. Sorted by age, sex and gender
Table 7/5: List of graves in Mucking II, sorted by age, sex and gender.
Table 7/5: List of Graves in Mucking II, sorted by age and gender
<table>
<thead>
<tr>
<th>Date</th>
<th>No.</th>
<th>Name</th>
<th>Age</th>
<th>Sex</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/01/2000</td>
<td>1</td>
<td>John Smith</td>
<td>60</td>
<td>Male</td>
<td>M</td>
</tr>
<tr>
<td>02/02/2000</td>
<td>2</td>
<td>Jane Doe</td>
<td>70</td>
<td>Female</td>
<td>F</td>
</tr>
<tr>
<td>03/03/2000</td>
<td>3</td>
<td>Robert Johnson</td>
<td>80</td>
<td>Male</td>
<td>M</td>
</tr>
<tr>
<td>04/04/2000</td>
<td>4</td>
<td>Emily Williams</td>
<td>90</td>
<td>Female</td>
<td>F</td>
</tr>
</tbody>
</table>

Table 7/5: List of graves in Mitchell II, sorted by age and gender.
Table 7/6 Range of Upper Grave Lengths from Selected Migration Period Cemeteries (or Graves in Long-lived Cemeteries) Against Age Thresholds
<table>
<thead>
<tr>
<th></th>
<th>15</th>
<th>16</th>
<th>18</th>
<th>31</th>
<th>32</th>
<th>33</th>
<th>34</th>
<th>35</th>
<th>42</th>
<th>58</th>
<th>63</th>
<th>unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>adult/adolescent</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>unknown</td>
</tr>
<tr>
<td>adrenal</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>unknown</td>
</tr>
<tr>
<td>total of aged individuals</td>
<td>14</td>
<td>7</td>
<td>15</td>
<td>95</td>
<td>13</td>
<td>67</td>
<td>23</td>
<td>22</td>
<td>43</td>
<td></td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>adult</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>unknown</td>
</tr>
<tr>
<td>adolescent</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>unknown</td>
</tr>
<tr>
<td>child/Z adolescent</td>
<td>2</td>
<td>100</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>unknown</td>
</tr>
<tr>
<td>infant/child 1</td>
<td>1</td>
<td>100</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>unknown</td>
</tr>
<tr>
<td>infant/child 2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>unknown</td>
</tr>
</tbody>
</table>

**Table 7.1** Summary of age groups in Mykonion 1 subdivided by gender.
Table 7/8: The frequencies of brooch and weapon graves in selected Migration Period cemeteries. The numbers of brooches and weapons among adults at Mucking.
Table 1.8. The frequencies of brooch and weapon graves in selected Migration Period cemeteries, by the numbers of brooches and weapons amongst adults at machining.

<table>
<thead>
<tr>
<th>Site</th>
<th>Brooches</th>
<th>Weapons</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essex</td>
<td>30%</td>
<td>50%</td>
<td>80%</td>
</tr>
<tr>
<td>West Midlands</td>
<td>41%</td>
<td>55%</td>
<td>96%</td>
</tr>
<tr>
<td>Suffolk</td>
<td>82%</td>
<td>18%</td>
<td>100%</td>
</tr>
<tr>
<td>Hampshire</td>
<td>92%</td>
<td>8%</td>
<td>100%</td>
</tr>
<tr>
<td>Warwick</td>
<td>72%</td>
<td>28%</td>
<td>100%</td>
</tr>
<tr>
<td>Kent</td>
<td>42%</td>
<td>58%</td>
<td>100%</td>
</tr>
<tr>
<td>Essex</td>
<td>50%</td>
<td>50%</td>
<td>100%</td>
</tr>
<tr>
<td>Suffolk</td>
<td>35%</td>
<td>65%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Note: The data reflects the presence of brooches and weapons in adult graves.
<table>
<thead>
<tr>
<th></th>
<th>1 6</th>
<th>17</th>
<th>30</th>
<th>33</th>
<th>36</th>
<th>49</th>
<th>65</th>
<th>69</th>
<th>70</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown/adolescent/adult</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total of aged individuals</td>
<td>61</td>
<td>66</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>Adult</td>
<td>1 6</td>
<td>17</td>
<td>30</td>
<td>33</td>
<td>36</td>
<td>49</td>
<td>65</td>
<td>69</td>
<td>70</td>
</tr>
<tr>
<td>Infant/child 1 /child 2 /adolescent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child 1/child 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child 2/adolescent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infant/child 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infant/child 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infant/child 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infant only</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child only</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult only</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of all graves</td>
<td>23%</td>
<td>65%</td>
<td>3%</td>
<td>22%</td>
<td>49%</td>
<td>15%</td>
<td>15%</td>
<td>15%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Table 7/9 Summary of the age groups in Mucking II, subdivided by gender.
<table>
<thead>
<tr>
<th>% of females</th>
<th>nos of females (of sexed adults)</th>
<th>% of 45+</th>
<th>nos of 45+</th>
<th>% of 35+</th>
<th>nos of 35+</th>
<th>% of adults not closely aged</th>
<th>total nos of aged adults</th>
<th>total nos adults</th>
<th>% of infants (as part of aged population)</th>
<th>nos of infants (2 yrs+)</th>
<th>% of juveniles (as part of aged population)</th>
<th>nos of juveniles</th>
<th>% of aged individuals (as % of skeletons)</th>
<th>nos of aged individuals</th>
<th>% of unaged (not closely aged)</th>
<th>nos of unaged (not closely aged) skeletons</th>
<th>Total no of skeletons</th>
<th>No of Individuals</th>
<th>No of grave cuts</th>
<th>Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>40%</td>
<td>62%</td>
<td>4%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>Site</td>
<td></td>
</tr>
<tr>
<td>40%</td>
<td>62%</td>
<td>4%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>Site</td>
<td></td>
</tr>
<tr>
<td>40%</td>
<td>62%</td>
<td>4%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>Site</td>
<td></td>
</tr>
</tbody>
</table>

Table 7/10: Summary of the palaeodemographic profile of Mucking I and II, comparing the bone evidence with the age thresholds found using body length and gender.
<table>
<thead>
<tr>
<th>Age/sex</th>
<th>Unknown</th>
<th>100</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Juveniles</td>
<td>26</td>
<td>52</td>
<td>4</td>
</tr>
<tr>
<td>Adolescents/adult</td>
<td>41</td>
<td>47</td>
<td>1</td>
</tr>
<tr>
<td>Adult females</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Adult males</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>D. unaccompanied</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age/sex</th>
<th>50</th>
<th>31</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Juveniles</td>
<td>6</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Adolescents/adult</td>
<td>8</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Adult females</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Adult males</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>C. neutral</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age/sex</th>
<th>50</th>
<th>12</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Juveniles</td>
<td>5</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Adolescents/adult</td>
<td>12</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Adult females</td>
<td>100</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Adult males</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>B. accompanied females</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age/sex</th>
<th>25</th>
<th>4</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Juveniles</td>
<td>4</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Adolescents/adult</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Adult females</td>
<td>90</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Adult males</td>
<td>4</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>A. weapon-bearing males</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 7.11 Groups A – D subdivided by individuals of known age and gender in Michigan.
Table 7. Presence and absence of artefact types per grave in Mucking 1, sorted by age thresholds.
Table 7/12: Presence and absence of artifact types per grave in Mucking L. sorted by age thresholds.
Table 7/13 Presence and absence of artefact numbers per grave in Mucking 1, sorted by age thresholds
Table 7/14: Numbers of brooch types with females in Mugdock I, sorted by age.
Table 7/15 Numbers of brooch types with females in Muckden, II, sorted by age. The brooches from Grave 589 have been counted as from Grave 585.
<table>
<thead>
<tr>
<th>Phase</th>
<th>Region</th>
<th>Item</th>
<th>Square-ended</th>
<th>Small-square</th>
<th>Round</th>
<th>Square</th>
<th>Triangular</th>
<th>Round</th>
<th>Angular</th>
<th>Lozenge</th>
<th>Triangular</th>
<th>Annular</th>
<th>Triangular</th>
<th>Integral</th>
<th>Disc</th>
<th>Supporting arm</th>
<th>Accessories</th>
<th>Spalled</th>
<th>Plaster</th>
<th>Applied</th>
<th>Age</th>
<th>Q No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 7/16. Juvenile graves with brooches in Mucking. 11, showing artistic types, how they were used, and whether they were worn or broken.
Table 7/17 Summary of average spearhead length in relation to age in Mucking II

<table>
<thead>
<tr>
<th>age</th>
<th>av length spear (mm)</th>
<th>nos</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD3</td>
<td>298</td>
<td>3</td>
</tr>
<tr>
<td>AD2/3</td>
<td>227</td>
<td>4</td>
</tr>
<tr>
<td>AD2</td>
<td>286</td>
<td>3</td>
</tr>
<tr>
<td>AD1/2</td>
<td>202</td>
<td>1</td>
</tr>
<tr>
<td>AD1</td>
<td>288</td>
<td>2</td>
</tr>
<tr>
<td>AD</td>
<td>295</td>
<td>26</td>
</tr>
<tr>
<td>ADOL/AD</td>
<td>241</td>
<td>8</td>
</tr>
<tr>
<td>ADOL</td>
<td>229</td>
<td>3</td>
</tr>
<tr>
<td>CH2</td>
<td>232</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>Juveniles</td>
</tr>
<tr>
<td>----------------</td>
<td>---------</td>
<td>-----------</td>
</tr>
<tr>
<td>Age</td>
<td>2.72</td>
<td>2.76</td>
</tr>
<tr>
<td>Shield</td>
<td>0.46</td>
<td>0.33</td>
</tr>
<tr>
<td>Sword</td>
<td>0.41</td>
<td>0.37</td>
</tr>
<tr>
<td>Spear</td>
<td>0.46</td>
<td>0.33</td>
</tr>
<tr>
<td>Arrow</td>
<td>0.63</td>
<td>0.63</td>
</tr>
<tr>
<td>Axe</td>
<td>0.33</td>
<td>0.33</td>
</tr>
<tr>
<td>Depth of Grave (m)</td>
<td>0.63</td>
<td>0.63</td>
</tr>
<tr>
<td>No of Additional Types</td>
<td>0.62</td>
<td>0.62</td>
</tr>
<tr>
<td>No of Weapon Types</td>
<td>0.62</td>
<td>0.62</td>
</tr>
<tr>
<td>Width of Shield Stain</td>
<td>0.31</td>
<td>0.31</td>
</tr>
</tbody>
</table>

Table 7/18 Complete Weapon Graves in Viking I. In relation to age, showing other variables.
<table>
<thead>
<tr>
<th>Cemetery</th>
<th>0.16-2.36</th>
<th>0.20-2.36</th>
<th>0.24-2.36</th>
<th>0.28-2.36</th>
<th>0.32-2.36</th>
<th>0.36-2.36</th>
<th>0.40-2.36</th>
<th>0.44-2.36</th>
<th>0.48-2.36</th>
<th>0.52-2.36</th>
<th>0.56-2.36</th>
<th>0.60-2.36</th>
<th>0.64-2.36</th>
<th>0.68-2.36</th>
<th>0.72-2.36</th>
<th>0.76-2.36</th>
<th>0.80-2.36</th>
<th>0.84-2.36</th>
<th>0.88-2.36</th>
<th>0.92-2.36</th>
<th>0.96-2.36</th>
<th>1.00-2.36</th>
<th>1.04-2.36</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: 52-3.51</td>
<td>1: 58</td>
<td>2: 09</td>
<td>1: 18-2.87</td>
<td>1: 20-2.59</td>
<td>1: 22-2.36</td>
<td>1: 24-2.14</td>
<td>1: 26-2.00</td>
<td>1: 28-1.87</td>
<td>1: 30-1.74</td>
<td>1: 32-1.61</td>
<td>1: 34-1.48</td>
<td>1: 36-1.35</td>
<td>1: 38-1.22</td>
<td>1: 40-1.09</td>
<td>1: 42-0.96</td>
<td>1: 44-0.83</td>
<td>1: 46-0.70</td>
<td>1: 48-0.57</td>
<td>1: 50-0.44</td>
<td>1: 52-0.31</td>
<td>1: 54-0.18</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 7/19 Range of grave lengths (upper measurement) against age groups in Mucking I and II.
<table>
<thead>
<tr>
<th>Range of cemetery (m)</th>
<th>Range of adult grave depths (m)</th>
<th>% of juveniles</th>
<th>% of infants</th>
<th>% of juveniles (as a % of the aged popn)</th>
<th>% of infants (as a % of the aged popn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.04-0.96</td>
<td>0.04-0.91</td>
<td>32%</td>
<td>15%</td>
<td>0.07%</td>
<td>0.03%</td>
</tr>
<tr>
<td>0.32</td>
<td>0.43</td>
<td>1%</td>
<td>3%</td>
<td>0.15%</td>
<td>0.05%</td>
</tr>
</tbody>
</table>

Table 7/20: Range of grave depths against age groups, with numbers and percentages of shared graves in Mucking I and II.
Table 7/21 Summary of the percentages of brooch and weapon burials from the regional survey

<table>
<thead>
<tr>
<th>Region</th>
<th>% of graves with brooches</th>
<th>% of ad F with brooches</th>
<th>% of graves with weapons</th>
<th>Figures from Harke (1992b, Tab 6)</th>
<th>% of ad M with weapons</th>
<th>Figures from Harke (1992b, Tab 6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kentish</td>
<td>17</td>
<td>40</td>
<td>20</td>
<td>16</td>
<td>51</td>
<td>36</td>
</tr>
<tr>
<td>Saxon</td>
<td>22</td>
<td>46</td>
<td>20</td>
<td>20</td>
<td>50</td>
<td>?</td>
</tr>
<tr>
<td>Lower Thames (old Essex)</td>
<td>19</td>
<td>22</td>
<td>19</td>
<td>22</td>
<td>48</td>
<td>-</td>
</tr>
<tr>
<td>Sussex</td>
<td>23</td>
<td>20</td>
<td>23</td>
<td>20</td>
<td>49</td>
<td>53</td>
</tr>
<tr>
<td>Upper Thames</td>
<td>20</td>
<td>22</td>
<td>20</td>
<td>22</td>
<td>49</td>
<td>53</td>
</tr>
<tr>
<td>Wessex</td>
<td>20</td>
<td>16</td>
<td>20</td>
<td>16</td>
<td>57</td>
<td>43</td>
</tr>
<tr>
<td>Anglian</td>
<td>25</td>
<td>57</td>
<td>20</td>
<td>14</td>
<td>50</td>
<td>?</td>
</tr>
<tr>
<td>E Anglia</td>
<td>23</td>
<td>18</td>
<td>23</td>
<td>18</td>
<td>71</td>
<td>62</td>
</tr>
<tr>
<td>E Midlands</td>
<td>19</td>
<td>15</td>
<td>19</td>
<td>15</td>
<td>43</td>
<td>57</td>
</tr>
<tr>
<td>Essex</td>
<td>10</td>
<td>7</td>
<td>10</td>
<td>7</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>North</td>
<td>17</td>
<td>7</td>
<td>17</td>
<td>7</td>
<td>41</td>
<td>44</td>
</tr>
<tr>
<td>West Midlands</td>
<td>30</td>
<td>20</td>
<td>30</td>
<td>20</td>
<td>74</td>
<td>75</td>
</tr>
<tr>
<td>Type</td>
<td>Inlay Type</td>
<td>Cu</td>
<td>Sn</td>
<td>Pb</td>
<td>Area Inlay (%)</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>------------</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>---------------</td>
<td></td>
</tr>
<tr>
<td>Wire on Rectangular Plate</td>
<td>0</td>
<td>3.4</td>
<td>1.2</td>
<td>0.6</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td>Foil on Rectangular Plate</td>
<td>0</td>
<td>4.5</td>
<td>0.8</td>
<td>0.5</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>Wire on Buckle Plate</td>
<td>2</td>
<td>4.1</td>
<td>0.7</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Foil on Buckle Plate</td>
<td>N</td>
<td>2.6</td>
<td>0.0</td>
<td>0.0</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>Wire on Buckle Plate</td>
<td>M</td>
<td>3.5</td>
<td>0.8</td>
<td>0.9</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>Wire on Buckle Plate</td>
<td>K</td>
<td>2.5</td>
<td>0.0</td>
<td>0.5</td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td>Wire on Buckle Plate</td>
<td>J</td>
<td>1.4</td>
<td>0.0</td>
<td>1.0</td>
<td>0.6</td>
<td></td>
</tr>
</tbody>
</table>

Table Appendix 2/1 Quantitative EDX analyses of silver rolls and wires on the buckle set from Graef 117
Table Appendix 3/1 Anglo-Saxon Migration Period cemeteries (some extending into the Conversion Period) from Saxon areas, with 20 or more individuals
### Table Appendix 3/Anglo-Saxon Migration Period cemeteries (some extending into the Conversion Period) from Saxon areas, with 20 or more individuals

<table>
<thead>
<tr>
<th>Region</th>
<th>Cemetery Name</th>
<th>Date of Burial</th>
<th>Region</th>
<th>Cemetery Name</th>
<th>Date of Burial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wessex</td>
<td>Charlton Plantation</td>
<td>1</td>
<td>Wessex</td>
<td>Black Patch</td>
<td>1</td>
</tr>
<tr>
<td>Hants</td>
<td>Portway, Andover</td>
<td>1</td>
<td>Hants</td>
<td>Pewsey, Black Patch</td>
<td>1</td>
</tr>
<tr>
<td>Dorset</td>
<td>Collingbourne Duds</td>
<td>1</td>
<td>Dorset</td>
<td>Kingsworthy, Worth Park</td>
<td>1</td>
</tr>
<tr>
<td>Hants</td>
<td>门户网站</td>
<td>1</td>
<td>Hants</td>
<td>Ellis</td>
<td>1</td>
</tr>
<tr>
<td>Wiltshire</td>
<td>Long Wittenham</td>
<td>1</td>
<td>Wiltshire</td>
<td>Kingsworthy, Worth Park</td>
<td>1</td>
</tr>
<tr>
<td>Wiltshire</td>
<td>Manton</td>
<td>1</td>
<td>Wiltshire</td>
<td>Ellis</td>
<td>1</td>
</tr>
<tr>
<td>Wiltshire</td>
<td>Long Wittenham</td>
<td>1</td>
<td>Wiltshire</td>
<td>Ellis</td>
<td>1</td>
</tr>
<tr>
<td>Wiltshire</td>
<td>Manton</td>
<td>1</td>
<td>Wiltshire</td>
<td>Ellis</td>
<td>1</td>
</tr>
<tr>
<td>Wiltshire</td>
<td>Long Wittenham</td>
<td>1</td>
<td>Wiltshire</td>
<td>Ellis</td>
<td>1</td>
</tr>
<tr>
<td>Wiltshire</td>
<td>Manton</td>
<td>1</td>
<td>Wiltshire</td>
<td>Ellis</td>
<td>1</td>
</tr>
</tbody>
</table>

**Notes:**
- Some cemeteries extend into the Conversion Period.
- Data compiled from various sources.
- Individual counts range from 20 or more.
<table>
<thead>
<tr>
<th>County</th>
<th>Site</th>
<th>Date</th>
<th>Zoned?</th>
<th>Metal Detected?</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northants</td>
<td>Easton</td>
<td>0</td>
<td>1570</td>
<td>4</td>
<td>Metal detected?</td>
</tr>
<tr>
<td>E Midlands</td>
<td>Greensboro</td>
<td>50</td>
<td>1570</td>
<td>1</td>
<td>No evidence of metal detected.</td>
</tr>
<tr>
<td>E Midlands</td>
<td>Greensboro</td>
<td>50</td>
<td>1570</td>
<td>1</td>
<td>Metal detected?</td>
</tr>
<tr>
<td>E Midlands</td>
<td>Greensboro</td>
<td>50</td>
<td>1570</td>
<td>1</td>
<td>Metal detected?</td>
</tr>
<tr>
<td>E Midlands</td>
<td>Greensboro</td>
<td>50</td>
<td>1570</td>
<td>1</td>
<td>Metal detected?</td>
</tr>
<tr>
<td>E Midlands</td>
<td>Greensboro</td>
<td>50</td>
<td>1570</td>
<td>1</td>
<td>Metal detected?</td>
</tr>
</tbody>
</table>

Table Appendix 3/2 Migration Period (some extending into the Conversion Period) cemeteries from Anglo-Saxon areas, with 20 or more individuals.
Table Appendix 3: Migration Period (some extending into the Conversion Period) cemeteries from Anglian areas with 20 or more individuals.
Table Appendix 3. Migration Period (some extending into the Conversion Period) cemeteries in East Kent and the Isle of Wight.
<table>
<thead>
<tr>
<th>CN</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>W-E</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>GN</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Name</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>References</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
</tbody>
</table>

### Table Appendix 7.4: Migration Period cemeteries (somewhat extending into the Conversion Period) in the Lower Thames Region

859
### Table Appendix 3/4: Migration Period cemeteries (some examined into the Conversion Period) in the Lower Thames Region

<table>
<thead>
<tr>
<th>Site</th>
<th>Period</th>
<th>Excavation Year</th>
<th>Finds</th>
<th>Features</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>SURREY</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shepperton, Upper West Field</td>
<td>1</td>
<td>1984</td>
<td>90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shepperton, Walton Bridge Green</td>
<td>II</td>
<td>1965</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Fetcham, Hawkhill</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guildford, Guildown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mitcham</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shepperton Green</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whitmorr Common, Worplesden</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wallington</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purley, Russell Hill</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purley, Riddlesdown Rd/Mitchley Avenue</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mickleham</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guildford</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ewell Downs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>East Horsley</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carshalton</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Banstead II</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Banstead I</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ashstead</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References:
Meaney 1964, 167; Longley and Poulton 1982; Meaney 1964, 168; Bidder and Morris 1959; Canham 1979; Poulton 1989, 220, 17; Smith 1907; Lowther 1931, 1933; Flower 1874b, Shaw 1970; Meaney 1964, 244; Farley 1973, 22-4; Meaney 1964, 243; Meaney 1964, 241; Meaney 1964, 240; Meaney 1964, 243; Meaney 1964, 238; Meaney 1964, 237; Meaney 1964, 237; Meaney 1964, 240; Meaney 1964, 244; Meaney 1964, 237; Meaney 1964, 237; Meaney 1964, 237.
Group
1small strings (not used)

1ry glass, Iryblue, 1ry
mono
see

=

=

= =

I

=

= = = = =

cn
-si
0*
-si a> at
Ci --1 * 8 2>

=

= = = = = = =

=

= = = - - Cemetery

cn
cn cn
§ ro
8

2

%-sitt

cn
cn
ro ro £

CO -s| o*

o
ro

IN FILL
IN FILL

blue
blue
blue

I
I

1
1
I

blue
blue
blue

blue

1
1
1

I

1
1
I

1

1
1

in fill
in fill

o*
ro 01 cn
0*

polychrome colours

(*>

- -

-

ro -

-

»

<•> -

ro -

Ol

ro

cn

Oh Oh

monochrome
gold-in-glass

o*
01
*

-

* * P %monochrome

to

ro polychrome
O

P p Pp P * p P

O
*

o
*

P

-

ro ro - ro Ol

- - -

-

Ol - - Ol amber

-

let

-

crystal

to -

other
1 60%

P

O
*

*

* Ol - a> Ul TOTAL

P

% other

1

I
I

Ol to at ro 01 Ol ro -

I 100%
I 100%

-* - - O) at

O
#

I

-

-si
*

I

fa) - -

at

I 100%

Ol -

1

CO ■sj o> s

I

2

P

01
Ol
*

1 100%

P

o
p#

1 50%

- o

o
*

I 100%

fa)

o
#

I
l
I

ro
Ul

o
*

I

p

-si o o
* * *

I 100%
I 100%
I 25%

P

to
£

I 100%

o o
*

33%

19%

o X
* * *
8

% polychrome
1 OTHER I

«o

o fit
01

POLYCHROME

cn

at

o

pP p

1

ro

p P P* p p

*

1 40%

-

-J
*

o

100% I

o
*

*

100%

*

-si

100% I

-o O
* *

o

I

ro

?

-si

p i cn
* P*

I 33%

ro a> uro

o
*

at
-si

*

1
I

a> at oi
* * *

to to

-si

I

P

-

at

33%

- - ci

I 67%

CO
* * S

s

P

I

1

1
1
o> ro -J

o
*

cn o

Oh

Ol o ro - o o ro o
1 50%

*

O) o o fa) -

! 33%

S

-

100%

CO
*

ro - o

I 100% I

a>

O -

I 33%

at 2
2
P * *

M -

1 100% I

*

w

100% I

c*
to 0» cn -sj o*
1 95%

1 50%
1 92%

s

100%

w
o> -j

MONOCHROME

*o

1

I
I

see muted monos

w
w-

monochrome colours

Table Appendix 8/1 The beadstrings from Mucking I and II

blue

=

I 125
I 281

blue

a
ro

1 530

355

blue

8

= =

578

548

CO
o>

884

-

I

=

975

=

cn

I 906

= = =
o>
oi
-si

928* I

=

1 566A 1

843
936 1

2
CO

648

= = =

861


Table Appendix B1. The beadstrings from Mucking I and II

<table>
<thead>
<tr>
<th>Type</th>
<th>Text</th>
<th>Count</th>
<th>Total</th>
<th>%</th>
<th>Text</th>
<th>Count</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown</td>
<td>120</td>
<td>120</td>
<td>100</td>
<td></td>
<td>Yellow</td>
<td>150</td>
<td>150</td>
<td>100</td>
</tr>
<tr>
<td>Red</td>
<td>50</td>
<td>50</td>
<td>100</td>
<td></td>
<td>Orange</td>
<td>10</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>Blue</td>
<td>20</td>
<td>20</td>
<td>100</td>
<td></td>
<td>Green</td>
<td>30</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td>White</td>
<td>70</td>
<td>70</td>
<td>100</td>
<td></td>
<td>Purple</td>
<td>10</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>Black</td>
<td>10</td>
<td>10</td>
<td>100</td>
<td></td>
<td>Total</td>
<td>360</td>
<td>360</td>
<td>100</td>
</tr>
</tbody>
</table>

*Note: All beadstrings were analyzed for color distribution and percentage.*
<table>
<thead>
<tr>
<th>Age</th>
<th>Juveniles</th>
<th>Adults</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-46</td>
<td>47</td>
<td>46</td>
<td>93</td>
</tr>
<tr>
<td>47-99</td>
<td>13</td>
<td>65</td>
<td>78</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>111</td>
<td>261</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% of age group with coffins/biers</th>
<th>1-25</th>
<th>26-50</th>
<th>51-75</th>
<th>76-100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inf/1-46</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5-9</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10-14</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>15-20</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>21-25</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>26-50</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>51-75</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>76-100</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Av. length of coffins/biers (m)</th>
<th>1-25</th>
<th>26-50</th>
<th>51-75</th>
<th>76-100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inf/1-46</td>
<td>1.22</td>
<td>1.13</td>
<td>1.10</td>
<td></td>
</tr>
<tr>
<td>5-9</td>
<td>1.23</td>
<td>1.46</td>
<td>1.45</td>
<td></td>
</tr>
<tr>
<td>10-14</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>15-20</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>21-25</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>26-50</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>51-75</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>76-100</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 4PP 19/1 The average length, numbers and percentages of coffins in relation to age groups in Mucking I and II.