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ARCHAEOLOGICAL EXCVAVATIONS UNDERTAKEN ALONG THE ROUTE OF THE MARKET DEEPING BYPASS

VOLUME 3
APPENDICES 7 - 13

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ARCHAEOLOGICAL
PROJECT
SERVICES

ARCHAEOLOGICAL EXCVAVATIONS UNDERTAKEN ALONG THE ROUTE OF THE MARKET DEEPING BYPASS

VOLUME 3
APPENDICES 7 - 13

Work Undertaken For
Environmental Consultancy Services

July 2000

Report compiled by Dale Trimble

APS Project Codes DBH97, DBEA97, DBEB97
DBF97, DBM97, DBS97, DBD97, DBB97, DCD97
DBI97, DBW97, DBC97

Planning Application Number S56/756/92
A.P.S. Report No. 2000/93

Appendix 7

Reports on the Roman pottery from sites 4 (DBF97) and 7 (DBD97) on the Market Deeping Bypass

by

Margaret Darling and Barbara Precious

REPORT 49 ON THE ROMAN POTTERY FROM MARKET DEEPING BY-PASS, DBF97

for HERITAGE LINCOLNSHIRE

by Margaret J. Darling, M.Phil., F.S.A., M.I.F.A.

13 May 1999

1 QUANTITY AND CONDITION

The total quantity of pottery amounted to 392 sherds, weighing 4.031kg, from 88 contexts. This has been archived to the standard recommended by the *Study Group for Roman Pottery*, with sherd count and weight measures; the computer archive is available on disk. The condition is fair, although abraded and fragmented scrappy sherds are common; there are no problems for long term storage.

A list of contexts and the date of the pottery is attached, Appendix 1. A summary of the quantities and latest dates by group is shown on Table 1.

Table 1 Pottery by group

Group		Sherds	Weight	Latest Date	Comments
2	Spread	5	44	1-2C?	Abrasion
10	Large pit	1	13	M2+	
11	Ridge & furrow	1	1	2C?	
14	Spread	5	38	L2M3?	Abrasion
15	Ditch	2	26	2-3C	Abrasion
24	Small pit	1	6	ROM?	
25	Irregular hollow	4	15	LIA/ROM	Abrasion
31	Irregular hollow	1	5	ROM	
33	Irregular hollow	1	6	M2+	
37	Gully	26	145	4C	
40	Surface finds	43	715	4C	Abrasion
42	Double burial	32	183	3C	Abrasion
43	Line of enclosure	8	153	L3-4	
44	Burials group	7	50	3C	
45	In roadside ditch	2	6	3C	
49	Recut enclosure ditch	41	479	4C	Abrasion
51	Recut enclosure as 49 & 59	9	94	2C?	Abrasion
58	Unstrat.	35	346	4C	Abrasion
59	Recut enclosure ditch	120	830	ML3-4	
60	Gully	5	48	2C?	
63	Post-hole	1	16	M2+	
70	Post-hole	1	5	ROM	Abrasion
72	Void cxt	2	31	M2+	Abrasion
76	Floor inside ring gully	1	2	ROM	
87	Spread	8	100	M3+	
93	Roadside ditch deposit	9	63	M2+	Abrasion
94	Recut ditch	19	541	EM3	Abrasion
95	NS ditch	2	70	EROM?	
	Total	392	4031		

A note of where abrasion has been noted on sherds is included.

Some pottery listed in the preliminary dating as Roman has not been seen, from contexts 1, 35, 153, 179, 444, 530, 1122, 1149, 1159, 1253, 1522, and 1532. Late Iron Age sherds occur in contexts 18, 22, 690, 703 and 1355.

20% of the pottery is unstratified. Much of the pottery is very difficult to date with any precision since the coarse pottery in the area has little strong dating evidence, arising from the paucity of published pottery. Dating tends to rest more firmly on products of the Nene Valley area, although even there, little is clearly dated amongst the grey wares. Most of the contexts are very small, often single sherds, and include small fragmented body sherds. The average sherd weight overall is only 10g. The highest average sherd weight from a group is from Group 40, surface finds, at 16.6g, but is largely due to Late Iron Age sherds from context 690, while the largest Group 59 from the enclosure ditch only averages 6.9g.

Apart from group 25 dated as Late Iron Age or early Roman, and Group 2 which included late Iron Age sherds together with a flaked fragment from a South Gaulish samian bowl, there is little evidence for early Roman activity. The sherds from Group 95 cannot be closely dated. Where 2nd-century dates have been suggested, this is based on single or just a few sherds, largely scrappy body sherds for which no close date can be applied. There are, however, six sherds of Central Gaulish samian, mostly of mid- to late-2nd-century date. The main evidence for Roman activity lies in the later Roman period, the 3rd and 4th centuries.

2 OVERVIEW OF FABRICS and VESSEL FORMS

The fabrics represented are shown in table 1. Expansion of the fabric codes are in Appendix 4.

Table 1 Fabrics

Fabric	Code	Sherds	%	Weight	%
Samian South Gaul	SAMSG?	1	0.26	2	0.05
Samian Central Gaul	SAMCG	6	1.53	55	1.36
Mortaria Nene Valley	MONV	2	0.51	102	2.53
Amphorae Dressel 20	DR20	1	0.26	205	5.09
Cream	CR	3	0.77	26	0.65
Pink	PINK	2	0.51	5	0.12
Oxidized light	OXL	2	0.51	29	0.72
Oxidized fine	OXF	2	0.51	6	0.15
Oxidized	OX	10	2.55	81	2.01
Koln colour-coated	KOLN?	1	0.26	1	0.02
Mosel colour-coated	MOSL?	1	0.26	1	0.02
Nene Valley colour-coated	NVCC	45	11.48	358	8.88
Nene Valley grey colour-coated	NVGCC	2	0.51	6	0.15
Grey fine	GFIN	4	1.02	25	0.62
Nene Valley grey ware	NVGW	58	14.80	703	17.44
Grey	GREY	127	32.40	964	23.91
Coarse	COAR	12	3.06	42	1.04
Grey minimal shell	GYMS	5	1.28	21	0.52
IA shell-gritted medium	IASH	3	0.77	144	3.57
IA shell-gritted coarse	IASHC	4	1.02	262	6.50
IA shell-gritted fine	IASHF	3	0.77	26	0.65
Dales ware	DWSH	4	1.02	81	2.01
Shell-gritted	SHEL	92	23.47	882	21.88
Vesicular	VESIC	1	0.26	2	0.05

Fired clay	FCLAY	1	0.26	2	0.05
Total		392	100	4031	100

The occurrence of vessel types according to fabric is shown in Appendix 2, with expansions of the vessel codes in Appendix 3.

A number of sherds appear to be of Late Iron Age date, including four vessels suitable for illustration (dwgs 4-7). A hand-made shell-gritted bowl, a surface find from Group 40 (SF 13, Dwg 6) seems more likely to be Iron Age, while a shell-gritted storage jar rim from Group 94 ditch (Dwg 4) is a type which could extend in use into the Roman period. A list of these vessels is attached.

The samian extends back to a single 1st century sherd, but the remaining few sherds are of 2nd-century date, and such sherds tend to occur commonly in 3rd century groups. Amphorae are represented by a single sherd of a Dressel 20, the fabric of which would be consistent with a 2nd-century date. Mortaria are exclusively from the Nene Valley kilns, one of which may be an earlier hooked type, while the reeded-flange type (Dwg 9) dates to the later 3rd to 4th century. Three sherds of cream flagon type fabric, and two sherds of the pink flagon type occur, the latter including the neck and possible lower ring of a probable ring-necked type; these could date to the 2nd century. A light oxidized flagon (Dwg 17) is also probably of later 2nd century date. The colour-coated fine wares include a probable KOLN beaker from Cologne, and a Nene Valley rough-cast beaker, both of which are more likely to be of 2nd century date, but not necessarily early. A GFIN fine grey rim (Dwg 16) may be from a copy of a samian form 37, probably of similar later 2nd century date.

Apart from the NVCC/NVGCC colour-coated ware, MONV mortaria and NVGW grey ware, the cream and pink flagon types and some of the undifferentiated grey wares are likely to be from the Nene Valley, consistent with the location of the site relatively close to this major kiln area. The code SHEL has been used for shell-gritted vessels of largely unknown source, although many were probably produced locally, including the kilns at Bourne, the jars including those with typical grooving or rilling on the shoulder (as Dwg 2). Abraded body sherds of indeterminate date are also recorded as SHEL.

The main evidence for the later activity lies in the Nene Valley colour-coated wares, which included later 3rd to 4th century types (as the dish Dwg 1), although there were no typically 4th century bowls. A GREY flanged dish (Dwg 3) is an unusual type, as is a bowl (Dwg 8) with scored decoration internally. Two definite sherds from a shell-gritted Dales ware jar occurred, a relatively rare occurrence in South Lincolnshire, and unlikely to arrive there from the source in the Humber area until the mid 3rd century or later.

3 DISCUSSION

This is a minor assemblage of Roman pottery, fragmentary and providing little strong evidence for activity except in the later Roman period, mainly the 3rd to probably the early 4th century. There are no vessels for which a latter 4th century date would be applicable. The date-range, however, extends back to the 1st century, and there are a number of vessels of 2nd century date, although none necessarily earlier than the mid 2nd century. This would suggest that there is no continuity of activity in the area between the Late Iron Age and the early Roman period. Although there is the problem of secure identification of pottery of the Conquest period, the single sherd of South Gaulish samian, certainly not of early Claudian or Neronian date, is insufficient evidence for such continuity.

The fabric and forms in the assemblage are consistent with what can be expected in this area in the later 2nd to early 4th century, and the sample is too small for any functional analysis.

A number of vessels should be illustrated. 15 vessels have been selected as worth illustration; these include four vessels which are more likely to derive from the Iron Age activity on the site, Dwg Nos. 4-7. A list of drawings is attached.

BIBLIOGRAPHY

Peacock, D.P.S. and Williams, D.F., 1986 *Amphorae and the Roman economy: an introductory guide*, London.

Tomber, R. & Dore, J., 1998 *The National Roman Fabric Reference Collection, A Handbook.* MoLAS Monograph 2.

APPENDIX 1

Quantities and dating by context and group

Cxt	Group	Sherds	Weight	Date	SFind	Comments
1355	2	5	44	1-2C?		Abraded
1003	10	1	13	M2+		
1028	11	1	1	2C?		
991	14	4	36	L2M3?		Abraded
1105	14	1	2	ROM		
1151	15	1	16	2-3C?		
1179	15	1	10	ROM		Abraded
1007	24	1	6	ROM?		
1207	25	4	15	L1A/ROM		
1357	31	1	5	ROM		Abraded
966	33	1	6	M2+		
536	37	3	16	4C PROB		
788	37	5	25	M2+		
809	37	5	16	2C?		
946	37	5	32	L3-4		
1123	37	8	56	2-3C		
GP40+13	40	1	109	4C?	<13>	
GP40+2	40	1	10	M3+	<2>	
100	40	1	16	ROM		Abraded
107	40	5	76	EM2?		Abraded
149	40	1	11	M2+		
406	40?	1	2	EROM?		
415	40	3	12	M2+		Abraded
483	40	1	6	ROM		
520	40	1	2	ROM		
568	40	3	11	ROM		Abraded
578	40	1	10	M2+		
690	40	7	349	L1A/EROM?		
1019	40	17	101	L3-4		Abraded
008	42	5	42	3C		Abraded
022	42	10	58	2C?		Abraded
546	42	17	83	3C PROB		
533	43	1	2	ROM		
895	43	7	151	L3-4		
014	44	5	37	3C		
018	44	1	6	L1A/EROM?		
026	44	1	7	ROM		
1060	45	2	6	3C		
1323	49	2	10	M2+		
1324	49	1	12	ROM		
1352	49	18	187	L3-4		
1484-5	49	8	80	4C		Abraded
1488	49	12	190	3C?		Abraded
1218	51	2	13	2C?		
1363	51	2	24	L1E2?		
1371	51	2	16	2C?		
1398	51	3	41	2C?		Abraded
1678	58	6	165	4C		
1679	58	1	2	L3-4		
1680	58	5	35	M2+		Abraded
1682	58	1	6	L3-4?		
1683	58	3	28	M2+		Abraded
1685	58	1	3	ROM		

1687	58	2	10	ML3+	
1688	58	14	89	ML3	Abraded
1690	58	1	7	ROM?	
1691	58	1	1	ROM	
703	59	85	270	L3-4	
724	59	17	301	M2+	
725	59	13	77	L2+	
734	59	1	112	M2+	
806	59	1	2	ROM	
865	59	1	19	1-2C?	
880	59	1	37	M2+	
900	59	1	12	ML3-4	
154	60	3	42	2C?	
1507	60	2	6	ROM	
158	63	1	16	M2+	
709	70	1	5	ROM	Abraded
1556	72	2	31	M2+	Abraded
1263	76	1	2	ROM	
928	87	3	8	EM3	
1222	87	2	81	LIA/ROM	
1421	87	1	1	M3+	
1673	87	1	5	L3-4	
1674	87	1	5	ROM	
1341	93	3	12	M2+	Abraded
1483	93	6	51	1-2C?	
1342	94	1	9	M2+	
1344	94	1	11	ROM	
1346	94	1	3	ROM	
1354	94	5	228	3C	Abraded
1400	94	7	125	3-4C?	
1413	94	1	7	EM3	
1454	94	1	5	M2+	Abraded
1547	94	1	136	1-2C	
1552	94	1	17	M2+	Abraded
1188	95	2	70	EROM?	
Total		392	4031		

Notes: GP40+2 and GP40+13 are sherds without contexts, from Group 40, S.Finds nos. 2 and 13.

APPENDIX 2

Vessel types by fabric

Fabric	Form	Sherds	Weight
COAR	-	11	31
COAR	CLSD	1	11
CR	CLSD	3	26
DR20	A	1	205
DWSH	JDW	2	40
DWSH?	J	2	41
FCLAY?	-	1	2
GFIN	-	2	4
GFIN	B37?	1	15
GFIN	CLSD	1	6
GREY	-	77	377
GREY	B	3	40
GREY	BD	1	1
GREY	BD	2	12
GREY	BFL	1	20
GREY	BKEV	1	7
GREY	BNK?	1	8
GREY	CLSD	9	77
GREY	DFL	7	125
GREY	J	3	73
GREY	J	4	14
GREY	JB	6	61
GREY	JB	1	7
GREY	JBCUR	1	16
GREY	JBEV	1	8
GREY	JBK	1	67
GREY	JEV	1	6
GREY	JNN	2	25
GREY	JNN	1	3
GREY	OPEN?	1	4
GREY	-	1	2
GREY	CLSD	1	7
GREY	JBEV?	1	4
GYMS	-	1	5
GYMS	-	4	16
IASH	BNK	2	85
IASH	JS?	1	59
IASHC	-	4	262
IASHF	-	1	5
IASHF	OPEN?	1	5
IASHF	-	1	16
KOLN?	BK	1	1
MONV	MRF	1	62
MONV?	MHK?	1	40
MOSL?	BK	1	1
NVCC	-	6	16
NVCC	BD?	1	5
NVCC	BK	4	9
NVCC	BK	3	3
NVCC	BKFB	1	1
NVCC	BKRC	1	2
NVCC	BPL	1	34
NVCC	BX?	1	2
NVCC	CLSD	6	29
NVCC	CLSD	1	2
NVCC	DPR	9	125
NVCC	FS	1	8
NVCC	JB	2	23
NVCC	JB	3	38
NVCC	JBEV	3	42
NVCC	JUG	1	2
NVCC	OPEN?	1	17
NVGCC	-	1	2
NVGCC	BD?	1	4
NVGW	-	32	389
NVGW	CLSD	1	5
NVGW	JB	5	144
NVGW	JB	6	62
NVGW	JBK	1	2
NVGW	JBK	2	8
NVGW	-	6	26
NVGW	BD	2	10
NVGW	CLSD	1	37
NVGW	JBK	1	1
NVGW	JSQ	1	19
OX	-	3	8
OX	CLSD	1	3
OX	CLSD	2	37
OX	J?	2	22
OX	JB	2	11
OXF	-	1	5
OXF	BK?	1	1
OXL	CLSD	1	2
OXL	F	1	27
PINK	CLSD	1	2
PINK	FR?	1	3
SAMCG	18/31 OR 31	1	5
SAMCG	31R	4	42
SAMCG	33	1	8
SAMSG?	R12 OR CU11	1	2
SHEL	-	41	135
SHEL	BFL	1	109
SHEL	J	13	99
SHEL	J	14	100
SHEL	JB	2	33
SHEL	JB	1	6
SHEL	JBEV	1	11
SHEL	JCUR	2	15
SHEL	JEV?	1	2
SHEL	JL/JS	1	18
SHEL	JS	1	136
SHEL	JTR	12	200
SHEL	-	1	16
SHEL	JEV?	1	2
VESIC	JBK	1	2
Total		392	4031

APPENDIX 3

Expansions of Vessel Type Codes

Code	Form
18/31 OR 31	Samian dish
31R	Samian bowl
33	Samian cup
A	Amphora
B	Bowl
B37?	Bowl imit. samian 37
BD	Bowl or dish
BFL	Bowl flanged
BK	Beaker
BKEV	Beaker everted rim
BKFB	Beaker funnel-neck with bead
BKRC	Beaker rough-cast
BNK	Bowl necked
BPL	Bowl or plate
BX?	Castor box
CLSD	Closed form
DFL	Dish flanged
DPR	Dish plain rim
F	Flagon
FR?	Flagon ringed
FS	Flask
J	Jar
JB	Jar or bowl
JBCUR	Jar or bowl curved rim
JBEV	Jar or bowl everted rim
JBK	Jar or beaker
JCUR	Jar curved rim
JDW	Jar dales ware type
JEV	Jar everted rim
JL/JS	Jar large or storage
JNN	Jar narrow-necked
JS	Jar storage
JSQ	Jar square rim
JTR	Jar triangular rim
JUG	Jug
MHK?	Mortarium hooked rim
MRF	Mortarium reeded-flange
OPEN?	Open form
R12 OR CU11	Samian Ritterling 12/Curle 11 bowl

APPENDIX 4

FABRICS DEFINITION

Publication of *The National Roman Fabric Reference Collection*, abbreviated NRFRC (Tomber and Dore 1998), obviate the need to describe the major imported and widely traded Romano-British wares in detail.

Code	Fabric
COAR	Coarse tempered fabrics, usually in a Iron Age pottery tradition, often poorly mixed clay with quartz, limestone, grog and other inclusions.
CR	Cream, miscellaneous cream wares. Sherds attributed to a fabric group rather than a discrete fabric, mostly from flagons or closed forms. Most of these are likely to be from local Nene Valley kilns.
DWSH	Shell-gritted dales ware jars, hand-made and wheel-finished from sources in north Lincolnshire around the Humber area. **NRFRC DAL SH**
DR20	Amphorae Dressel 20 amphorae. Peacock & Williams 1986 Class 25; **NRFRC Baetican (Early) Amphorae 1 BATAM1; (Late) Amphorae 2 BATAM 2 (3)**
GFIN	Grey fine. This coding is used for reduced fabrics lying between the common quartz-gritted GREY used for most jars and bowls, and the very fine fabrics used for London-type ware and Parisian ware.
GREY	Grey, undifferentiated quartz-gritted grey fabrics, hard wares with sparse to common quartz inclusions.
GYMS	A fabric group to cover sherds, usually wheel-made, grey with minimal very sparse shell inclusions. Normally from vessels typical of the later Iron Age, but possibly continuing into the early Roman period.
IASH, IASHF, IASHC	IA type medium, fine and coarse shell-gritted according to size of shell inclusions, probably hand-made and/or wheel-finished.
KOLN	Colour-coated wares from Cologne, very similar to Nene Valley colour-coated ware. Usually 2nd century. **NRFRC: KOL CC**
MONV	Mortaria Lower Nene Valley **NRFRC : LNV WH**
MOSL	Colour-coated beakers from Trier, later 2nd into the 3rd century. **NRFRC: MOS BS**
NVCC	Nene Valley colour-coat **NRFRC = LNVCC**
NVGCC	Nene Valley grey colour-coat, as NVCC but with grey colour coating.
NVGW	Nene Valley Grey ware, fabric similar to NVCC, usually slightly coarser, fired in reducing conditions to produce light grey, often mottled, surfaces.
OX	Oxidized, miscellaneous oxidized wares. This coding comprises all miscellaneous oxidized sherds, usually in varying red-brown shades and degrees of grittiness, for which no significant fabric groupings are evident.
OXF	Oxidized fine texture fabrics, not a discrete fabric.
OXL	Oxidized lighter red-brown. Fabrics in light cream-brown shades, usually relatively fine-textured, often used for flagons.
PINK	Pink fabrics, usually for closed forms, probably a variant CR fabric.
SAMSG	Samian South Gaulish, from La Graufesenque. **NRFRC: LGF SA**
SAMCG	Samian Central Gaul, from Lezoux. **NRFRC : LEZ SA**
SHEL	Shell-gritted, miscellaneous shell-gritted ware, probably of local origin. Some are probably from the kilns at Bourne.
VESIC	Vesicular, vesicular sherds, probably due to loss of shell-gritting.

Grp		Cxt	Fab	Form	Manuf+	Vess	D?	DNo	Details
49	Enc. ditch	1352	NVCC	DPR	-	1	D	01	COMP PROF;LTBN FAB;RB CC
49	Enc. ditch	1488	SHEL	JTR	-	1	D	02	RIM/BODY;GROOVED SHLDE;GRYBN BOURNE
94	Recut ditch	1400	GREY	DFL	-	1	D	03	COMP PROF OCC SHELL
94	Recut ditch	1547	SHEL	JS	-	-	D	04	RIM>SHLDR;RB;COARSE SHELL
40	Surface finds	GP40+13	SHEL	BFL	HM?	-	D	05	RIM/WALL <13> 4C?
40	Surface finds	690	**IASH**	BNK	HM	1	D	06	RIM/WALL;GROOVED;LTBN
40	Surface finds	690	**IASHC**	-	HM	1?	D	07	RIM/WALL;BS;LTBN;DKGRY INT;OUTFLARING CP
58	Unstrat	1678	GREY	BFL	SCRDL	-	D	08	RIM/WALL;OPPOSING TWIN SCORED DIAG LINES INT
58	Unstrat	1678	MONV	MRF	-	-	D	09	RIM;PT SPOUT
58	Unstrat	1682	SHEL	JB?	-	-	D	10	UNUS RIM LID SEAT;LTBN;OOLITHS
51	Enc. ditch	1363	GREY	BKEV	-	-	D?	11	RIM/SHLDR
49	Enc. ditch	1484-5	NVCC	JBEV	-	1	D?	12	RIMS/SHLDR SH;ABR
51	Enc. ditch	1398	GREY	JNN	-	1	D?	13	RIM CURVED OVER/NECK
59	Enc. ditch	865	NVGW?	JSQ	-	-	D?	14	RIM SQUARISH;NCKLESS;GROOVES ?HP
58	Unstrat	1678	NVCC	JB	-	-	D?	15	RIM FR;SQUARISH;CR FAB
58	Unstrat	1683	GFIN	B37?	-	-	D?	16	RIM>GROOVE ONLY
42	Surface finds	546	OXL	F	-	-	D?	17	RIM FRAG;BURNISHED
15	WE ditch	1151	GREY	JBCUR	-	-	D?	18	RIM FRAG ONLY;LTGRY

Cxt	Fab	Form	Manuf+	Vess	D?	DNo	Details	Links	Shs	Wt
1547	SHEL	JS	-	-	D	04	RIM>SHLDR;RB;COARSE SHELL	-	1	136
GP40+13	SHEL	BFL	HM?	-	D	05	RIM/WALL <13> 4C?	-	1	109
690	IASH	BNK	HM	1	D	06	RIM/WALL;GROOVED;LTBN	-	2	85
690	IASHC	-	HM	-	-	-	BASE 100%;RB W BURNT INT	-	1	187
690	IASHC	-	HM	-	-	-	BS LGE VES;DKGRY;RB SURFS	-	1	37
690	IASHC	-	HM	1?	D	07	RIM/WALL;BS;LTBN;DKGRY INT;OUTFLARING CP	-	2	38
703	IASHF	-	HM	-	-	-	SHLDR? FRAG;?BURNISH <33>	-	1	5
1019	IASHF?	-	-	-	-	-	BS;FINE SM.SHELL;OX EXT;DKGRY INT	-	1	16
1222	IASH	JS?	-	-	-	-	FLAKED RIM;VESSEL FM?	-	1	59
1355	IASHF	OPEN	HM	-	-	-	RIM FR;VSPARSE SHEL;MUCH RED IRON ORE?	-	1	5
									12	677

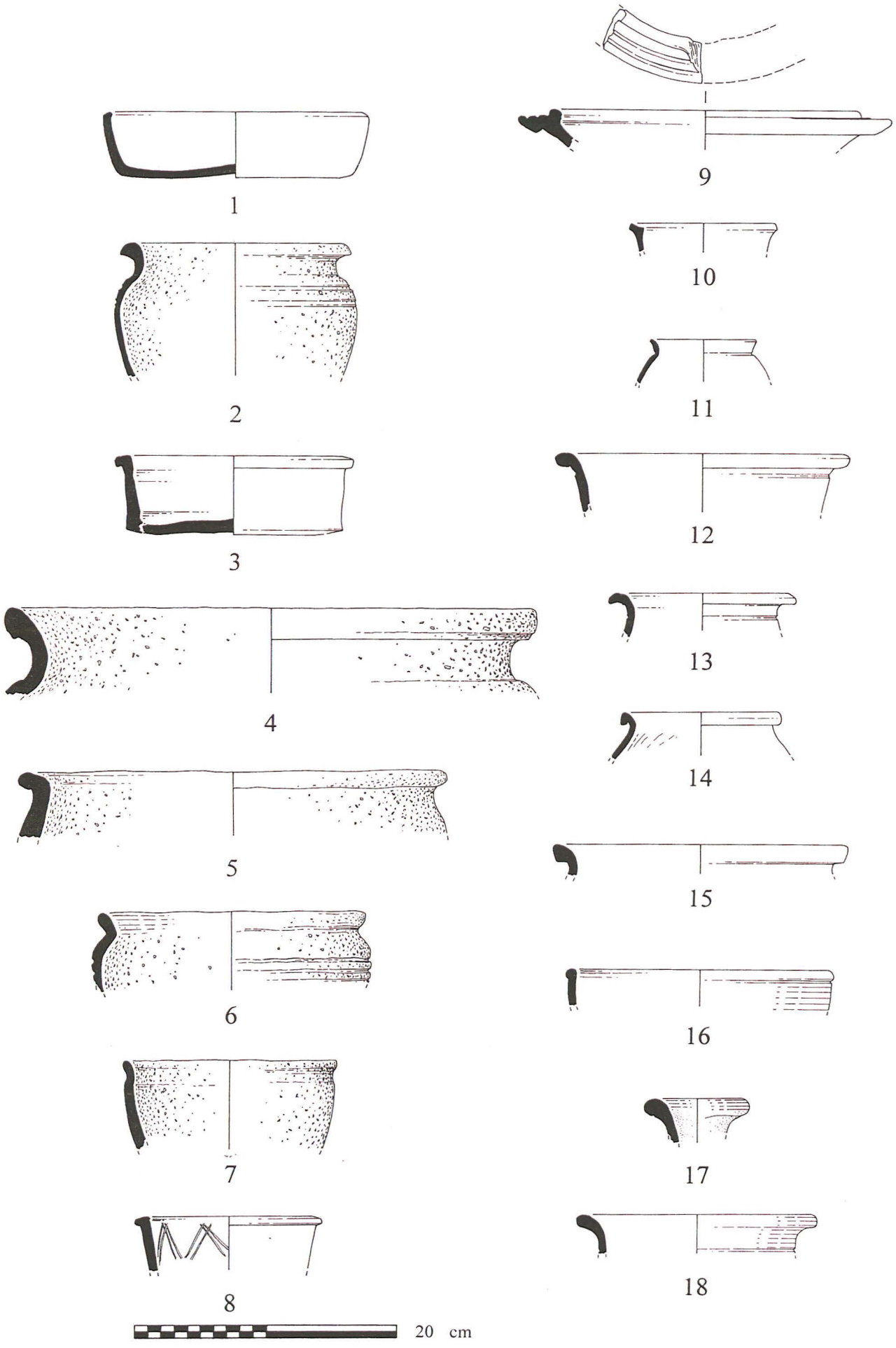

Figure 1 Site 4 (DBF97) Roman pottery

An assessment of the Roman Pottery from DBD97 for Dale Trimble APS

B J Precious

15/07/98

Introduction

The site produced a small assemblage of pottery, 1 large box, the majority of which consisted of Early to mid Iron Age ceramics, which has been passed to Elaine Morris at Southampton. In addition there was a small amount of fired clay, slag, charcoal and burnt stone which may have been the result of industrial activity, possibly iron-smelting. Most of this material came from contexts with Iron Age pottery. This material has been passed to Jane Cowgill, South Rauceby, Lincs, for analysis.

Roman pottery was present and consisted of 72 sherds in total. This material has been recorded according to the guideline for a basic ceramic archive set down by the Study Group for Roman Pottery (see - Appendix 1: The site Archive - DBD97- Roman Pottery). The majority of the sherds came from very small groups and therefore the dating is, in some cases broad. However, there were a number of diagnostic sherds that can be paralleled with Roman pottery excavated from Normangate Field, Castor, Peterborough, 1962-3 (Perrin & Webster, 1990).

Dating

The Roman pottery was found together with Iron Age material, which was scattered throughout the site. A small amount of the Iron Age pottery included neck-jars in a black, shell-tempered fabric which may date to the Conquest period (contexts 18, 22, & 55). Other evidence for early Roman occupation is equally, minimal and consists of a Nene Valley Cream Ware (NVCR), flanged flagon (context 35) and 1st century samian, c AD 60-100, from the unstratified material.

There is a small amount of material which may date from the later 1st to the 2nd century, but this is based on single occurrences of early grey wares (NVGY- contexts 22, 48*, & 109). There was single shell-tempered jar, paralleled at Normangate Field, where it was dated from the early to mid 2nd century (context 61). A slightly larger amount of mid to late 2nd century pottery, also paralleled at Normangate Field occurred in contexts 17, & 18. Pottery of at least this date and possibly later came from contexts 48, 52, 62 & 107. A single sherd of Central Gaulish samian from the unstratified material is also of this date. Context 60 produced a necked jar in Nene Valley Grey Ware (NVGW) which is dated at Normangate Field from the later 2nd to the mid-3rd century. Other broadly 3rd century pottery came from the unstratified material.

Function

The groups are too small to provide specific functional information. The presence of a few only two sherds of samian suggests a modicum of status, but there are no other fine wares from the site. The principle fabric consists of Nene Valley Grey Wares (NVGW), which are relatively fine and may have been used as oven to table wares. In addition to this ware there are a few sherds of early grey wares (NVGY) and shell-tempered wares (SLSH) similar to those produced at the Bourne kilns, which were almost certainly used for cooking.

Potential

The secure dating of the site is enhanced by the small amount of Roman sherds which can be paralleled from Normangate Field. However, as mentioned above, much of the Roman pottery occurs as only small groups, including single sherds. Although there is a high proportion Iron Age pottery from the site, it occurs with sherds of Roman pottery that is, in some cases, considerably later. This together with the presence of post-Roman pottery suggests that much of the material was disturbed.

There are four vessels which require illustration (contexts 17, 35, 60, & 61).

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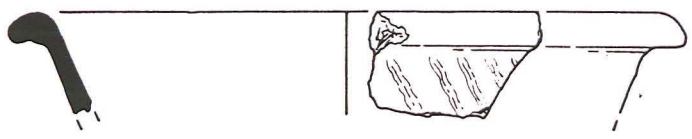
Perrin, J R & Webster, G Dr, 1990, Roman Pottery from Excavations in Normangate Field, Castor, Peterborough, 1962-3, *Journal of Roman Pottery Studies, Vol 3.*, Oxbow Books.

CONTEXT	FABRIC	FORM	DEC	VESS	DRAW	COMMENTS	SHS
17	NVGW					BS ABR	1
17	NVGW	BTR	BDL		D1	RIM FRESH CF FIG7 NO89 PERRIN & WEBSTER	1
17	ZDATE					ML2	
17	ZZZ					INCLUDES 15 IA SHS; FIRED CLAY	
18	CR	F?				BSS ABR	2
18	GREY					BS ABR	1
18	GREY	J				BS SILTY NVGY?	1
18	OX	JB				RIM FLAKE	1
18	SLSH	J				BS BOURNE? RED BN GROOVED SHLDR FRESH	1
18	GYMS	J		1		RIM BSS MIN SHEL ABR	3
18	SLSHF	JCUR	HM	1		RIM BS IA/CONQUEST PERIOD	2
18	ZDATE					ML2	
18	ZZZ					MIX DATES DATED ON BOURNE TYPE;FIRED CLAY; 14 IA SHS;CHARCOAL	
22	NVGY					BS BURNT ABR	1
22	ZDATE					L1-2	
22	ZZZ					INC 2 SHS IA/CONQUEST SHEL NJ CF CXT 18	
35	NVCR	F		1	D2	RIMS NECK WORN 1C	5
35	NVGW					SCRAP	1
35	NVGY	J				BS ABR	1
35	NVGY	J				BS BURNT ABR	1
35	ZDATE					ML2+	
35	ZZZ					MIX DATES;7 IA SHS;CONQUEST PERIOD; 1C FLAGON;DATE ON NVGW	
48	NVGW					BS ABR THICK	1
48	NVGW	JBK				RIM FRAG	1
48	ZDATE					ML2+	
48	ZZZ					INC 3 IA SHS	
48*	NVGY?					BS	1
48*	ZDATE					L1-2?	
48*	ZZZ					INC 2 IA SHS	
52	SLSH	JB				RIM FRAG RED BN	1
52	ZDATE					2+	
52						INC IA SHS	
60	NVGW	JCUR		1	D3	RIM BSS J CF FIG 14 N0 231 PERRIN & WEBSTER	6
60	GREY	J				BS SILTY BURNT	1
60	GREY	BWM				RIM BURNT ABR	1

	60	ZDATE					L2M3	
	60	ZZZ					INC IA SHS	
	61	SLSH	JCUR		1	D4	RIMS BS GROOVED SHLDR CF FIG 5 NO 55 PERRIN & WEBSTER	3
	61	ZDATE					EM2	
	61	ZZZ					INC 5 SHS IA POT	
	62	NVGW			1		BSS VABR	4
	62	ZDATE					ML2+	
	99	GREY					BS ABR	1
	99	ZDATE					2-3+	
	99	ZZZ					INC FIRED CLAY	
	107	NVGW					BS VABR	1
	107	NVGY					BS	1
	107	ZDATE					ML2+	
	107	ZZZ					INC IA SHS	
	109	NVGY					BS VABR	1
	109	ZDATE					L1-2	
+		GREY	JCUR		1		RIMS BS SANDW ABR	3
+		NVGW	J				BASE	1
+		NVGW	BTR			D?	RIM NECK	1
+		NVGW	CLSD		1		BASE BSS THICK ABR	4
+		NVGW	JBK		1		BSS THIN VABR	2
+		NVGW	BTR			D?	RIM GIRTH	1
+		NVGW	J	ROUL	1		BSS VABR	4
+		GREY	BWM?		1		BSS THICK GROOVE BAR	2
+		GREY					BS	1
+		NVGY?					BS THIN	1
+		OX					FRAG BURNT ?ROM	1
+		SLSH			1		BSS	2
+		GREY	J				BASE COARSE	1
+		SHEL	JB				RIM NECK VABR SLSH?	1
+		SAMSG	18R?				BASAL BS 1C	1
+		SAMCG	D?				BS ABR ML2	1
+		ZDATE					3+	
+		ZZZ					MIX DATES 1C SAM; 1SH MPOT W ROM; INC IA SHS; POSTRO;FIRED CLY	
		TOTAL					ROMAN POTTERY	72

1	ZZZ					FIRED CLAY	
8	ZZZ					BURNT STONE	
9	ZZZ					IA? SHS	
12	ZZZ					FIRED CLAY; CHARCOAL;BURNT STONE;LGE GRP EM IA SHS	
20	ZZZ					IA? SHS	
34	ZZZ					FIRED CLAY	
46	ZZZ					FIRED CLAY;SLAG;EM IA SHS GD GRP;BURNT STONE; POSTRO POT	
54	ZZZ					POSTRO POT	
55	ZZZ					16 IA SHS INC CONQUEST PERIOD NJ - RIM BS	
58	ZZZ					IA SHS	
59	ZZZ					IA SHS	
66	ZZZ					IA SHS	
67	ZZZ					IA SHS	
72	ZZZ					POSTRO POT	
80	ZZZ					IA SHS; POSTRO POT; FIRED CLAY	
95	ZZZ					POSTRO POT	
98	ZZZ					POSTRO POT; IA SHS	
104	ZZZ					IA SHS	
108	ZZZ					IA SHS	
111	ZZZ					IA SHS	
114	ZZZ					IA SHS	
117	ZZZ					IA SHS	
118	ZZZ					IA SHS;FIRED CLAY	
120	ZZZ					IA SHS	
+	ZZZ					SLAG;BURNT STONE+G73	



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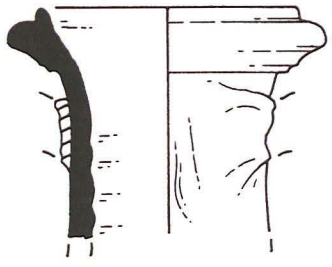

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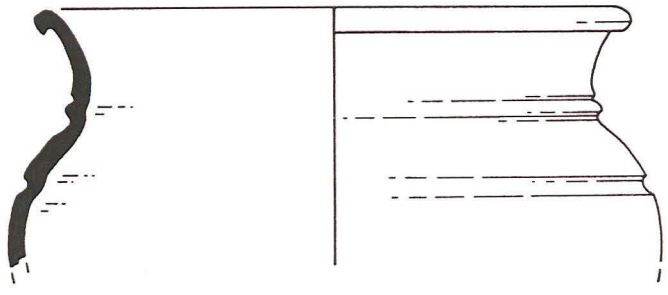

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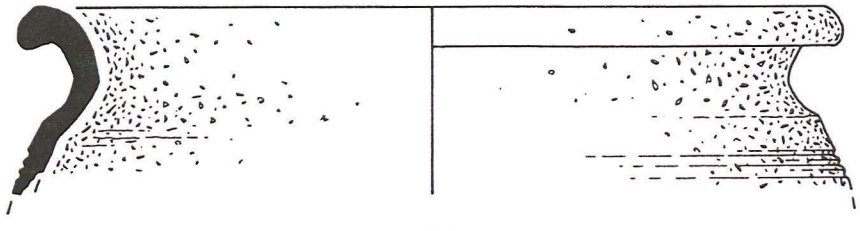

4

15 cm

Figure 1 Site 7 (DBD97) Roman pottery

Appendix 8

Report on the Early Saxon pottery from Site 4 (DBF97) on the Market Deeping bypass

by

Jane Young

The Anglo-Saxon pottery from dbf97

J Young

CLAU, December 1998

1. Introduction

A small amount of Anglo-Saxon pottery (154 sherds weighing 1377 grams) was recovered from the site. Since the assemblage was limited in quantity, very mixed in character and sherd size was small (average sherd weight of 9 grams), there are severe limitations on the conclusions to be drawn from the material. Further constraints are added by the number of stratigraphically isolated features from which the pottery was recovered. The basic ceramic data for each context grouping is presented in table 1. Only four sherds exhibited post-depositional wear, the remaining pottery was of fresh condition, probably remaining close to where it had originally been deposited. Only one inter-contextual sherd join was noted.

Table 1. DBF97 POTTERY: Range of fabrics present by context group (based on sherd count)

Group	CHARN	SST	FE	ESAXLOC	LIM	ECHAF	Total
02	1	2	0	0	0	0	3
06	2	1	1	0	0	0	4
07	0	0	0	2	0	0	2
08	0	6	1	4	0	0	11
09	0	0	1	0	0	0	1
10	2	1	0	0	0	0	3
14	1	1	0	0	1	0	3
24	1	0	0	1	0	0	2
25	16	7	0	0	1	0	24
26	12	5	0	1	1	0	19
29	0	0	1	0	0	0	1
39	0	0	0	0	1	1	2
40	5	8	1	1	0	0	15
42	2	7	0	2	1	0	12
43	0	0	0	0	1	0	1
46	1	0	0	0	1	0	2
58	8	12	1	5	3	0	29
59	4	2	0	0	1	0	7
60	0	1	0	0	0	0	1
61	0	1	0	0	0	0	1
64	0	0	1	0	0	0	1
87	2	0	0	0	1	0	3
90	1	0	0	0	0	0	1
94	3	2	0	0	1	0	6
Total	61	56	7	16	13	1	154

2. Methodology

The pottery was examined under x20 binocular microscope and sherds were assigned to one of several different fabric types, based on the dominant tempering agent. Sub-fabrics were given for the sandstone-tempered (SST) and local quartz-tempered fabrics (ESAXLOC), more detailed descriptions of other fabrics were given in the comments field of the archive where appropriate. The pottery was quantified by the number and weight of sherds within a maximum vessel count for each context (each line in the archive represents a separate vessel within each context).

3. The pottery

The pottery is entirely comprised of hand-made domestic vessels in a number of fabrics. The vessels, with the exception of some Charwood-types (CHARN), are mainly hard-fired, have a sandy to slightly gritty texture and are reduced (some oxidized vessels do occur). A variety of finishing techniques was employed including finger-smoothing and burnishing. None of the vessels appear to have been decorated.

Six main fabric types were identified and these are described briefly below. More detailed fabric divisions were possible for the sandstone (SST - 20 sub-fabrics) and local fabrics (ESAXLOC - 4 sub-fabrics), for detailed descriptions of these sub-fabrics see appendices 3 and 4.

Charnwood-type fabrics (CHARN)

This fabric grouping was first recognised in a study by John Walker in the mid-1970s (Walker 1976). This study showed that although the most likely ultimate source of the temper was the Charnwood Forest inlier, immediately to the northwest of Leicester, there was also the possibility of widespread movement of granitic rock fragments through glacial and post-glacial action. More recent study as part of the East Midlands Anglo-Saxon Pottery Project indicates that there is a strong possibility that the igneous rock tempered pottery of the early Anglo-Saxon period found in the East Midlands does contain inclusions ultimately derived from the Mountsorrell granite in the Charnwood Forest and suggests that the actual source or sources utilised by the Anglo-Saxon potters lay to the south or southwest of the Forest (VINCE 1991, 1992, 1993 and 1994).

A total of 61 sherds in this fabric (representing a maximum of 45 vessels) were recovered from the site. All the vessels are tempered with very sparse to abundant, coarse to fine fragments of acid igneous rock. Other inclusions are diverse and include in varying amounts: sandstone, calcite, oolitic limestone, shell,ironstone and chaff.

There is considerable variation in the surface texture and colour of these fabrics. This appears to be due, not only to the firing temperature, but also to the varying amounts and coarseness of acid igneous rock fragments added as temper. Surface texture ranges from smooth to gritty and colour from bright oxidized through pale reduced to dark reduced.

The small size of many of the sherds precludes identification of specific form types in all but eight of the vessels. These eight vessels can all be identified as jars, with one small and one large example occurring.

Sandstone-tempered fabrics (SST)

Sandstone-tempered fabrics are a common early-to-mid Anglo-Saxon ceramic tradition throughout the East

Midlands and north of the Humber. The sources of this fabric group are at present unknown, although the amount of variation in fabrics suggests a number of centres involved in their production. Further study by scientific means is needed to determine whether there are real petrological differences between the different visible subdivisions or if other factors, such as chronology, also play a part.

Table 3. DBF97 POTTERY: Range of SST sub-fabrics present by context group (based on sherd count)

	02	06	08	10	14	25	26	40	42	58	59	60	61	94	Total
FABRIC 1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
FABRIC 2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
FABRIC 3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
FABRIC 4	0	0	0	0	0	4	0	3	0	0	0	0	0	0	7
FABRIC 5	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
FABRIC 6	0	0	2	0	0	0	0	1	0	2	0	0	0	0	5
FABRIC 7	1	0	0	0	0	2	0	2	1	1	0	0	0	0	7
FABRIC 8	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
FABRIC 9	0	0	2	0	0	0	0	1	0	0	0	0	0	0	3
FABRIC 10	0	0	2	0	0	0	0	0	0	0	1	0	0	0	3
FABRIC 11	0	0	0	0	0	0	4	0	0	1	0	0	0	0	5
FABRIC 12	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
FABRIC 13	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
FABRIC 14	1	0	0	0	0	0	0	0	1	1	0	0	1	1	5
FABRIC 15	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
FABRIC 16	0	0	0	0	0	0	0	0	0	3	1	0	0	1	5
FABRIC 17	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
FABRIC 18	0	0	0	0	1	0	0	0	0	1	0	0	0	0	2
FABRIC 19	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
FABRIC 20	0	0	0	1	0	0	0	0	1	0	0	0	0	0	2
Total	2	1	6	1	1	7	5	8	7	12	2	1	1	2	56

This fabric grouping was represented on the site by 56 sherds (a maximum of 46 vessels), in 20 distinct, different fabric sub-groupings. The distribution of these groupings by context group is shown in table 2. Not all of the quartz sand inclusions are immediately obvious as being derived from sandstones, as although the majority of sub-fabrics contain aggregated material, the actual amount of sandstone in some of the fabrics is often quite small. Vessels include those tempered with fine, medium and coarse sandstones. There is considerable variation in the other inclusions that occur along with the sandstone, these other inclusions include chaff, calcareous grains (mainly oolitic), iron-rich grains, and muscovite. At the coarse end of the fabric range the quartz sand grains are about 1.5-2.5mm and at the finer end 0.2-0.4mm.

Colours are mostly reduced greys although some vessels have oxidized bright orange or red surfaces and one vessel was entirely oxidized. The surface texture varies from smooth to gritty, depending on the coarseness of the fabric. Only one vessel shows any sign of a burnished finish and two further vessels have finger-smoothed surfaces.

Few vessel types can be identified. With the exception of one bowl, all identified forms are simple jars, mainly of small to medium size (10-16 cms diameter).

Local Anglo-Saxon fabrics (ESAXLOC)

All fabrics are tempered with moderate sub round to round quartz sand. Other inclusions include moderate ooliths, occasional chaff and occasional iron-rich grains. Four distinctive sub-groupings were identified and the distribution of these groupings by context group is shown in table 3.

Table 3. DBF97 POTTERY: Range of ESAXLOC sub-fabrics present by context group (based on sherd count)

	07	08	24	26	40	42	58	Total
FABRIC 1	0	2	0	0	0	1	1	4
FABRIC 2	2	0	1	0	1	1	2	7
FABRIC 3	0	2	0	0	0	0	0	2
FABRIC 4	0	0	0	1	0	0	2	3
Total	2	4	1	1	1	2	5	16

No scientific fabric analysis has taken place on fabrics from the surrounding area. Thin section analysis of similar fabrics from Lincoln suggests a Trent valley or Witham valley (west of the Witham gap) source (Vince & Yong forthcoming). The surface texture of these fabrics is mainly sandy although a few examples have been slightly smoothed. Colours are typically reduced greys with very dark grey or black surfaces.

The form of only one vessel can be identified, this is a small bowl in Fabric 2 with a simple rounded upright rim.

Oolitic-tempered fabrics (LIM)

This fabric is distinguished by the presence of abundant grains of oolite in a reduced grey fabric often with red brown surfaces. This fabric is fairly common in South Lincolnshire where it is found on both Early and Middle Saxon sites.

Only 13 sherds in this fabric were recovered from the site, although most of the other fabric groupings also contained sherds with oolitic inclusions. The fabric contains abundant rounded oolitic or pelletal limestone fragments up to 0.7mm across, often together with other inclusions (chaff, iron-rich grains, limestone, sub-rounded quartz and very occasinal aggregated sandstone). A single sherd shows signs of finishing and this has been finger smoothed. No vessel types were discernible.

Iron-rich tempered fabrics (FE)

Seven sherds tempered with abundant large fragments of ironstone or possibly iron slag were found on the site. Additional inclusions are; çhaff, oolite, quartz, limestone and very occasional aggregated sandstone. Sherds commonly have reduced cores and light brown surfaces. No form types were obvious.

Chaff-tempered fabrics (ECHAF)

A single worn sherd tempered with common carbonised organic material and occasional limestone, was found on the site.

4. Site chronology

Dark spreads groups 2 and 14

Spread group 2 produced only three small undiagnostic Anglo-Saxon sherds in two fabrics (SST and CHARN). Spread group 14 also contained three small undiagnostic sherds, each in a different fabric (SST, CHARN and LIM). One of these sherds had heavy internal sooting indicating a possibles use for cooking.

Burials group 42

A group of 12 single sherd vessels were found associated with the burials. All the sherds were small body fragments (less than 9gm) except for one small bowl rim (Fig00,temp1). Seven of the vessels were in sandstone-tempered fabrics (SST), two in local fabrics (ESAXLOC), two of Charnwood-type (CHARN), and a single example of an oolite-tempered fabric (LIM). None of the vessels show signs of sooting. One vessel has evidence for partial burnishing as part of a general finishing technique to the exterior surface.

Burials group 7

This is the earliest in a group of stratigraphically linked features (groups 7, 8, 9, and 10), all of which contain Anglo-Saxon pottery. Only two very small worn sherds could be identified as Saxon pottery, both were in the most common local fabric (ESAXLOC, fabric 2) to be found on the site.

Gully group 8

A total of 11 Saxon sherds, representing seven vessels came from this gully. The pottery was fairly fresh, although sherds were small (less than 8gm) and featureless. Three vessels were in different sandstone-tempered fabrics (SST), three in local fabrics (ESAXLOC) and one in an iron-tempered fabric (FE). Even in such a small group it is interesting to note the lack of Charnwood-types (the most common fabric on the site).

Gully group 60

This feature is thought to possibly be contemporary with the group 8 gully. A single small undiagnostic Saxon sherd was recovered (SST).

Gully/ditch group 9

This feature contained a single tiny (1gm) Saxon sherd in a iron-tempered fabric (FE).

Large pit group 10

Three small Saxon sherds were found in this feature, two of them in Charnwood-type ware (CHARN). One sherd is a simple rounded rim, unfortunately it is to small to determine what form the vessel was.

Hollows groups 24, 25 and 26

A group of 49 Saxon sherds representing 29 vessels were recovered from these hollows. The material is fresh and several vessels are represented by more than one sherd. Charnwood-types (CHARN) are the most common fabric found with 17 examples, then sandstone fabrics (SST) with 8 vessels and two examples each of local (ESAXLOC) and oolitic (LIM) fabrics. This is the only stratified group in which there are a number of identifiable forms. Two large jars occurred (Fig00, temp2), similar large jars or cooking pots were found in Maxey Group I assemblages (Addyman 1964, figs 12 and 13), although none are exact parallels for the Market Deeping examples. A slightly smaller shouldered jar or cooking pot (Fig00 temp3) can be more positively compared to a vessel found at Maxey (ibid, fig 12 no.3) as can a small jar or beaker (Fig00 temp4) from group 26 (ibid, fig 12 no.8). Three smaller jars or bowls (Fig00, temp5-7) cannot be paralleled at Maxey but similar shapes occur at West Stow (West 1985, e.g. fig 46 no.1 and fig 63 no.6) where they occur in 5th to 6th century deposits, although such simple shapes probably have a long life. A single small bowl (Fig00 temp8) is comparable to a Maxey Group I example (Addyman 1964, fig. 12 no.12), similar simple bowls are a common type found in Anglo-Saxon assemblages of 6-8th century date. It is difficult to place this grouping chronologically, it is certainly different from the material from groups 7-10 but whether this is due to a functional or date difference it is not at present possible to be certain.

Recut ditch group 94

A small group of single sherd vessels comprising three Charnwood-types (CHARN), two sandstone-tempered (SST) and a single oolitic-tempered jar (LIM).

Other material

Gully group 29 contained a single undiagnostic iron-tempered sherd. Pit group 39 produced the only chaff-tempered sherd on the site, together with the rim of an oolitic-tempered bowl (LIM, Fig00 no.9). Pits group 59 contained seven Anglo-Saxon sherds representing four vessels. Single or small numbers of sherds came from several other stratified features (see table 1).

A total of 15 sherds came from material collected after the initial surface plan of the site (group 40). This pottery is fairly fresh and includes sherds weighing up to 21gm. A large varied group of Anglo-Saxon pottery came from unstratified contexts (group 58), only one vessel form was identifiable and this was a jar.

5. Discussion

The small but significant assemblage of Anglo-Saxon pottery from the Market Deeping Bypass is difficult to interpret. It is not possible to closely date the material, as undecorated, handmade pottery such as was found on the site had a long currency of c.AD 450-850 over much of England. In southern Lincolnshire this currency is thought to be restricted to c. AD 450-720 and the lack of decorated sherds from the site probably further reduces the date span of the pottery to c. AD 600-720. There was no positive supporting ceramic evidence to suggest a middle-Saxon date, although undiagnostic sherds of middle-Saxon Southern Maxey-type ware may have gone unrecognised amongst the Iron-Age shell-tempered sherds. The petrology and manufacturing techniques of material from both periods are very similar.

Much of pottery from the site compares well with the Type I assemblage-group from the site at Maxey, Northamptonshire (Addyman 1964) less than 3km away. Here sandstone-tempered fabrics, Charnwood-type and local quartz-tempered fabrics dominate the group. The composition of the sub-fabric groups, however, is best paralleled by the pottery from excavations at Quarrington near Sleaford, Lincolnshire, where the oolitic-tempered fabrics continued into the middle Saxon period (with vessels having characteristic flat-topped rims) and where the Charnwood-type sherds commonly contained grains of oolite in addition to the igneous rock used as the main tempering agent. Similar Charnwood-type fabrics were also present at Cherry Willingham (Field 1981), near Lincoln, another site than spans both the Early and the middle-Saxon periods.

It is not possible to identify chronological trends on the site, because the sample is both too small and variable. However the high number of variant sub-fabrics and the clear differences between the material from groups 24-26 and that from the rest of the site suggests that more than one short period of occupation is involved. The trends in domestic pottery use and supply in Lincolnshire during the Anglo-Saxon period, are only just beginning to be understood, much work on both fabric and form analysis remains to be done, only then may it be possible to put the material from the site into perspective.

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APPENDIX 2: DETAILED CATALOGUE OF SAXON POTTERY FROM DBF97

Group	Context	Ware	Sherds	Weight	Form	Comments
02	1053	SST	1	11	-	FABRIC 7;BS
02	1355	CHARN	1	10	-	FABRIC INCL ABUNDANT FINE AGGREGATE SST
02	1355	SST	1	3	-	FABRIC 14?;BS
06	1296	CHARN	2	14	-	BS;FLAKED
06	1296	FE	1	2	-	FABRIC INCL OCC AGGREGATE SST + OCC CHAFF
06	235	SST	1	19	-	FABRIC 8;OXID SURFS
07	1335	MISC	1	2	-	SHELL TEMPER;? DATE
07	1510	ESAXLOC	1	1	-	FABRIC 2;WORN;SAMPLE 232
07	1510	ESAXLOC	1	2	-	FABRIC 2;WORN;SAMPLE 232
07	1510	MISC	1	1	-	SHELL FABRIC + LIMESTONE/GROG; SAMPLE 232;?? DATE
07	1510	MISC	1	1	-	SHELL FABRIC + LIMESTONE/GROG; SAMPLE 232;?? DATE
08	1537	SST	2	2	-	FABRIC 10;BS
08	208	ESAXLOC	1	1	-	FABRIC 1;JOINS 211
08	208	ESAXLOC	1	7	-	FABRIC 3;OXID SURFS
08	208	MEDLOC	1	3	-	WORN;BS
08	211	ESAXLOC	1	4	-	FABRIC 8;OXID EXT SURF
08	211	ESAXLOC	1	5	-	FABRIC 1;JOIN 208
08	211	FE	1	4	-	FABRIC INCL ?LIMESTONE
08	211	SST	2	2	-	FABRIC 6;BS
08	211	SST	2	9	-	FABRIC 9;OR ROMAN
09	1417	FE	1	2	-	BS;SAMPLE 174
10	1003	CHARN	1	7	-	BS
10	1027	SST	1	4	-	FABRIC 20?;RIM
10	1070	CHARN	1	3	-	SIMPLE ROUNDED RIM
14	0968	CHARN	1	7	-	OXID EXT;BS
14	0968	LIM	1	8	-	INT SOOT;OXID SURFS
14	0968	SST	1	8	-	FABRIC18;OXID SURFS
24	0993	CHARN	1	3	-	FABRIC INCL OCC OOLITE + OCC AGGREGATE SST
24	1007	ESAXLOC	1	31	-	FABRIC 2;SEMI BURNISH SMOOTHED EXT;SOOT INT
25	1055	CHARN	1	11	-	FABRIC INCL MOD OOLITE
25	1055	CHARN	1	12	-	OXID EXT
25	1055	CHARN	1	7	-	FABRIC INCL COMM FE; SMOOTHED EXT
25	1055	CHARN	2	11	-	FABRIC INCL OCC AGGREGATE SST + OCC OOLITE
25	1055	SST	1	16	JAR	FABRIC 7
25	1055	SST	1	2	-	FABRIC 7
25	1206	CHARN	1	6	-	FABRIC INCL AGGREGATE SST + COMM OOLITE; SMOOTHED INTERIOR
25	1206	CHARN	1	9	-	BS;OXID EXT SURF

25	1206	SST	4	40	JAR;LARGE	FABRIC 4
25	1207	CHARN	1	22	-	FABRIC INCL COMM FINE AGGREGATE SST + MOD CHAFF; OXID EXT
25	1207	CHARN	1	64	-	OXID FABRIC;BS
25	1207	CHARN	1	8	-	FABRIC INCL OOLITE
25	1207	CHARN	4	52	JAR;SMALL	RIM;DR11;DIAM 12
25	1207	LIM	1	3	-	THIN WALLED BS
25	1207	SST	1	4	-	FABRIC 13;OXID EXT SURF
25	476	CHARN	1	17	-	FABRIC INCL OOLITE + FE + FINE AGGREGATE SST
25	476	CHARN	1	6	-	SOOT INT;BS
26	1055	CHARN	1	42	JAR;LARGE	FABRIC INCL OCC OOLITE;DR8; DIAM 20
26	1205	CHARN	2	116	JAR	FABRIC INCL OCC GREENSAND + OCC OOLITE +OCC FE;RIM; DR6;DIAM 17;SOOT EXT;? SV
26	1205	CHARN	2	17	-	FABRIC INCL COMM OOLITE + OCC AGGREGATE SST
26	1205	CHARN	7	37	-	BS;PARTIALLY OXID EXT
26	1205	ESAXLOC	1	3	-	FABRIC 4;BS;THIN WALLED
26	1205	LIM	1	6	-	BS;THIN WALLED;SMOOTHED EXT
26	1205	SST	1	16	BOWL;SMALL	FABRIC 11;RIM;INT & EXT;SOOT;DR4; DIAM 12
26	1205	SST	1	25	JAR;SMALL	FABRIC 11;RIM;OXID EXT;SOOT;DR3; DIAM 10
26	1205	SST	1	9	-	FABRIC 12;RIM
26	1205	SST	2	75	JAR;SMALL	FABRIC 11;RIM;SOOT INT & PART EXT; DR5;DIAM 13
29	736	FE	1	9	-	FABRIC INCL COMM OOLITE + CHAFF; ? SAXON
39	1468	ECHAF	1	6	-	FABRIC INCL OCC LIMESTONE;WORN
39	1468	LIM	1	2	-	DR10;DIAM 12
40	0149	CHARN	1	21	JAR	FABRIC INCL OCC OOLITE;BS
40	0149	SST	1	10	JAR;SMALL	FABRIC 4;SOOT INT
40	0149	SST	1	12	-	FABRIC 5;BS;SOOT EXT
40	0149	SST	1	15	JAR	FABRIC 7;RIM;DR7;DIAM 16
40	0149	SST	1	5	-	FABRIC 6;SMOOTHED EXT
40	0149	SST	2	6	-	FABRIC 4
40	0366	MISC	8	84	-	NOT SAXON;VERY COARSE OOLITIC FABRIC
40	0415	CHARN	1	15	-	OXID EXT SURF
40	0415	ESAXLOC	1	5	-	FABRIC 2;BS
40	0553	CHARN	1	7	JAR	FABRIC INCL OOLITE + FE
40	0578	CHARN	1	12	-	FABRIC INCL OCC CHAFF;OXID SURFS
40	1019	CHARN	1	7	-	FABRIC INCL AGGREGATE SST; OXID EXT
40	1019	FE	1	17	-	FABRIC INCL COARSE QUARTZ + OCC CHAFF + OCC LIM; OXID EXT
40	1019	SST	1	7	-	FABRIC 9;BS;OXID EXT
40	1019	SST	1	8	-	FABRIC 7;BS
42	008	CHARN	1	6	-	FABRIC INCL OCC OOLITE;OXID SURI

						PARTIALLY BURNISHED
42	008	ESAXLOC	1	7	-	FABRIC 1;BS
42	008	SST	1	1	-	FABRIC 2;BS
42	008	SST	1	3	-	FABRIC 3;BS
42	008	SST	1	8	-	FABRIC 2;BS;OXID EXT
42	546	CHARN	1	6	-	BS
42	546	ESAXLOC	1	6	BOWL;SMALL	FABRIC 2;DR12;DIAM 10
42	546	LIM	1	3	-	FABRIC INCL CHAFF;SAMPLE 19
42	546	SST	1	2	-	FABRIC 20;SAMPLE 19
42	546	SST	1	4	-	FABRIC 14;OXID EXT
42	546	SST	1	4	-	FABRIC 19;OXID EXT
42	546	SST	1	4	-	FABRIC 7;SAMPLE 19
43	533	LIM	1	1	-	FABRIC INCL SUBROUND QUARTZ;BS
46	1341	CHARN	1	10	-	FABRIC INCL OCC OOLITE
46	1341	LIM	1	4	JAR	FABRIC INCL FINE AGGREGATE SST + ? ACID IGNEOUS + FE
58	1680	CHARN	1	10	-	FABRIC INCL COMM FE + MOD AGGREGATE SST
58	1682	ESAXLOC	1	9	-	FABRIC 2; OXID SURF;?? SAXON
58	1682	MISC	1	3	-	NOT SAXON
58	1682	SST	1	7	-	FABRIC 15;OXID SURFS
58	1683	CHARN	1	15	-	BS;OXID EXT SURF
58	1683	CHARN	1	3	-	FABRIC INCL OOLITE;BS
58	1683	CHARN	1	4	-	BS;OXID EXT SURF
58	1683	CHARN	1	8	-	BS;SMOOTHED INT
58	1683	ESAXLOC	1	3	-	FABRIC 2;SMOOTHED INTERIOR
58	1683	SST	1	6	-	FABRIC 18;OXID EXT SURF
58	1685	LIM	1	11	-	? ID
58	1685	LIM	1	4	-	FABRIC INCL LIMESTONE + QUARTZ; RIM
58	1687	CHARN	1	5	-	NECK;SMOOTHED EXT
58	1687	ESAXLOC	1	12	-	FABRIC 1?;BASE?;? SAXON
58	1687	FE	1	10	-	FABRIC INCL COMM SUBROUND QUARTZ
58	1687	LIM	1	19	-	FABRIC INCL AGGREGATE SST; OXID EXT SURF
58	1687	MISC	1	23	-	NOT SAXON
58	1687	SST	1	5	-	FABRIC 14;SMOOTHED INT
58	1687	SST	1	5	-	FABRIC 7;SOOT ON EXT
58	1687	SST	2	8	-	FABRIC 17;BS;SOOT INT
58	1688	CHARN	1	9	-	FABRIC INCL AGGREGATE SST + OCC OOLITE + OCC FE;SOOT EXT
58	1688	CHARN	1	9	JAR?	FABRIC INCL AGGREGATE SST + OCC OOLITE + OCC FE; SOOT INT;DR1
58	1688	ESAXLOC	2	4	-	FABRIC 4;BS
58	1688	SST	1	3	-	FABRIC 6
58	1688	SST	1	4	-	FABRIC 11;BS;BURNISH EXT
58	1688	SST	1	6	-	FABRIC 16;BS
58	1688	SST	1	6	-	FABRIC 6;BS;THIN WALLED;SOOT EXT
58	1688	SST	2	24	-	FABRIC 16;BS;SOOT INT
59	703	CHARN	4	4	-	FABRIC INCL CHAFF
59	703	LIM	1	4	-	FABRIC INCL SUBROUND QUARTZ

59	703	SST	1	10	-	FABRIC 10?;OXID
59	703	SST	1	3	-	FABRIC 16
60	040	SST	1	12	-	FABRIC 1;(MICROGRANITIC ROCK); OXID EXT
61	1209	SST	1	2	-	FABRIC 14?;RIM;SAMPLE 116
64	0914	FE	1	17	-	FABRIC INCL OCC OOLITE + OCC CHAFF + OCC LARGE ROUND QUARTZ
87	1421	CHARN	1	5	JAR	FABRIC INCL ABUUNDANT OOLITE; OXID EXT;NECK;? ID
87	694	CHARN	1	21	-	FABRIC INCL OCC OOLITE;THICK BS
87	694	LIM	1	5	-	FABRIC INCL SUBROUND QUARTZ + FE;SAMPLE 22
90	1203	CHARN	1	2	-	FABRIC INCL COMM FE;SAMPLE 170
94	1344	SST	1	6	-	FABRIC 16;DR9
94	1354	CHARN	1	20	-	FABRIC INCL OCC SST + OCC FE + OCC OOLITE;THICK BS
94	1354	CHARN	1	3	-	FABRIC INCL ABUNDANT OOLITE
94	1354	CHARN	1	4	JAR	BS
94	1354	LIM	1	4	JAR	FABRIC INCL OCC AGGREGATE SST; OXID EXT SURF
94	1354	SST	1	8	JAR	FABRIC 14;INT SOOT

APPENDIX 3: DETAILED SST FABRIC DESCRIPTIONS

Fabric 1 POORLY SORTED COARSE & FINE FABRIC INCL. COMM SST LUMPS INCL FE CEM + OOLTH + FE

Fabric 2 POORLY SORTED V. COARSE & MED FABRIC + OCC FE

Fabric 3 POORLY SORTED V. COARSE & MED FABRIC + COMM FINE CHAFF + OCC FE

Fabric 4 FABRIC INCL. COMM SST LUMPS INLC. V. FINE GRAINS + OCC OOLTH

Fabric 5 FABRIC INCL. COMM SST LUMPS INLC. V. FINE GRAINS + OCC OOLTH + OCC LARGE FE

Fabric 6 POORLY SORTED COARSE & MED FABRIC INCL. OCC SST LUMPS + OCC OOLTH + OCC FLINT

Fabric 7 FINE FABRIC INCL. COMM SST LUMPS + OCC OOLTH + OCC FE + OCC CHAFF

Fabric 8 V. COARSE FABRIC INCL V. OCC SST LUMPS + OCC OOLTH + OCC FE + OCC CHAFF + OCC GREENSAND + OCC ? ACDG(? CHARN)

Fabric 9 FABRIC INCL. ABUN SUB ROUND QUARTZ + OCC SST LUMPS + OCC FE + OCC CHAFF

Fabric 10 POORLY SORTED COARSE & FINE FABRIC INCL. SST LUMPS INCL FE CEM + OCC OOLTH + OCC FE

Fabric 11 FINE TO MED FABRIC INCL. OCC FINE SST LUMPS + OCC LARGER QUARTZ + OCC FE + OCC LARGE MUSCOVITE FLAKES

Fabric 12 COARSE FABRIC INCL. V. OCC MED SST LUMPS + OCC FE

Fabric 13 FABRIC INCL. COMM FINE SST LUMPS + MOD LARGE GREENSAND + OCC OOLTH + OCC FE (TRIASSIC SANDSTONE)

Fabric 14 POORLY SORTED FABRIC INCL. OCC FINE SST LUMPS SOME WITH MUSC + V. OCC OOLTH + IGN? (SOME LARGE FRAGS)

Fabric 15 FINE TO MED FABRIC INCL. OCC FINE SST LUMPS SOME FE CEM + OCC LARGER QUARTZ + MOD FE + OCC LARGE MUSCOVITE FLAKES

Fabric 16 POORLY SORTED FABRIC INCL. COMM V. FINE SST LUMPS SOME FE CEM + ?ACDG

Fabric 17 FINE TO MED FABRIC INCL SUB ROUND QUARTZ + OCC V. FINE SST LUMPS + MOD CHAFF VOIDS + OCC MUSC

Fabric 18 COARSE FABRIC INCL CA CEM ROUNDED SST LUMPS + OCC OOLTH + OCC FE + OCC CHAFF

Fabric 19 FINE FABRIC INCL. OCC SST LUMPS + COMM LARGE ROUNDED FE LUMPS

Fabric 20 COARSE FABRIC INCL. OCC SST LUMPS + ? ACDG

APPENDIX 4: DETAILED ESAXLOC FABRIC DESCRIPTIONS

Fabric 1 FABRIC INCL. ROUND TO SUB ROUND QUARTZ + MOD OOLTH + OCC FE + OCC FLINT

Fabric 2 FABRIC INCL. SUB ROUND QUARTZ + OCC FE + OCC CHAFF

Fabric 3 FABRIC INCL. SUB ROUND QUARTZ + OCC FE + VOIDS +? GROG

Fabric 4 FABRIC INCL. FINE SUB ROUND QUARTZ + OOLTH

Anglo-Saxon Pottery Catalogue

1. temp1

Small bowl in ESAXLOC fabric 2

Group 42, context 546

2. temp2

Large jar or cooking pot in CHARN

Group 26, context 1055

3. temp3

Large jar or cooking pot in CHARN

Group 26, context 1205

4. temp4

Small jar or beaker in SST fabric 12

Group 26, context 1205

5. temp5

Jar or bowl in CHARN

Group 25, context 1207

6. temp6

Small jar or bowl in SST fabric 11, possibly same vessel as temp7

Group 26, context 1205

7. temp7

Small jar or bowl in SST fabric 11, possibly same vessel as temp6

Group 26, context 1205

8. temp8

Small bowl in SST fabric 11

Group 26, context 1205

9. temp9

Small bowl in LIM

Group 39, context 1468

APPENDIX 1: MEDIEVAL POTTERY CODES 5TH TO 19TH CENTURIES

Ware code	description
CHARN	CHARNWOOD-TYPE FABRICS
ECHAF	CHAFF-TEMPERED FABRICS
ESAXLOC	LOCAL ANGLO-SAXON FABRICS
FE	IRONSTONE ORE-TEMPERED FABRIC
LIM	OOLITIC LIMESTONE-TEMPERED FABRICS
MEDLOC	MEDIEVAL LOCAL FABRICS
MISC	UNDATED MISCELLANEOUS FABRICS
SST	SANDSTONE-TEMPERED FABRICS

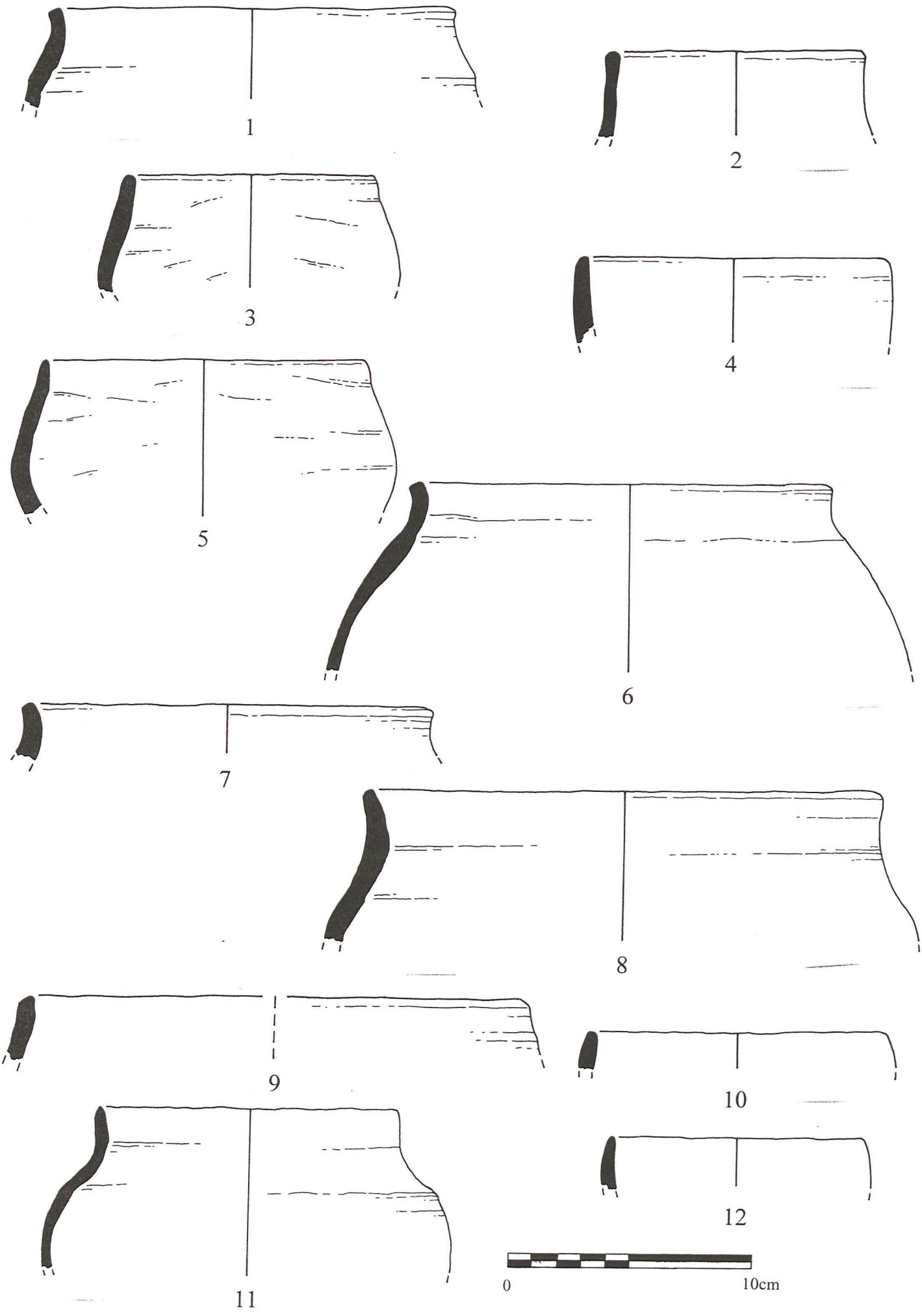

Figure 1 Site 4 (DBF97) Anglo-Saxon pottery

Appendix 9

Reports on the ceramic building material from site 4 (DBF97) on the Market Deeping Bypass

by

Phil Mills

The Building Material from DBF97

The material comprised of some 10 fragments, weighing a total of 276g. There was also a sample of a hard limey mortar and a limestone tile, 9mm thick. The material was very fragmentary and only the body of a possible tegula and the fragment of a comb relief patterned flu tile could be identified.

The ceramic building material comprised of three fabrics:

SPS-1

A red buff (Munsell 2.5YR6/8) fabric with medium hardness, a rough texture and a rough fracture. Inclusions were: abundant well-sorted fine subangular quartzite; abundant ill-sorted medium subangular slate (metasediment); moderate ill-sorted fine to medium angular iron stones; moderate ill-sorted fine to medium black iron ore; sparse well-sorted fine rounded calcite and sparse well-sorted very fine rounded mica.

Tiles of the same fabric have been recovered from a number of Lincoln sites. These include: Brayford Wharf East 1982, waterfront dumping. Lincoln Cathedral 1986, on the line of the upper east Roman defences. East Bight 1980, a site with a second to third century building on the line of the upper north Roman defences. Mint wall 1979, a late second to early third century possible civic building. Nettle Yard, Lincoln Cathedral 1987, a site on the upper east Roman defences. St Benedict's square 1985, possible Roman hardstanding on the waterfront. St Paul in the Bail, site of principia/ forum. Waterside north west 1988, a site of massive late fourth century dumps on the waterfront.

SPS-2

A red fabric with a grey core (M10R5/8 - 2.5YR4/1) which was hard, had a rough texture and had a rough fracture. Inclusions included: abundant well-sorted medium subangular quartz; moderate ill-sorted coarse subrounded shell, moderate ill-sorted medium angular voids; and sparse ill-sorted moderate angular slate.

Tiles of the same fabric have been recovered from: Brayford Wharf East 1982, Lincoln Cathedral 1986, East Bight 1980,Lincoln Cathedral 1986, St Paul in the Bail, and Waterside north west 1988, Sleaford 1997 and Heydour 1998.

SPS-4

A reddish grey core with red surface (M2.5YR5/1-2.5YR 4/4) which is extremely hard, slightly sandy and has a fine fracture, containing: abundant well-sorted medium subrounded quartz; moderate ill-sorted very coarse angular calcite and sparse well-sorted very fine rounded mica.

Tiles of the same fabric have been recovered from: Brayford Wharf East 1982, Lincoln Cathedral 1986, East Bight 1980, Nettle Yard 1987, Lincoln Cathedral 1987, St Benedict's square 1985, St Paul in the Bail, Waterside North West 1988; West Bight 1980, and Sleaford 1997.

Assessment

It is unlikly that this material has importance beyond the indication of the spread of Roman CBM throughout the region and that the possibility of a tiled Roman building, with a hypercaust facility, existed in the vicinity of the site. Further analysis is unlikely to yeild meaningful results. Examples of each fabric, the painted brick and the flue tile can be retained. The rest of the material can be disposed of.

Appendix 10

Reports on the small finds from excavations on the Market Deeping Bypass

by

Jane Cowgill

THE REGISTERED FINDS, SLAG AND SOME BULK FINDS FROM THE EXCAVATED SITES ALONG THE ROUTE OF THE DEEPING BYPASS (DBF 97)

By Jane Cowgill©
With contributions by Kevin Leahy BA, FSA, AMA, MIFA and Penelope Walton Rogers (Textile Research in Archaeology).
April 1999

Introduction

Although a number of sites were excavated along the route of the Market Deeping Bypass the main site discussed here is Fox Covert Farm (DBF 97), which is located to the south of the River Welland on the edge of Maxey Island. At this site a *c.* 200m by 30m corridor of topsoil was striped off down to the level of a buried soil and the entire area was hand cleaned and planned with all features and finds plotted. The finds found during this process have a P prefix and are catalogued under 'plot number'. The excavated areas consisted of a 5m strip down each side of the corridor within which features of Neolithic to medieval date were recorded.

Recording Methodology

The majority of both the bulk and registered finds were submitted for recording (Table 1); these include the excavated finds and those from the plots and samples. All the finds were recorded on *pro forma* recording sheets and the information was then entered into a single Microsoft Access database using the following encoded fields: Context; Finds number; Sample number; Plot number; Material; Object type; Count; Weight; Comments. The more important finds have also been catalogued (see below).

Table 1. Summary of the finds recorded in Appendix 1.

Material	Excavated find number/weight	Plot find number/weight	Material from samples number/weight
Bone	3	1	
Ceramic	4	1	
Ceramic tobacco pipe	3	12	
Chalk	2		
Clinker	4 2g	2 5g	
Coal	4 26g	3 10g	
Copper alloy	3	1	
Fuel ash slag	1 1g		1 6g
Fired clay	16	2	
Glass	6	6	1
Iron	16	6	
Lead	1		
Magnetic material			92bags
Slag (non specific)	1 132g	10 254g	20 48g
Smithing slag lumps		1 15g	
Stone	7	2	
Tap slag	2 177g	1 177g	

The iron and copper alloy finds have been X-Radiographed and these were used for the identification of these objects (Plates DBF 1.1998 – 7.1998). The majority are corroded but

relatively well preserved except for the objects with plot numbers which have probably suffered from disturbance and plough damage during the medieval period and later (ridge and furrow was evident across the site).

A total of 817grammes of slag and associated materials were recorded. The slag was identified solely on morphological grounds by visual examination, sometimes with the aid of a x10 binocular microscope. A note of probable fuel type has been recorded when fragments were incorporated within the slag. The magnetic residues from 92 samples were examined under the microscope for evidence of hammerscale and any other high temperature processes. A few pieces of plate and spheroidal scale generated by iron smithing were noted but fuel ash slags, a form of slag that can be produced by any high temperature process, were the predominant form of evidence.

FOX COVERT FARM.

Iron Age Finds

The majority of the Iron Age finds are from features within or close to the circular ring gully (Group 81), which has been identified as the possible the remains of a roundhouse, however, the evidence presented below confirms this interpretation. In the centre of the ring gully was pit 74, the base of a hearth, filled with burnt material including fuel ash slag and charcoal. It also contained an almost complete fired clay oval sling shot (context 1141, see catalogue below) which had perhaps been placed within the fire or embers for firing (Fig 2 Dr. 3). A badly preserved iron ?bar (RF51, context 1227) was found in one of the large post holes that were sited around the hearth. The only find from the actual ring gully is the disintegrated remains of a fired clay object that may once have been bun shaped (context 1588).

When the floor surface within the ring gully was excavated every other 5m square was sampled. The magnetic residues from these samples were examined using a binocular microscope at x20 magnification to identify and quantify the slag, hammerscale and fired clay within them; this has been plotted on a detailed site plan (Fig1). The hammerscale was recorded in extremely small quantities with the largest group from square 218, comprising only five pieces (three spheroidal and two plate). The majority of the samples with a high density of fuel ash slag and fired clay (hearth lining?) come from a broad band that lies between the northern side of hearth 74 across to the northwest side of the ring gully. This spread suggests that this material is spilled hearth material derived from the periodic clearing out of the hearth. There is some doubt that the co-ordinate of Square 240 is accurate due to a recording error. However, the position on figure 1 is probably correct and its contents fit well with the general distribution within the ring gully

Most of the slag with plot numbers was found within the ring gully. These pieces are generally very small (weight range 1g to 14g) and all but one is fuel ash slag. The only different piece (plot number 6943) is probably Iron Age Grey slag. This is a type of slag that is found exclusively on Iron Age sites often mixed with domestic debris but how it was produced is completely unknown.

The remains of two possible fired clay spindle whorls or loomweights, both made from well wedged clays, were found in features that may have formed part of a boundary around the ring gully. The object from the north-south enclosure ditch (Group 62), which lies to the east of the gully, was sub circular in shape and fired in a reducing atmosphere but there was no evidence for a spindle hole. The other piece, which has a single flattish surface, is from pit 21 which is adjacent to the terminal of east west ditch 104, possibly part of the southern boundary. Just to the north of the possible roundhouse was a series of shallow hollows or pits (Group 61) that contained no domestic

waste. In one, however, was an almost complete upper stone from a saddle quern (see catalogue below and Fig 2 Dr 8) while a small fragment from a second quern, weighing 696 grammes, was recovered from a second pit (context 1171). Both are made from an upper carboniferous sandstone/gritstone (pers comm J Aram). An oval shallow pit that lay very close to the north west section of the ring gully contained a small quantity of fuel ash slag and a small piece of Iron Age Grey slag (weight 7g).

Only two other finds from dated Iron Age contexts warrant mention. A highly polished bone bodkin or awl (Fig 2 Dr 5), made from a cow-sized long bone, was found in shallow irregular hollow 33 in the line of the eastern roadside ditch. This hollow also contained a fragmented but nearly complete 'placed' pot. To the south east of the hollow a short section of ditch 84 was excavated. Within its tertiary fill 1082 approximately half of a bi-conical chalk spindle whorl was found (see catalogue below and Fig 1 Dr 6).

There are a minimum of seven pieces of fired clay from triangular loomweights but unfortunately these are all unstratified or from undated contexts (shallow depression 29 and pit 129). The only piece that maybe from an Iron Age feature is find plot number 84 which was found above the north-south ditch 62. The loomweights are made from a range of fabrics ranging from a well-wedged clay with frequent large ironstone inclusions (context 737 and P84), a well wedged clay with sand and some small ironstone inclusions (contexts 725 and 1688) to a single poorly fired example made from a silty sandy fabric with very little clay in the matrix (context 690). All of the pieces are too small to reconstruct the form of the weights (fragment weight range 42 – 122g). Generally the loomweights found on a single site in Lincolnshire are made from a limited range of clays, the inconsistencies in the fabrics encountered here is unusual.

Romano-British Finds

The only registered finds from possible Romano-British contexts were found in the enclosure ditches 49 and 59 and ditch 94 which is located immediately south of 49. All of these have been recut numerous times resulting in an uncertain stratigraphic sequence. Only a single find from each ditch has been phased Roman while four objects from 59 have been tentatively put into the ?Saxon period although one is of Romano-British date. From ditch 49 there is a copper alloy ?pin shaft with a surviving length of 50mm (RF59, context 1352) while a piece of stone quern, weighing 165 grammes, is from ditch 94 (context 1344). The piece of triangular clay loomweight from 59 maybe residual because these objects are very common on Iron Age sites but seldom found on those that date to the Romano-British period. The Roman find is a small opaque blue/green melon bead (sample 26, context 703) which were commonly used to decorate horse harness (pers comm H Cool). The ?Saxon finds are a polished bone pin, surviving length 28mm, with an unevenly made shaft (RF23, context 703) and two unidentifiable pieces of iron (contexts 807 and 806). The bone pin is possibly Roman and the two pieces of iron could be of either date. A high proportion of residual material would be expected in this feature.

Anglo-Saxon Finds from Graves

In the north-eastern part of the site eight burials were uncovered and when excavated found to contain thirteen child and adult bodies and a foetus. Of these four had grave goods, the majority of which were probably the remains of their everyday attire in which they had been buried (Table 2 and the Catalogue below). The sole exception to this is the spear found in Grave (105). It has an elongated leaf-shaped spearhead (Fig 3 Dr 14) that was found beside the waist of the 30 - 40 year old male, which suggests that the shaft had been snapped into two before deposition. Spears are the most commonly found weapon in Anglo-Saxon graves and it has been suggested that it is a symbol of legal freedom as those without this status were forbidden to carry them (Swanton 1973, 3). It is a

Swanton type C2 which is the most common type of Anglo-Saxon spearheads and the type was in use over a long period of time and over a wide geographical area (Swanton 1973, 51-5). There is, however, abundant evidence for the majority of them being 7th century in date.

The most common finds are the small buckles (all but one with a buckle plate) and knives, there being four of each. The majority of the finds appear to have been buried with the male bodies but the association of two knives in two graves (1334 and 021) is unclear. In other cemeteries knives are equally likely to be associated with male or female bodies. All the knives were probably everyday domestic utensils worn in a scabbard suspended or stuck through a belt, probably of leather. No minerally-preserved organics survive on the tangs to indicate what material the handles were constructed from and no traces of scabbards have survived. The only possible exception to a domestic function is the small knife or seax from 021 (RF 9) (Fig 4 Dr 18) which may also have functioned as a weapon although it is quite small. Knives of this form are often decorated with a band of pattern welding across the blade. Although a clear wide weld line is visible on this object (Xradiograph DBF.3.1997) there is no evidence for it having been decorated in this way.

Table 2. The finds from each grave (for location within burials see figures 44 and 45).

Group	grave	skeleton	sex	age	Objects
G7	1334	1336	male	30-40	copper buckle and buckle plate left side of pelvis; iron buckle and buckle plate right side of pelvis; iron buckle below left shoulder
G7	1334	1336/1337			iron knife buried midway between the male and female' femurs
G7	1334 4	1337	female	adult	iron ?key handle parallel to and just inside right femur
G7	105	81	male	30-40	iron spearhead right of pelvis; iron knife (location not recorded)
G7	1509	1511	male	18-24	iron knife below pelvis on left side
G42	021	23	male	25-30	glass bead above vertebrae; iron buckle and buckle plate left side of pelvis
G42	021	23/24			iron knife below the males pelvis and the females ribs
G42	021	24	female	20-26	no objects
G42	021	31	child	2-4	no objects

[Dale this table can be simplified if the figs of the location of each find in each grave is produced]

Three of the small buckles are made from iron while the fourth is of copper alloy. Three of the buckles were found associated with a male burial (Fig 2 Dr 9,11 and 12). The copper alloy buckle (Fig 2 Dr 9) was on the left pelvis but near the centre of the body, the similarly sized iron buckle lay closer to the waist slightly on the right side while the third larger example was below the left shoulder. The fourth buckle was also found on the right side of the pelvis of a male burial. At the King Harry Lane cemetery all the buckles were also found in male burials (Stead and Rigby 1989, 221). This is thought to be due to a change in fashion during the 7th century when belts became narrower and female dress fashion became much simpler.

The only other type of find encountered in these burials is the possible key or latch lifter handle. These are commonly found in female graves and are thought to have been suspended from a girdle around the waist. This example, however – if correctly identified - has no loop for suspension but could have been hung by tightly winding a strap around the long shaft of the handle. Keys or latch lifters were probably symbolic of the women's rank as mistress of her household.

There are no closely datable finds amongst this assemblage but the small size and narrowness of the buckles and buckle plates suggests a 7th century date for these burials. The lack of costly grave goods need not necessarily be a sign that this is a low status group but may reflect the changes in burial practice and fashion in the late pagan and early Christian conversion period. Indeed, the presence of the spear and possibly the key/latch lifter may suggest that some of those buried had freeborn status.

Other Anglo-Saxon finds.

Three features dated to the Saxon period produced finds but none of these are datable types. The fill of the 'working hollow' or 'pig wallow', group 25, within the eastern roadside ditch contained abundant finds including a complete bone needle (RF53, context1206) (Figure)made from a sheep sized ?metapodial (pers comm DJ Rackham). It is 70mm long and has a circular eye, 1.8mm in diameter, drilled through it. The only other registered find from this feature is a pestle or grinding stone (Fig 3 Dr 21) made from an oval river pebble, the worn base is very flat (RF54, context 1207). The spread of dark soil (groups 2 and 14) in the northern part of the site, which was preserved by a medieval headland, contained at least one Iron Age find. This is a complete iron brooch (RF42, context 968, see catalogue below) (Fig 2 Dr 1) that perhaps derives from underlying Iron Age features. The only other registered finds are a copper alloy shank from perhaps a pin or needle (RF3, context 968) and an iron rod with a square section in total measuring 34 x 11 x 10mm (RF41, context 991). The triangular loomweight fragment from the linear gully 28 is presumably residual.

Iron Slags

A surprising aspect concerning the iron slags from the site is that although there are only six pieces, four were probably generated by iron smelting (two pieces of tap and two pieces of ?furnace slag). If Iron smelting was undertaken at the site much greater quantities would be expected.They are from a range of features dating from ?Early Iron Age to medieval. The furnace slags are from the ?Early Iron Age pit 3 and a Saxon spread which directly overlies it (14) while the tap was found sitting on the large north-south ditch 41 and within a medieval furrow (11). Iron production would not be anticipated in this part of north Cambridgeshire/south Lincolnshire because of the lack of trees for the fuel. How these pieces arrived at the site is therefore something of a mystery, smelting slags are seldom found at any distance from a smelting site. Tap slag can be aesthetically pleasing and a piece may be kept as a 'souvenir' but this is unlikely to be the case with furnace slag.

Conclusion

The registered finds assemblage from the site is small, but this is largely due to the excavation strategy that dictated that only a small section of each feature, particularly ditches, was dug. The majority of the finds are probably Iron Age in date and provide evidence for a range of activities occurring at the settlement. From the quantity of probable loomweights it is clear that textiles were woven here. The quernstones indicate the grinding and preparation of food stuffs, cereals but also probably peas and beans and the sling-shot would have probably been used for hunting wild game. Although the quantity of hammerscale is very small, it does suggest occasional smithing at the site during the Iron Age.

The other main group of finds is those from the Anglo-Saxon burials of probable 7th century date. This is a small but important group that are definitely worthy of publication. The low quantities of medieval material from the site is not surprising as the site was under arable agricultural management by this period. Romano-British objects were also rare and this is may be due to the settlement focus possibly shifting slightly to the northeast after the Iron Age. Iron Age ceramics were also far more abundant than those of Roman-British date.

THE CATALOGUE OF THE MAIN FINDS FROM THE DEEPING BYPASS EXCAVATIONS (FOX COVERT FARM: DBF 97 AND ENCLOSURE 'B': DBEB 97).

FOX COVERT FARM (DBF 97)

Iron Age

Group 14: Context 5026: RF 42 IRON BROOCH. (Fig 2 Dr 1)
D-shaped brooch (34 x 30mm) with rolled terminals at one corner, one is in the same plane as the frame the other is at right angles. Late Iron Age to Early Roman in date.

Group 61: Context 1209. STONE SADDLE QUERN. (Fig 2 Dr 2)
Upper part with a smooth flat slightly worn face; almost complete. Made from an upper carboniferous sandstone/gritstone (pers comm J Aram). Surviving length 260mm, width 185mm, height 60mm, weight 3.8kg

Group 14: Context 1082; RF 46. CHALK SPINDLE WHORL. (Fig 2 Dr 6)
Biconical, approximately one half survives. Maximum diameter 55mm, height 22mm, spindle hole diameter 11mm.

Group 74: Context 1141: Sample 120. FIRED CLAY SLING-SHOT. (Fig 2 Dr 3)
Oval, made from a reduced fired sandy fabric. Length 38mm, maximum diameter 22mm, weight 19g.

Anglo-Saxon Graves

By Jane Cowgill and Kevin Leahy

Group 7: Grave 1334 Context 1335.

RF 52. COPPER ALLOY BUCKLE AND BUCKLE PLATE. (Fig 2 Dr 9)
A thick plain oval buckle frame (18 x 11mm) with a solid wire pin. The sheet plate has a slot for the pin and probably has recessed edges to create a good fit with the frame. The plate is square on both sides (12 x 12mm excluding the recessed section). Three rivets, possibly domed, once held the strap in position between the plates. Probably 7th century; found on the left side of the pelvis of the male skeleton. [ADD any comments from lab regarding reason for black corrosion around rivet holes.]

RF 55. IRON KNIFE (Fig 3 Dr 10)
A very poorly preserved iron knife, the object is now in six pieces and both the tip and part of the tang is missing. The cutting edge and back are straight and taper evenly towards the missing tip. Length 90 – 100mm. Found between the right leg of the female skeleton and the left leg of the ?contemporary male burial.

RF 57. IRON BUCKLE AND BUCKLE PLATE. (Fig 3 Dr 11)
Small oval buckle frame (15 x 9mm) with a pin, the buckle plate is incomplete. The shape of the object is preserved solely by the shell of the corrosion products; they have almost no metal content. Found on the right side of the male skeletons' pelvis.

RF 58. IRON BUCKLE (Fig 3 Dr 12)
Oval or possibly D-shaped buckle frame with part of the pin. In two pieces and in very poor condition. Found just below the left shoulder of the male skeleton.

RF 56. IRON LATCH LIFTER/KEY HANDLE (BIT MISSING). (Fig 3 Dr 13)
A length of rectangular-sectioned iron that is tightly scrolled at one end with no loop for suspension. Surviving length 140mm, width 12mm, thickness 5mm. Found lying parallel and just inside the right femur of the female skeleton

Group 7: Grave 105: Context 80.
RF 14. IRON SPEARHEAD (Fig 3 Dr 14)
Complete leaf-shaped blade and ?split socket but no traces of the wooden shaft survive. Length 324mm, maximum width 45mm. Welding lines on the blade are visible on X-Radiographs DBF 1 and 2.1997. A Swanton C2 form and while weapons of this type occur earlier they appear to be most common in 7th century contexts (Swanton 1973, 52). Found lying to the right of the pelvis of the male skeleton with the right hand on top of it. If deposited shafted the shaft must have been broken before deposition.

No RF Number. IRON KNIFE (Fig Dr 15)
Incomplete blade and tang with traces of a wooden handle on both sides of the tang; now broken into two pieces. The blade was extensively worn at the tang end and had snapped at the narrowest point. It was probably broken when deposited in the grave. Surviving length 77mm. Found in grave fill probably associated with the male skeleton.

Group 7: Grave 1509 Context 1510.
RF 65. IRON KNIFE (Fig 3 Dr 16)
Complete blade and tang but no trace of the handle survives although a vertical line on the X-Radiograph (DBF.6.1997) probably indicates its extent. The blade has a straight cutting edge with the back curving down to the tip. Length 114mm, maximum width 15mm. Evison Type 4 which is dated to the 7th century (Evison 1987). Found under the pelvis of the male skeleton.

Group 42: Grave 021: Context 22.
RF 5. GLASS BEAD (Fig 4 DR 17)
Annular bead made from a clear glass with an opaque yellow trail around the hole. Bead diameter 24mm, hole diameter 10mm. Found lying above the vertebrae of the male skeleton.

RF 9. IRON KNIFE OR SMALL SEAX
Complete blade and tang with traces of the wooden handle, the extent of which is clearly visible on the X-Radiograph (DBF.3.1997). The blade has a straight cutting edge while the back is also straight and parallel until with a sharp angle it joins the edge. There is a clear welding line along the blade visible on the X-Radiograph 15mm below the back but there is no evidence for pattern welding. On the basis of both shape and size this knife can be dated to the 7th century; it is an Evison Type 5 (Evison 1987). The knife was found between the male and female skeletons, below the pelvis of the male and the ribs of the female.

RF 10. IRON BUCKLE AND BUCKLE PLATE
Oval buckle frame (23 x 12mm) with an intact pin. The tip of the pin, where it projects beyond the frame, has a dense white band across it and around it on the X-Radiograph (DBF.3.1997) possibly indicating that it has been plated. The buckle plate is square (20 x 20mm) although specific details are unclear on the X-Radiograph. Three faint possible rivet holes probably once held the rivets that attached the strap. These objects were found on the left side of the pelvis of the male skeleton.

SITE ENCLOSURE 'B' (DBEB 97)
Discussion of the textile by Penelope Walton Rogers (Textile Research in Archaeology)©.

Context: found within a medieval furrow; P291.
COPPER-ALLOY STRAP-END WITH THE REMAINS OF A TEXTILE STRAP OR GIRDLE. 14th Century.
A composite strap-end constructed from a cast forked spacer and two sheet metal plates (length: 53mm; width 14mm). The terminal is a knop with a single collar. Two dome headed rivets near the top secures the strap. Faint traces of an incised decoration is evident on the front and back plate; this is not clarified by the x-radiograph (DBEB1.1997). The copper-alloy elements of strap-ends of this type are sometimes made from different alloys that contrast in colour (Egan and Pritchard 1991, 143).

The textile sandwiched between the two plates of the strap-end is visible only in section. It lies in two layers, which may represent the end of the strap folded back on itself, or, more probably, a double weave of some sort. The warp is fine (0.3mm diameter) and Z-spun, the weft thicker (0.7mm diameter) and also Z-spun. The two layers of weft are both set at 10 – 12 threads per centimeter. The fibre is hemp, which – rather unusually – has been processed down to its finest elements. The original width of the strap was probably 14mm.

Narrow woven straps of this sort were particularly common in the 13th and 14th centuries. They were made in silk, wool, flax and hemp and were frequently tablet woven. Tablet-woven double weaves with a similar character to the Deeping example have been found, for example, in belt fittings from 13th- and 14th-century Hull (Walton 1987). Such straps were most commonly used for belts or girdles, although woven spur straps also occur. They are rarely wider than the 16mm until the 15th century, when broader belts became fashionable (Crowfoot *et al* 1992, 134).

Straps made from flax and hemp are especially common in rural and low status sites and a sumptuary law of 1363 refers to linen girdles as appropriate to ploughmen (Egan and Pritchard 1991, 35). East Anglia was well known for its hemp production (Evans 1985) and the use of hemp in the fine yarns of this particular strap, may indicate that it was made within the region.

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FOX COVERT FARM, DEEPING BYPASS
FINDS EXTRACTED FROM THE BULK BONE TO BE ADDED TO THE CATALOGUE

DBF97
CONTEXT 1055, RF77, ANTLER HANDLE
Fragment of a circular sectioned handle. Length 54mm, diameter 30mm.

CONTEXT +, P4289, BONE POINT
Slither of cow-sized rib used as a point. Highly polished. Length 49mm, width 18mm.

CONTEXT +, P6221, ANTLER PEG
Crudely made ?tuning peg with a polished shaft. Red deer antler. Complete length 32mm, head diameter 13mm, shaft diameter 7mm.

DBEB97
CONTEXT 004, BONE POINT
Made from a cow-sized long bone shaft fragment, highly polished and burnt. Length 46mm, diameter *c.* 11mm.

CONTEXT 117, ANTLER
Piece crudely chopped with a ?cleaver of red deer antler. ?Drilled hole. Antler degraded. Length 41mm, width 33mm.

OBJECTS TO BE ILLUSTRATED
Iron Age
All the catalogued finds
Bone bodkin or awl from hollow 33 IF it was associated with the 'placed' pot.

Anglo-Saxon
Figures of the location of the finds in the graves (see King Harrys Lane for guidance)
All the catalogued finds
Bone needle RF53, context 1206 and pestle RF54 context 1207.

QUESTIONS FOR CONSERVATION LAB.
Context 1335, Find No 52, Copper alloy buckle and buckleplate
This object should be drawn in pencil before conservation – it is very fragile – Dale is going to arrange this at APS.
Do the black corrosion products around the stud heads tell us anything i.e. is it evidence that the studs may have been made of silver or silver plated? These areas also appear very dense on the xrays.

Context 22, Find No 10, Iron buckle and buckleplate
Are there three or two rivet holes and is the tip (or all of the pin/buckle) plated (see xray) – is there enough of the object left to tell?

Context 1335, Find No 55, Iron knife
The cutting edge and back are straight and taper evenly towards the missing tip, the object appears to have a cutting edge on both sides – sort of dagger like – but its condition is horrible. You do not get double sided Anglo-Saxon knives so I assume it isn't but is it possible to check?

APPENDIX 1

THE FINDS ORDERED BY PERIOD

ABBREVIATIONS USED IN THE CATALOGUE

BUCK	BUCKLE
BUPL	BUCKLE PLATE
CIRC	CIRCULAR
COPP	COPPER
DIAM	DIAMETER
FAS	FUEL ASH SLAG
FRAG	FRAGMENT
FURN	FURNACE SLAG
H	HEIGHT
HB	PLANO-CONVEX HEARTH BOTTOM (SLAG)
IRREG	IRREGULAR
L	LENGTH
MAG MAT	MAGNETIC MATERIAL (SAMPLE RESIDUE)
MAX	MAXIMUM
MED	MEDIEVAL
MOD	MODERN
MPO	MINERALLY PRESERVED ORGANIC
P	PLATE HAMMERSCALE (AMONGST MAGNETIC MATERIAL)
PERF	PERFORATION
PMED	POST MEDIEVAL
S	SPHEROIDAL HAMMERSCALE (AMONGST MAGNETIC
SAX	SAXON
SPWH	SPINDEL WHORL
SSL	SMITHING SLAG LUMPS
T	THICKNESS
V	VERY
VHL	VITRIFIED HEARTH LINING

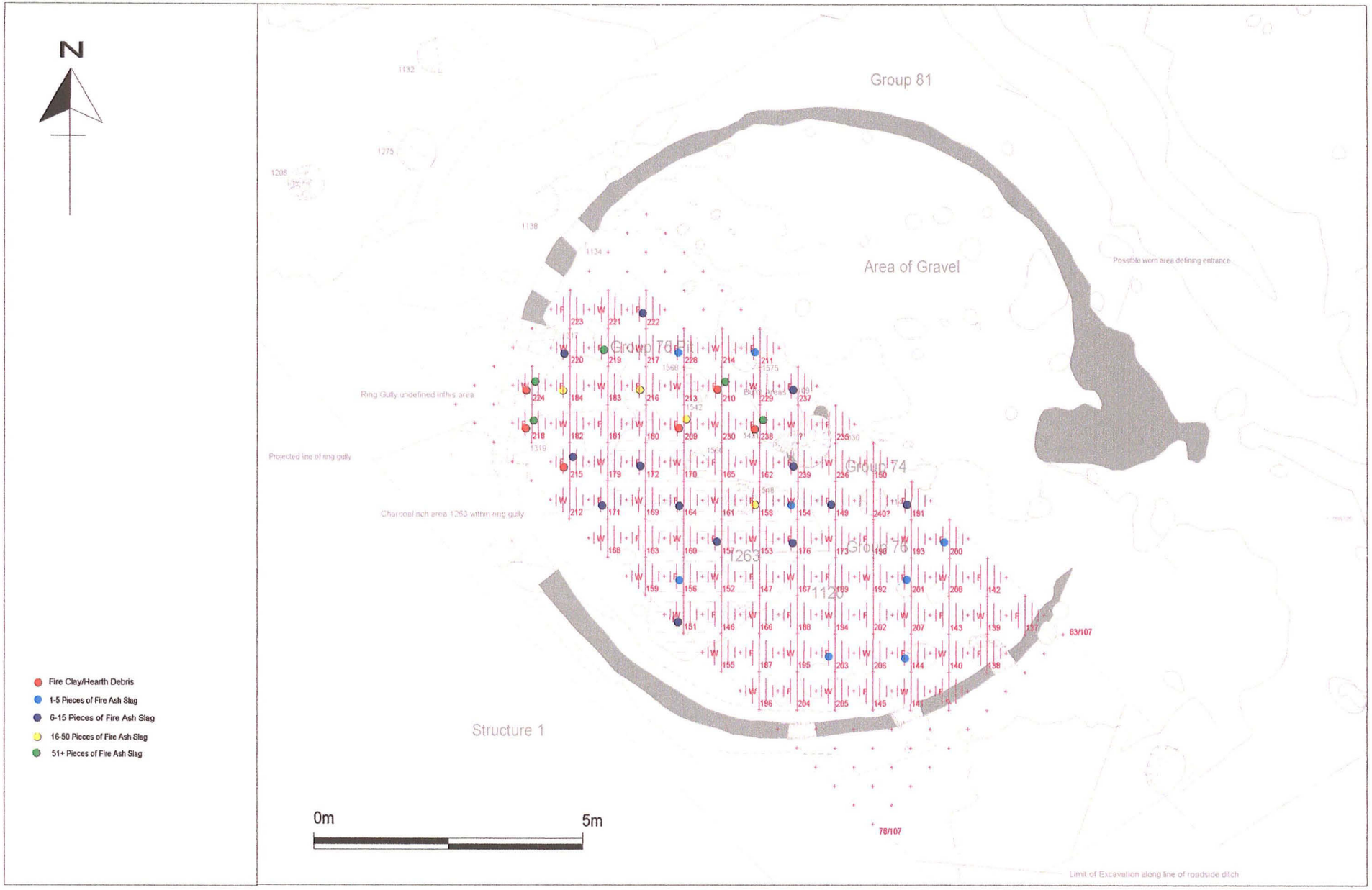


Figure 1. Distribution of fired clay and fire ash slg inside Structure 1

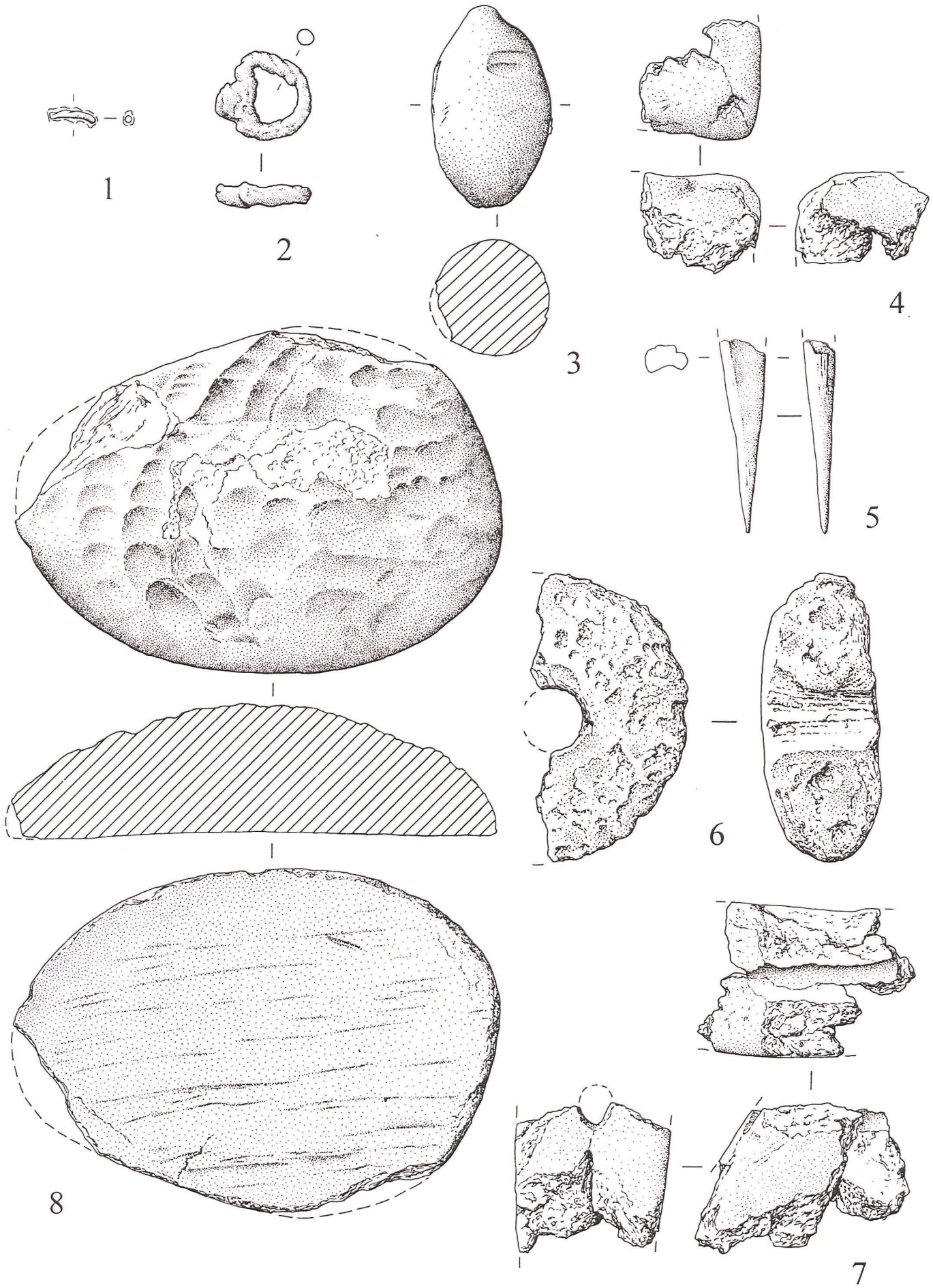


Figure 2 Site 4(DBF97) Iron Age small finds

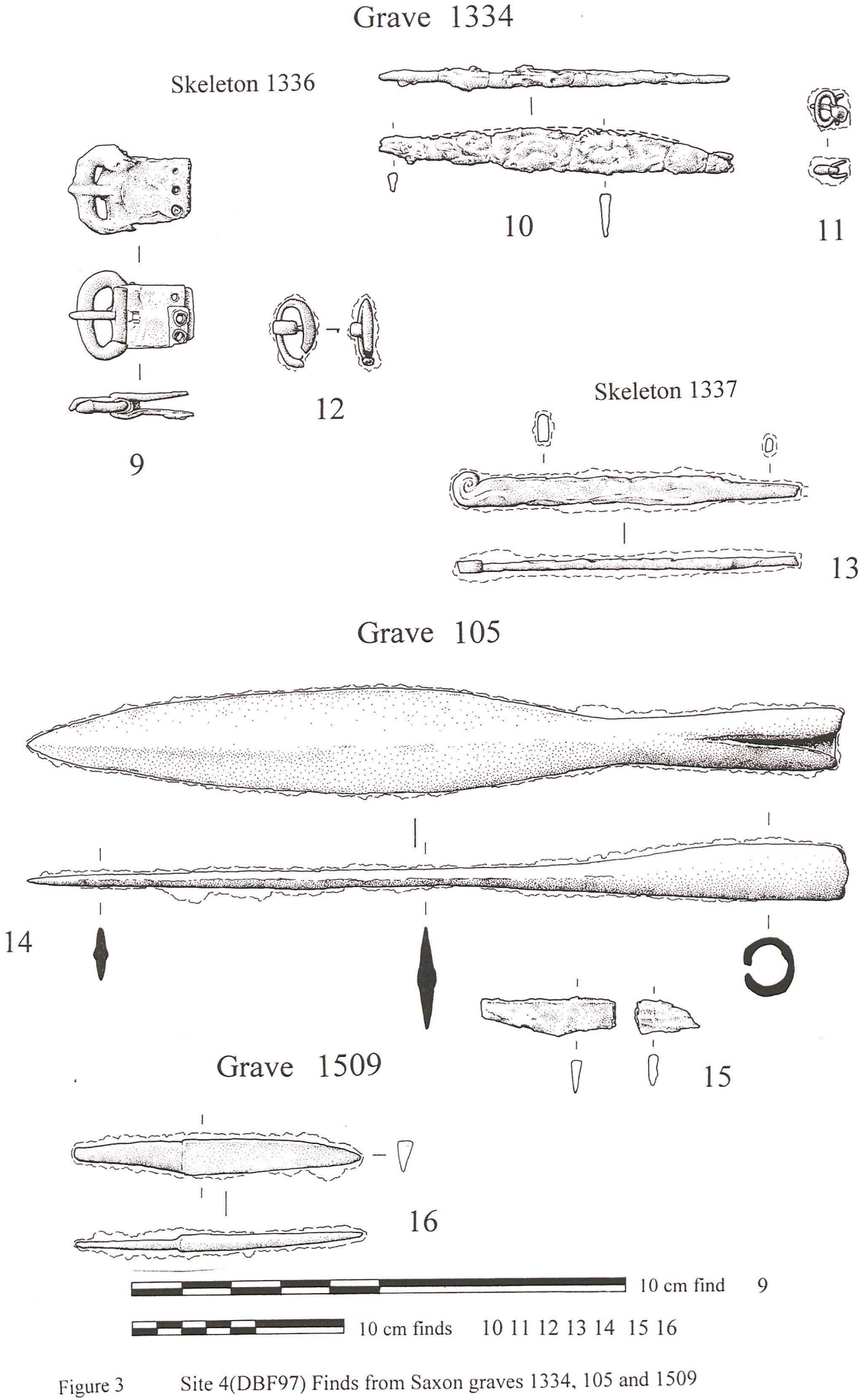
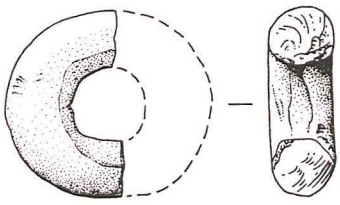
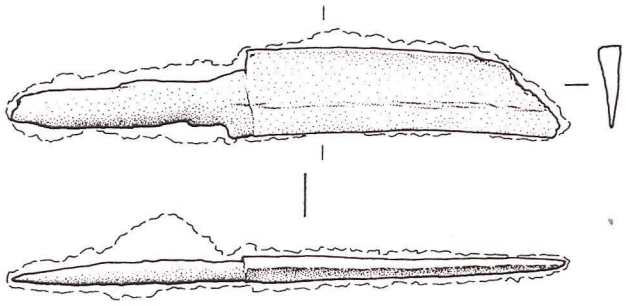


Figure 3 Site 4(DBF97) Finds from Saxon graves 1334, 105 and 1509

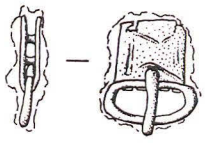
Grave 021



17

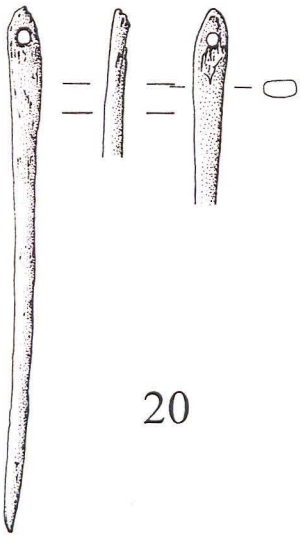


18



19

Other Anglo-Saxon finds



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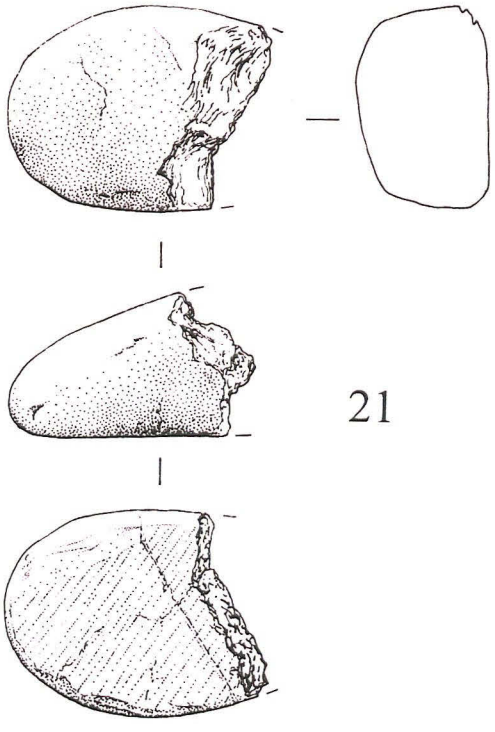

21

10 cm finds 17 20

10 cm finds 18 19 21

Figure 4 Site 4(DBF97) Finds from Saxon grave 021 and Saxon finds from non grave features

Appendix 11

List of finds from around Site 4 (DBF97)
on the Market Deeping bypass donated
by local metal detectorist Mr Charley Press

by

Gary Taylor

DBF97 Metal detector finds

66 Copper alloy brooch, bow broken, no catchplate; spring and pin missing; Colchester B, *c.* AD 50-70 (cf. Crummy Fig 6, 48; 50; 52)

67 Copper alloy cast strip, fan-tailed, some indications of ring and dot decoration. Probably a book-clasp of 15th-17th century date (cf Read 1988, Fig 18, nos 7, 8, 15)

68 Copper alloy buckle loop fragment, similar to single-loop buckles of 17th century date (cf Read Fig 27, no 23) and slightly earlier 16th century double-loop buckles (cf Read Fig 21, nos 5, 6; Fig 16, nos 19-23, 26).

69 Copper alloy cast object; three loops with beaded edges. ?Decorative mount. Unknown date.

70 Copper alloy ?strap end, anthropomorphic (face) design. ?Medieval.

71 Copper alloy brooch fragment; probably Colchester (cf Bancroft 35) but too little remains to be certain. ?1st century AD

72 Copper alloy ring D-sectioned, 17mm external diameter. Finger ring, originally gilded (traces of gilding survive on interior). Medieval.

73 Copper alloy bracelet terminal, flattened snake head form; zoomorphic or phallic decoration; slightly similar to Crummy 1693 (*c.* 320-450) and (less so) 1712 (3rd-4th century). Probably 4th century AD in date.

74 Copper alloy, oval hinged plate brooch; pin and catchplate missing; central cabachon missing; outer flange may have been enamelled but none surviving. The ridge around the central cabachon/umbo may be silver wire. Some similarities to Crummy 85 which dates to the 2nd century AD. A slightly similar plate brooch from Bancroft is also 2nd century (Mackreth 1994, 301-2).

75 Copper alloy trumpet brooch, spring and pin missing; similar to Aldborough 325. Trumpet brooches are British products made from the mid 1st and into the 2nd century AD (Crummy 1993, 14).

76 Copper alloy bracelet, bead imitatitive or crenellated, with longitudinal grooves on tapered ?terminal. Similar to Bancroft 71-3; Aldborough 296; Crummy 1659; 1721; 1726. The Colchester examples (Crummy) are dated to *c.* 320-450 AD. Crenellated bracelets from Bancroft are 4th century (Hylton and Zeepvat 1994, 307) while examples found at Baldock are no earlier than the 4th century AD (Stead 1986, 125-6).

77 Silver Iron Age coin. See attached report from Ashmolian Museum

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Read, B. A., 1988 *History Beneath Our Feet* (Braunton)

The University of Oxford
ASHMOLEAN MUSEUM · OXFORD · OX1 2PH

HEBERDEN COIN ROOM
Telephone (01865) 278058
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28 November 1996

Dear Mr. Press,

Many thanks for sending us your coin for identification. You are quite right that it is Celtic and it is a South Ferriby unit (silver, but very debased silver). In Van Arsdell's book it is no. 877 of which there are several variants but your coin is not in good enough condition to place it more precisely. The original design on the obverse was a boar but on some of the variants it is no longer very visible. The reverse is a horse right with a ring of pellets above. It was minted by the Corieltauvi.

I hope this information is useful.

Yours sincerely,

Cathy King

Dr. C.E. King

Direct telephone lines: Dr D.M. Metcalf 278062 Mr N.J. Mayhew 278059 Dr C.J. Howgego 278063
Dr W.L. Treadwell 278065/278209 Mr H.S. Kim 278060 Dr C.E. King 278061

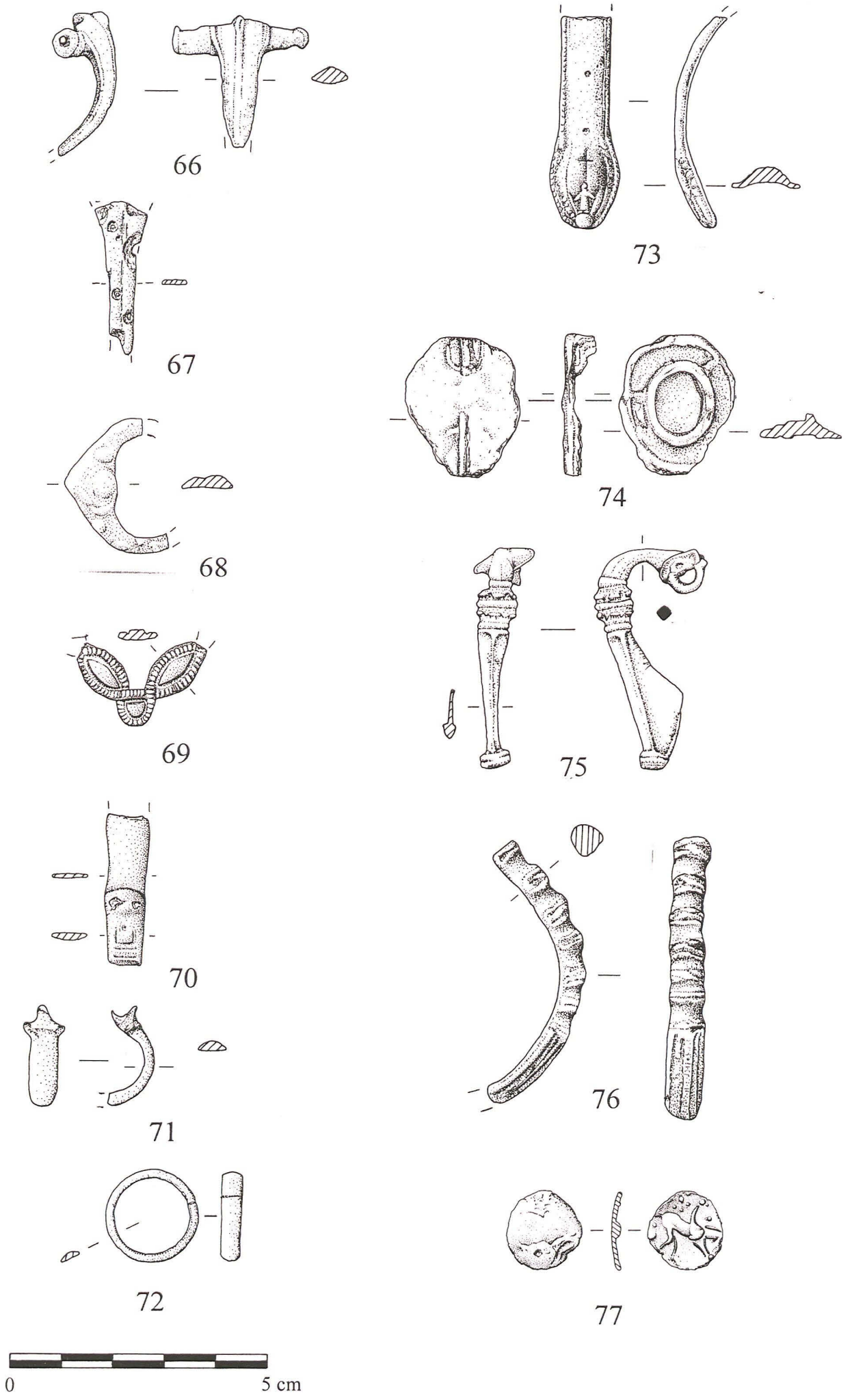

Figure 1 Site4 (DBF97) Finds discovered from around Site 4 by local metal detectorist.

Appendix 12

Report on the Micromorphology on the
Market Deeping bypass by Dr. Charley French

by

Dr. Charly French

The A15 Northborough/Market Deeping Bypass :

Micromorphological analysis of two buried soil profiles

C A I French
(11/8/1998)

Introduction

The excavations along the route of the A15 Northborough to Market Deeping Bypass indicated that there was relatively shallow (<80cm) alluvial cover across the whole length of the bypass route with patchy preservation of associated buried soils beneath. This landscape is much dissected by at least four relict palaeo-channel systems.

The lower Welland valley has seen a considerable amount of archaeological and geomorphological investigations since the 1960s (Pryor and French 1985; French 1990; French *et al* 1992; Passmore and Macklin 1993; Simpson *et al* 1993; Coyle and French 1995; French and Pryor in press; Pryor in press). What is clear throughout all of this work is that the archaeology on its own rarely makes much sense unless it is placed in its appropriate landscape setting. In particular, as the valley floor (Welland First Terrace Gravels) is characterised by large zones with the deposition of alluvium and associated anastomosing and braided river systems developed over the last 12,000 years or so (see French *et al* 1992), it is crucial to understand which river system is active at any one time. The establishment of this geomorphological picture is essential in order to appreciate the extent of the contemporary adjacent, damp and relatively dry landscapes available to human groups in the past.

Buried soils were observed along the length of the bypass route. These tended to appear as thin (<20cm), yellowish brown silty clay loams. This apparently 'poor' and less obvious preservation is probably due to several factors. First, there could have been relatively little earlier Holocene soil development because of this areas long-lived propensity to flood and receive alluvial fine material (silt and clay). Second, the continual seasonal deposition of alluvial fines over time has transformed the *in situ* soil from a once friable sandy/silt loam to a sticky and rather poorly drained silty clay loam as observed at present. Given that similar or greater amounts of alluvial deposition have affected the other areas of the floor of the Welland valley to the south and there is good micromorphological evidence for development of extensive buried brown earths (French 1990; French *et al* 1992), the latter case seems more likely. This is suggestive of long-lived alluvial and seasonal waterlogging in this area, and therefore there is good potential for the preservation of more enigmatic types of earlier prehistoric sites on the fringes of the palaeo-channels associated with contemporary buried soils.

In particular, there was one well preserved buried soil profile (1) situated beneath the east-west headland located about 150m south of the Northborough round-about. This was a *c* 20cm thick, pale yellowish brown, silt loam soil with some evidence for horizonation. It was sampled for micromorphological analysis largely for comparative purposes and to add to the reference soil data for this part of the lower Welland valley.

Immediately east of Foxcovert Farm there is an area of intensive archaeological activity. Beneath the present day ploughsoil, there is an extensive zone of greenish grey silt, about 10cm thick, which grades into a 20-30cm thick buried soil (profile 2). At face value, this deposit looks like a 'spread' of occupation debris on/within the pre-alluvial topsoil with the soil component discoloured by the addition of cess. This was

sampled for micromorphological analysis in order to ascertain the pre-alluvial land-use and its relationship to the archaeological activities clearly represented by numerous pit, ditch and eaves-drip gully features which are suggestive of prehistoric settlement.

The five sample blocks from profiles 1 and 2 were made into thin sections using the method of Murphy (1986), and described using the terminology of Bullock *et al* (1985). The micromorphology of the soil profiles is briefly described below, with detailed descriptions in Appendix 1.

Descriptions

Profile 1

The upper part of the buried soil (sample 1/1) is an apedal, dense sandy loam, comprised predominantly of very fine, fine and medium quartz sand (75%), with a minor component of non-laminated dusty clay (20%). The latter component is distributed in amorphous zones of greater and lesser intensity throughout the groundmass with almost none evident in the voids, and exhibits moderately well developed reticulate striations. There are also a few amorphous zones of amorphous sesquioxide impregnation.

The lower part of the buried soil profile (sample 1/2) is essentially the same as for sample 1 although it contains a slightly greater veryfine/fine/medium/coarse quartz sand content (90%) and less dusty clay (10%), but which is more evenly distributed throughout the groundmass. Amorphous sesquioxide impregnation also increases down profile.

Profile 2

Sample 2/1 is comprised of three, relatively similar fabrics, which are partially mixed together. The main fabric (1 : 50%) is a weakly birefringent dusty clay with <30% very fine to medium quartz sand. The subsidiary fabrics consist of sub-rounded fragments of organic silty clay (fabric 2 : 30%), and irregular zones of dusty clay which are more evidently strongly birefringent (fabric 3 : 20%). The whole matrix exhibits about 20% irregular void space.

Sample 2/2 and 2/3 exhibited one fabric with a weakly developed, small, sub-angular blocky ped structure, with porosity increasing downprofile from 20 to 40%. The fabric is a silty clay loam dominated by non-laminated dusty clay throughout with weak to moderate reticulate striations; it is essentially similar to fabric 1 in sample 2/1. In addition, there are occasionally some micro-laminated dusty clay coatings occurring as infills in the void space. There are a variety of other features such as rare bone fragments, a few, irregular zones of sesquioxide/manganese impregnation, especially towards the base of the profile, a few, irregular zones of greater sand content (up to *c* 90%), rare, small (<500um), rounded, phosphatic nodules, and a general but weak phosphatic nature to the whole fabric. Towards the base of sample 2/3 there is minor micritic calcium carbonate present, very finely comminuted charcoal/organic matter throughout the groundmass, and the rare occurrence of burnt soil.

Interpretation

Profile 1

This soil situated beneath a presumed medieval headland is a sandy loam with a relatively well oriented and organised, but minor, dusty clay component. These features are suggestive of the lower, weathered B or Bw horizon of a brown earth (after Avery 1980). This soil type is commonly found on the slightly higher parts of the first terrace gravels in this part of the lower Welland valley (French 1990). It would appear that the headland has protected the buried soil from the considerable addition of alluvially derived silts and clays. Nonetheless, the soil is apparently truncated, or its A horizon has been incorporated within the overlying headland.

Profile 2

The upper third of this profile is composed of a mixture of three different fabrics : an *in situ* silty clay loam or lower A horizon type of soil (fabric 1), probably with silty clay or alluvial additions; aggregates of a relatively organic-rich silty clay, probably an upper A horizon with alluvial additions (fabric 3); and irregular zones of silty clay of alluvial origin (fabric 2). As this upper horizon is only just below the present day ploughsoil, it could easily have been affected by recent soil mixing processes, both regular ploughing and bioturbation. But, the general absence of dusty clay infills of the voids does suggest that this horizon remains largely undisturbed by recent arable practices. Although it is dangerous to speculate on the basis of one slide, there is the possibility that this soil was mechanically disturbed in the past. The partial mixing of two fabrics in irregular zones to aggregate form is a 'classic' indicator of ploughing (Jongerius 1970, 1983). Also, the shallow depth of mixing (*c* 11-12cm) is suggestive of ploughing with an ard (Romans and Robertson 1983; Gebhardt 1990).

In addition, this upper horizon of the buried soil profile contained Romano-British pottery and charcoal giving it the appearance of a spread of midden material. There are some hints as to possible explanations. The small aggregates of silty clay are unusual, but it is worth speculating that these are derived as minute erosion 'spalls' off a mud wall of a structure. These have certainly been observed by the author to occur around the inside and outside of mud covered wattle walls of reconstructed round houses at Flag Fen, Peterborough, Butser Experimental Farm in Hampshire and the Cranborne Ancient Technology Centre in Dorset.

In the field, this midden deposit is characterised by its distinctive greenish grey colour. This discoloration of the matrix was not evident in thin section. But, the few phosphatic nodules present and the general phosphatic 'tinge' to the whole fabric plus the distinctive colour in the field are suggestive of the inclusion of cess. It is possible that the cess was associated with the dumping of the midden material above and/or the creation of a plaggen soil.

So, it would appear that the soil has had material added to it derived from settlement debris, perhaps to make a more nutrient-rich and friable soil. This is also believed to have occurred at the nearby Late Bronze Age/Early Iron Age site of Welland Bank Quarry, effectively making a plaggen soil for agricultural purposes, and in this case associated with ard marks (French 1998).

The lower two-thirds of the buried soil in profile 2 is a silty clay loam fabric with an evident blocky soil structure. It was dominated in thin section by the amount of dusty clay present throughout and open, porous fabric. The silty clay component was predominantly non-laminated dusty clay with included very fine organic matter, and mainly occurs as integral with the groundmass. The contrast with profile 1 is striking, suggesting that this soil has received relatively large amounts of alluvially derived fine material which has changed the soil textural class from sandy loam to silty clay loam. The whole fabric has been thoroughly mixed by the soil fauna, and it has become an argillic or Bt horizon of a brown earth.

In addition, the increasing porosity and its irregular aspect suggests that this matrix once contained a far greater organic component which has subsequently been destroyed through oxidation.

Conclusions

Investigation of two buried soil profiles to the east and southeast of Foxcovert Farm has suggested that the natural Holocene soil cover or brown earth became increasingly subject to alluvial aggradation and by implication a seasonally high groundwater table from later prehistoric times onwards. In addition, there was an extensive area of deliberately enhanced soil which overlay an extensive Iron Age settlement which contained Romano-British artefacts. This enhanced soil contained midden debris, mainly pottery, charcoal and comminuted fragments of animal bone, silty clay possibly derived from walling mud, considerable quantities of cess and organic matter (now completely oxidised). Moreover, there are strong hints that the upper 10-12cm of this humanly enhanced or plaggen soil was at least occassionally disturbed by arable use, in this case possibly by an ard plough.

Thus, along with the nearby Welland Bank Quarry site to the east where there was an extensive plaggen soil that had been ard ploughed, the importance of the Foxcovert Farm area in the later prehistoric record of the lower Welland valley cannot be underestimated.

Acknowledgements

I would like to thank Julie Boast of the Geoarchaeology Laboratory, Department of Archaeology, University of Cambridge, for making the thin section slides.

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Appendix 1 : The detailed soil micromorphological descriptions.

Profile 1, sample 1 (*c* 47-58.5cm)

Structure : apedal, with minor vertical cracking; *Porosity* : dense; <10% vughs, irregular to sub-rounded, <500um; rare (<2%) channels, vertical, <250um wide, <3cm long, weakly serrated; *Organic Component* : very rare (<1%) plant tissue fragments with cell structure evident; <5% very fine, included, charcoal/organic matter in silty clay; *Mineral Components* : limit 100um; coarse/fine ratio : 50/50; coarse fraction : 5% coarse, 15% medium and 30% fine quartz, 100-1000um, sub-rounded to sub-angular; fine fraction : 30% very fine quartz, 50-100um; 10% silt and 10% clay; greyish/golden brown (CPL), yellowish brown (PPL), pale yellow (RL); *Groundmass* : related and fine : porphyric; moderate reticulate striated; *Pedofeatures* : *Textural* : 20% non-laminated, dusty clay, mainly of groundmass in greater/lesser density, irregular zones, moderate birefringence, reticulate striated, gold to amber (CPL); *Amorphous* : *c* 5% amorphous, irregular zones of sesquioxide impregnation of groundmass and of greater density zones of dusty clay; very rare (<1%) fragment of bone, <500um.

Profile 1, sample 2 (*c* 61-69cm)

Essentially the same as Profile 1, sample 1, except for :

Structure : apedal; *Porosity* : dense; 10% vughs, irregular to sub-rounded, <4mm; *Organic Component* : <2% very fine, included charcoal throughout groundmass; *Mineral Components* : corase/fine ratio : 65/35; coarse fraction : 10% coarse, 20% medium and 35% fine quartz, 100-1000um, sub-rounded to sub-angular; fine fraction : 25% very fine quartz, 50-100um; 10% non-laminated dusty clay; *Pedofeatures* : *Amorphous* : *c* 20% amorphous iron in irregular zones, <4mm, occasionally infilling a void or as nodules.

Profile 2, sample 1 (c 25-35cm)

Structure : partially homogeneous/heterogeneous mixture of three fabrics, occur as irregular to sub-rounded aggregates, <4mm; *Porosity* : c 20% vughs, irregular, <4mm; <2% channels, <250um wide, <2cm long, near vertical, smooth to weakly serrated; *Organic Component* : rare plant tissue fragment in voids with cell structure evident; *Mineral Components* : limit 100um; fabric 1 : coarse/fine ratio : 20/80; coarse fraction : 15% medium and 5% fine quartz, 100-500um, sub-rounded to sub-angular; fine fraction : 10% very fine quartz, 50-100um; 65% non-laminated dusty clay, weak birefringence, weak reticulate striation in zones; 5% laminated dusty clay in channels as coatings, moderate birefringence; gold to brown (PPL), golden brown (CPL), yellowish brown (RL); *c* 50% of total groundmass; fabric 2 : irregular to sub-rounded zones of strongly birefringent, weakly reticulate striated, non-laminated dusty clay, <4mm, gold (PPL), grey/gold and yellow (CPL); *c* 30% of total groundmass; fabric 3 : sub-rounded aggregates of silty clay (60%), very fine quartz sand (20%) anf very fine included charcoal/organic matter (20%); <1mm; greyish brown (CPL), brown (PPL); *c* 20% of total groundmass.

Profile 2, sample 2 (*c* 37-53cm)

Structure : apedal to weakly developed, small, sub-angular blocky, <4mm; *Porosity* : 20-30% vughs, <2mm, sub-rounded to irregular; 5% inter-aggregate channels, <250um wide, ,2mm long, irregular, smooth to weakly serrated; *Organic Components* : 10% very fine organic matter/charcoal, in irregular, greater/lesser density; *Mineral Components* : limit 100um; coarse/fine ratio : 25/75; coarse fraction : <1% coarse, 15% medium and 10% fine quartz, sub-rounded to sub-angular, 100um - 2mm; fine fraction : <5% very fine quartz, 50-100um; 70% non-laminated dusty clay; golden brown (PPL/CPL); *Groundmass* : fine and related : open porphyric; weak to moderate reticulate striated; *Pedofeatures* : *Textural* : very abundant (>68%) non-laminated dusty clay in groundmass and as coatings of grains and voids, moderate to strong birefringence, golden brown (PPL), gold/yellow/reddish yellow (CPL); rare (<2%) micro-laminated dusty clay in voids, moderate birefringence, reddish yellow (CPL); *Fabric* : few zones of greater quartz sand content, with coarse/fine ratio of 80/20, <4mm, irregular to sub-rounded, <1% of groundmass; *Amorphous* : rare (<1%) bone fragments, <500um; common irregular zones of iron/manganese impregnation towards base of slide, <30% of total groundmass; whole groundmass exhibits weak phosphatisation; rare (<1%) phosphatic nodule, sub-rounded, <500um, dark brown (CPL) with dusty clay 'halo', amber (PPL), dull reddish brown (RL).

Profile 2, sample 3 (*c* 53-65cm)

The same as for sample 2/2 except for :

Porosity : 40% vughs; *Mineral Components* : basal one-third of slide dominated by 75% fine gravel. <1.5cm, and 25% soil fabric (as for sample 2/2); *Pedofeatures* : Textural : occasional (2-3%) void infills with micro-laminated pure clay and dusty clay; *Amorphous* : very rare (<1%) burnt soil fragments, <500um; rare (<2%) micrite.

Appendix 13

Report on the human bone from Site 4 (DBF97)
on the Market Deeping bypass by Rebecka Gowland

by

Rebecca Gowland

Human Skeletal Material From the Fox Cover Farm Site of the Market Deeping Bypass, Cambridgeshire

Author: Rebecca Gowland BSc.

Project Code: DBF 97
June 1997

Contents

1.0 Introduction

The human skeletal remains analysed in this report are from the Fox Cover Farm site (project code DBF 97) of the Market Deeping Bypass, Cambridgeshire. The material comprises of seventeen in-situ burials including fourteen adults, two children and one infant. The results of the examination will be discussed individually with regards to age, sex, stature and pathology of each skeleton, following which the group will be summarised and discussed collectively. As yet, dates for the skeletons have not been satisfactorily established. The earliest inhumation from the site appears to be a crouch burial which was excavated during the evaluation and is thought to be Bronze Age in date. There seems to have been occupation of the area from at least the Iron Age, with evidence of several round houses and it is possible that one of the inhumations belongs to this period. From the funerary rites observed and associated metal work the majority of the burials appear to be Romano-British or Anglo-Saxon in date. A brief discussion of the types of mortuary practises represented will be included at the end of the report.

The appendix consists of the archive compilation which contains details of the bones present, metrical data and details of the analysis for each skeleton.

2.0 Methodology

2.1 Sexing

2.11 Adults

Where possible the bones were sexed by the morphological examination of the pelvis, skull and long bones together with consideration of the metrical data. In some instances it was not possible to sex an individual with a satisfactory degree of confidence due to either poor preservation, or a level of ambiguity in those features present. Where this is the case either a question mark has been placed next to the probable sex or no sex has been given. Details of the features analysed in the sexing of each individual are presented in the archive compilation.

2.12 Infants and Juveniles

The sexing of infant and juvenile bones is considerably more contentious than adult skeletal remains. Before the onset of puberty and the manifestation of secondary sexual characteristics, the bones of children are less sexually dimorphic. A number of authors (Schutowski, 1993; Conference proceedings, 1989; Weaver, 1980), however, do maintain that it is still possible to sex a child using the ilium and the mandible, with an acceptable degree of confidence. With this in mind, although attempts have been made to sex the immature individuals in this skeletal assemblage, a question mark has been placed next to the probable sex to indicate the tenuous nature of this undertaking.

2.2 Ageing

2.21 Adults

A multifactoral approach to ageing the material was undertaken, embracing as many methods of ageing the skeletal remains as possible. The methods used differed between individuals as they were determined by those skeletal elements which survived, and as such, because certain skeletons are incomplete, there may be a lack of uniformity with which an age range is quoted. For example, where an individual is aged by the dentition alone an age range of ten years may be involved, whereas an age obtained using the pubic symphysis is usually quoted to within a 5 years age range. It must also be noted that many methods of ageing have proven much less precise when applied to older individuals and as a result, after the fourth decade, again a greater age range will be cited.

The methods of ageing used include the examination of the following: Eruption of the third molar and dental attrition (Brothwell, 1981); metamorphosis of the auricular surface (Lovejoy et al,1985) and pubic symphysis (Meindl et al., 1985); examination of late fusing epiphyses (Szilvassy,1980; Webb and Suchey, 1985) and the metamorphosis of the fourth sternal end rib (Iscan et al., 1984; Russel et al. 1993).

2.22 Infants and Juveniles

Infant and juvenile skeletal material can often be aged much more accurately than adult remains due to the wide variety of developmental stages occurring during this time which accurately reflect the chronological age of the child. As a result, despite generally poor preservation and recovery at excavation of juvenile bones, the ability to age the remains is generally more successful than for adult skeletal material.

The following methods have been used in ageing the immature skeletal remains: Examination of dental development and eruption (Ubelaker, 1989; Ten Cate, 1989); long bone growth (Johnston, 1962); skeletal maturity and epiphyseal union (Schwartz, 1995); occipital development (Redfield, 1970); tympanic plate development (Weaver, 1979).

2.3 Stature

Stature was calculated, where possible, from measurements of the lower limbs using formulae derived from Trotter and Gleser (1958). Where the lower limbs were insufficiently preserved or incomplete, the upper limbs were used, however, it must be noted that stature estimates derived from upper limb bones are less accurate. It must also be recognised that although a precise stature is quoted in this report for each individual, in actuality this figure is an *estimation* only.

2.4 Pathology

Each individual was examined for evidence of; metabolic and endocrine disorders, nutritional deficiency, trauma, degenerative disease and infectious disease. Palaeopathological examination is severely limited by a number of factors which must be borne in mind when suppositions regarding the health of a skeletal population are being formulated. Few diseases leave any trace upon the bone and evidence of pathological processes is largely restricted to only chronic illnesses, where a number of skeletal elements are affected over a long period of time. Of those diseases which do affect bone, if infection is particularly acute, then, again, the individual is likely to die with no evidence remaining for the palaeopathologist. Furthermore, bone has a limited number of responses to a wide variety of pathological conditions and as a result a differential diagnosis is often necessary. This involves two or three possible causes of any abnormality in the bone structure being stated, with the most probable cause being highlighted. (Rogers et al., 1987).

Archive Compilation

This consists of detailed records of the bones and dentition present, metrical data, and details of the ageing and sexing analyses.

3.0 Description of the Remains

The following section contains a description of each individual. Those context numbers which were assigned at the time of excavation have been retained.

Abbreviations
CV= Cervical vertebrae
TV= Thoracic vertebrae
LV= Lumbar vertebrae

OA= osteoarthritis
OP= osteophytosis

M1, M2, M3 = first, second and third molars
I1 and I2 = first and second incisors
PM1 and PM2 = first and second pre-molars
C = canine

3.1 Adults

Skeleton 003

Position of Body.
The remains of this individual are incomplete and disarticulated with the bones having the appearance of being dumped, perhaps as a result of disturbance by a later inhumation, with the disordered remains of skeleton **003** then being incorporated into the backfill.

Orientation
None (resulting from the disarticulated condition of the remains).

Preservation
As a result of the apparent disturbance of the remains the skeleton is incomplete, however, preservation of those bones remaining is excellent.

Sex
Male
Determination based upon the robust characteristics of the skull and long bones together with the masculine appearance of the pelvis.

Age
30-35 years
Determination based on the pubic symphyseal face.

Stature.
165cm
Estimation from measurements of the right femur.

Dentition
Right mandibular PM1 only.

Pathology
No evidence of abnormalities or disease.

Skeleton 009

Position of the Body
Skeleton **009** was placed side by side with skeleton **010** in the same grave cut. The skeleton was supine and extended with both hands placed upon the pelvis.

Orientation
West-East

Preservation
The bones were in excellent condition, however, modern plough damage had removed the lower limbs and caused fragmentation of the skull.

Sex
Male
Determination based upon the extremely masculine features of the pelvis, together with the morphology of the skull and metrical data from the long bones.

Age
40-50 years
Determination from the auricular surface of the pelvis

Stature
178cm
Estimation based upon measurements taken from both humeri.

Dentition

Max R X X X 5 4 3 / 1 . 1 2 3 4 5 / / / L
Mand R 8 7 6 5 4 3 2 1 . 1 2 3 4 5 6 7 8 L

(Lost post-mortem = / Lost ante-mortem = X)

Dental Pathology

Ante-mortem tooth loss: The loss of all right maxillary molars occurred some considerable time before death, resulting in the remodelling of the alveolar bone so that the sockets are no longer visible. This ante-mortem loss has also resulted in a build-up of

calculus on the occlusal surface of the right mandibular molars. The subsequent loss of masticatory efficiency on the right side of the mouth has led to a favouring of the left side with a corresponding greater degree of attrition reflected in these teeth.

Calculus: Small to moderate quantities of calculus are present on all of the remaining teeth. The right mandibular molars show very large calculus deposits to the extent that the occlusal surfaces have also been coated. Sub-gingival calculus (calculus deposits on the roots of the teeth) is also evident on these molars .

Attrition: The degree of attrition exhibited by the individual teeth is variable. All of the teeth exhibit secondary dentine. The right and left M2 and M3 show the least attrition but this is likely to have resulted from the early loss of their occlusal partners. The first mandibular molars show the greatest degree of wear. All mandibular premolars are worn to the root, as is the right maxillary PM2.

Carious cavities: A considerable number of caries are evident in this dentition. A chronic neck carious lesion is present on the buccal side of the left mandibular M3. On the adjacent M2 there is a carious lesion on the distal side of the neck. The left mandibular M1 has an intreproximal neck cavity on the medial side which corresponds to an interproximal neck lesion on the distal side of the adjacent PM2. The medial lingual root of the left maxillary M1 exhibits a small carious lesion located buccally. It appears that this root is all that remains of the tooth.

Abscesses: Skeleton **009** would have been in considerable pain during life due to the high incidence of abscesses. Both the right and left first mandibular molars have two periapical abscesses, one each on both the medial and distal buccal roots. It is apparent that the abscesses, certainly on the first left mandibular molars, resulted from a combination of severe attrition and carious lesions, both of which would have exposed the pulp cavity to infection. Another periapical abscess is evident at the root of the left maxillary PM2, again the severe attrition exhibited here is likely to have been the causative factor.

Periodontal Disease: Alveolar resorption is apparent to quite a severe degree, in particular, around the mandibular molars and the anterior maxillary teeth, but also to a more moderate extent around the remaining teeth. Resorption leads to an increase in the distance between the alveolar bone and the neck of the tooth and contributes to ante-mortem loss of teeth. The pitted lamellar (new bone) indicates that this is a result of periodontal disease. Severe attrition can lead to the continual eruption of teeth and an increase in distance between the alveolar margin and the cemento-enamel junction which may mimic the effects of periodontal disease, however, the presence of new bone indicates that this is not the case here. The periodontal disease in this individual is probably most severe around the molars as a result of the greater quantities of calculus in this region. Calculus is thought to act as a predisposing factor to peridontitis by causing inflammation of the gums (gingivitus) and subsequent infection.

The most curious factor about the dentition was the presence of animal teeth located within the oral cavity during excavation. One was a canine and another appears to be a small carnivore pre-molar. The location of these teeth in the mouth may be more than

accidental, particularly with regard to the poor condition of the dentition and the obvious discomfort the man would have suffered as well as an extremely limited diet due to the reduction in masticatory ability. It is highly unlikely that the animal tooth would have been used as a false tooth due to problems in attachment and the likelihood of ensuing infection. Its presence therefore, is either coincidental, or resulted from it being placed in the mouth upon burial, perhaps as an aid in the "afterlife".

Pathology

Degenerative Change

Osteoarthritis: A number of joints exhibited osteoarthritis with varying degrees of severity. The right shoulder joint shows minor OA with osteophytic lipping around the humurel head and minor lipping around the glenoid of the scapula. The right hip joint exhibits severe OA with very extensive lipping of the femoral head and corresponding massive new bone growth and eburnation around both the margins of the acetabulum and within. Moderate OA is evident on the costovertebral joints of one of the left ribs.

Vertebral Osteophytosis: This is present between the T8-T11, however, it is quite minor and has not progressed beyond the "frilling" stage. Porosity of the vertebral bodies between T8-T10 also evident

Congenital or other Bony abnormalities

An additional small ossicle of bone is located on the left temporal ridge. This ossicle is approximately 1.5cm in length and 0.5 cm width and has its own suture. This anomaly is likely to be a congenital abnormality. Another bony abnormality is the bilateral asymmetry of both the manubrium and the sternum. Asymmetry in this region is quite common.

Skeleton 010

Position

As mentioned above, this skeleton was in the same grave cut and laid out adjacent to skeleton **009**. The skeleton was supine and extended with both hands placed upon the pelvis.

Orientation

West-East.

Preservation

The preservation was excellent apart from the loss of part of the lower limbs due to modern ploughing.

Sex

Female.

Although some features of the mandible appeared more masculine (e.g. very prominent, large mental trigon) and the skull was ambiguous, the pelvis was undoubtedly that of a female (e.g. wide sciatic notch, obtuse sub-pubic angle and triangular obturator foramen).

Age
25-30 years
Age determination was based upon the examination of molar wear, the auricular surface, the pubic symphyseal face and the forth sternal end rib.

Stature
169cm
Estimated from measurements of the left femur.

Dentition

Max R 8 7 6 5 4 3 2 1 . 1 2 3 4 5 6 7 8 L
.....
Mand R 8 7 6 5 4 3 2 1 . 1 2 3 4 5 6 7 8 L

The medial buccal root of the right and left first maxillary molars is particularly elongated.

Dental pathology

This individual had a healthy dentition and did not suffer from ante-mortem tooth loss, caries, abscesses or periodontal disease.

Attrition: No severe attrition or unusual wear patterns.

Calculus: Moderate to large quantities of calculus are evident buccally on the mandibular and maxillary incisors only.

Pathology

Degenerative disease
Vertebral osteophytosis: Slight OP can be seen on the superior vertebral body of T10.

Trauma
Slight Schmorl's nodes are present on the superior surface of T9 and T10.

Congenital and other Bony abnormalities
Bilateral asymmetry of the manubrium.
Very minor spina bifida occulta affecting S1 only.

Skeleton 016

Position
This individual had been buried in a supine and extended position, with both hands placed by the side.

Orientation
North-South.

Preservation
The skull has been damaged by modern ploughing but otherwise the condition of the bones was very good.

Sex
Male.
Determination based upon the skull, pelvis and metrical data.

Age
30-35 years
Determination based upon the pubic symphyseal face and auricular surface.

Stature
168 cm
Estimates from both the right and left femur and tibia.

Dentition

Max. R X X X / / 3 2 1 . 1 / / 4 5 X X X L

Mand. R 8 7 6 5 4 3 2 1 . / / 3 4 5 6 7 8 L

Ante-mortem tooth loss: Considerable ante-mortem tooth loss had occurred, primarily in the maxillary teeth. Both right and left sets of molars were lost some time before death, with extensive alveolar remodelling ensuring that the tooth sockets on the left side had completely closed whilst those on the right side were in the process of remodelling.

Attrition: Slight to moderate on all teeth. The attrition of the mandibular molars will have been greatly reduced due to the ante-mortem loss of their occlusal partners.

Calculus: Moderate to large deposits of calculus are present buccally on the anterior mandibular teeth. Quantities are moderate on the remaining teeth and are concentrated primarily lingually.

Periodontal disease: Slight to moderate alveolar resorption is evident on the mandible, indicative of periodontal disease. This is the probable cause of the ante-mortem loss of the maxillary molars.

Pathology

Degenerative Disease.
a) Osteoarthritis: Slight marginal lipping of right and left distal femoral condyles. Minor OA of the right and left proximal humeral heads, strong muscle insertion marks particularly of the right humerus, may suggest that this is related to a strenuous occupation. Four left and three right ribs show moderate OA around the costovertebral joints and severe OA with eburnation and lipping is present around the costovertebral

facets of T10-T12. The cause of the severe OA at this point is the result of disturbed articulation due to fractured ribs. Moderate OA with osteophytic bone growth is evident on the inferior articular facets of T2 and severe OA with eburnation is present on the left superior articular facets of T2-T7. C3 shows severe OA on the right superior articular facet, which is highly eburnated. C4 shows corresponding OA on the right inferior articular facet.

b) Vertebral Osteophytosis: Large curved osteophytes are present from L2-L5 and less severe OP is present from T7-T10.

Trauma
T5 and T7 are anteriorly compressed and Schmorl's nodes are present on the inferior surface of the vertebral bodies of T5-T7.
Two right ribs (10th and 11th ?) have been fractured posteriorly, with the fracture having healed completely but which would have resulted in the slight shortening of these ribs.

Congenital and other bony abnormalities
Wormian bones along the lambdoidal suture.

Skeleton 019

Position
Skeleton **019** was in a supine and extended position, with both hands placed upon the pelvis.

Orientation
West-East.

Preservation
The bones were generally in good condition, however, modern ploughing had caused damage to the skull and the removal of the lower limbs.

Sex
Female
Determination from the pelvis, skull and metrical data.

Age
25-29 years
Determined using dental attrition and the auricular surface.

Stature
164-167cm
Estimated from the maximum length of the right and left humerus.

Dentition

Max. R - - - - - - - - - - . - - - - 5 6 7 8 L

Mand. R 8 7 6 5 4 3 2 / . / 2 3 4 5 6 7 8 L

Jaw not present = -

Dental Pathology

Attrition: Attrition pattern appears normal, no abnormalities (normal pattern of wear indicates that there was no ante-mortem loss of teeth in the missing part of the maxilla).

Calculus: Moderate quantities of calculus on the mandibular teeth, particularly buccally on the right and left second mandibular incisors and lingually on the remaining teeth.

Pathology

Degenerative Disease

Osteoarthritis: Slight OA is present on the inferior articular facet of C3 and the corresponding Right superior articular facet of C4.

Congenital and other bony abnormalities

Congenital fusion of T2 and T3. It is unlikely that this would have caused the individual any discomfort.

Only 4 Lumbar vertebrae are present. Fragmentation of the sacrum renders it impossible to tell if the 5th lumbar vertebrae has become sacralised.

Extra sacral facet on the ilium. This is quite a common trait, particularly amongst female pelves.

Skeleton 020

Position.

The body was decapitated and buried with the head placed in an upright position between the ankles and facing towards the upper body.

Orientation

West- East.

Preservation

Mechanical damage by modern ploughing was extensive with the body from the knees up having been removed. The skull had also undergone some fragmentation from the plough.

Sex
Female ?
Determination based upon the morphology of the skull and mandible together with metrical data from the tibia.

Age
20-30 years
Determination based on dental wear.

Stature
160 cm
Estimated from measurements of the tibia.

Dentition

Max. R / 7 6 5 4 3 2 1 . 1 2 3 4 / / 7 8 L

Mand. R * 7 6 5 4 3 2 1 . 1 2 3 4 5 6 7 8 L

* = Congenital non-eruption of right mandibular M3 .

Attrition: No severe or unusual attrition.

Calculus: Calculus is present, but only in small quantities, primarily located buccally around the maxillary incisors.

Carious Cavitites: The right maxillary M1 shows a severe, chronic interproximal neck carious lesion on the distal side which corresponds to a large interproximal neck lesion on the medial side of the adjacent M2.

Abscesses: The right maxillary M2 and the left maxillary M1 both have an apical abscess on the distal buccal root. The right mandibular M1 also has an abscess at the base of the medial buccal root.

Pathology

Trauma
The individual has been decapitated. The point of decapitation can be examined by those neck vertebrae which were attached to the skull when it was placed between the ankles. C1-C3 were intact and part of the posterior vertebral body and left articular facet of C4 was also present, together with a fragment of the left articular facet of C5. The decapitation appears to have been executed from the anterior, slicing through the vertebral body of C4 at a downwards angle from right to left so that the left articular facets of C4 and C5 remain with the skull. A further indication of this is a cut mark on the anterior of the verebral body of C3 at the right side.

Congenital and other bony abnormalities
Congenital non eruption of the right mandibular M3.

Skeleton 023

Position

Skeleton **023** was buried in a pit with two other individuals, the skeleton of an adult female (**024**) and the skeleton of a child (**031**). Skeleton **023** appears to have been placed in the pit first with the legs outstretched and the upper body raised along the side of the pit. The right arm was flexed at the elbow so that the right hand was resting upon the right clavicle whilst the left arm is extended and lies underneath skeleton **024**. Skeleton **024** has been placed with the right arm over the left side of skeleton **023** so that the hand rested upon the pelvis of **023**. The legs of skeleton **024** are extended and both are laid across the left leg of **023**. Skeleton **024** appeared to be almost in a sitting position as the upper body rested against the side of the pit in an upright posture. The immature skeleton **031** is to the left of skeleton **023** and in a prone position with the head towards the base of the pit and the feet towards the top. Skeleton **023** had a small iron knife which appeared to have been worn on some kind of belt around the waist as small iron belt buckle was also recovered from the pelvis of **023**.

Orientation

East-West.

Preservation

The skeleton was generally in an excellent state of preservation, however, modern plough damage had removed the skull and upper neck vertebrae.

Sex

Male

Determination based upon the pelvis.

Age

25-30

Determination based upon clavicular fusion, pubic symphysis, auricular surface and dental attrition.

Stature

173cm

Estimated using estimates of both right and left tibia and femur.

Dentition

Max. R 8 / 6 - - 3 2 1 . 1 2 3 4 5 6 7 8 L

Mand. R 8 7 6 5 4 3 2 1 . 1 2 3 4 5 6 7 8 L

loss of jaw = - Post-mortem tooth loss = /

Attrition: Normal wear patterns.

Calculus: Moderate amounts of calculus on all teeth, but to a greater extent on the mandibular teeth.

Pathology

Degenerative Disease

Vertebral Osteophytosis: Massive osteophytosis is present on the right antero-lateral surface of the thoracic vertebrae between T8-T12, with interdigitation between T8-T9 and T9-T10. The osteophytes appear to be forming a supportive bony structure for the spine which may be a response to the slight anterior wedging of the vertebrae in this region. The wedging is likely to have resulted from trauma rather than a disease process such as tuberculosis because although the vertebral bodies, particularly from T8-T10, do show some degeneration, they do not exhibit the type of lesions that are usually associated with tuberculosis (Stirland and Waldron, 1990; Kelley and El-Najjar, 1980) and no other joints are involved. Massive, vertical osteophytes of this magnitude and position are reminiscent of DISH, and although this may still be borne in mind, the lack of extraspinal manifestations such as ligamentous ossification, mean that this diagnosis can not be given. (Rogers et al., 1987). Furthermore, DISH is most commonly seen in skeletal remains after the 5th decade of life (Roberts and Manchester, 1995) and this individual was only in his twenties. The presence of Schmorl's nodes testifies to a strenuous life and it would seem likely that the original diagnosis, that the osteophytes are a response to the extreme and constant mechanical pressure placed upon the spine, is the most likely.
Osteophytes are also present on L1-L4 but here they are not as extreme and only appear as a "frill" around the vertebral bodies.

Trauma

The Schmorl's nodes from T6-T12 also testify to the strenuous lifestyle that this individual was subjected to.

Congenital and other bony abnormalities

Bony exostosis in the right and left trochanteric fossa.

Skeleton 024

Position

See description for skeleton **023**

Orientation

East-West

Preservation

The condition of the bones was excellent, however, modern plough damage had removed the skull and upper cervical vertebrae.

Sex
Female.
As well as the female characteristics of the bones a foetus was recovered from the pelvic region of the skeleton.

Age
20-26 years
Age determination based upon examination of dental development and attrition, the auricular surface, pubic symphyseal face, fourth sternal end rib and the medial clavicular epiphysis.

Stature
166.2cm
Based upon measurements of both the right and left femora.

Dentition

Max **None of the maxilla or maxillary teeth are present**

Mand **R 8 7 6 5 4 3 2 1 . 1 2 3 4 5 6 7 8 L**

Attrition: Patterns of attrition are normal and therefore no serious malocclusions or ante-mortem loss of the maxillary teeth would be expected.

Calculus: Small-moderate quantities of calculus are present, predominantly lingually across all teeth.

Carious cavities: A small carious lesion is present buccally on the right mandibular M2 crown.

Pathology

Degenerative
Osteoarthritis: Slight OA of superior articular facets of L4.

Trauma
T5-T10 show Schmorl's nodes, most pronounced between T6-T8. This would indicate a strenuous life.

Congenital and other bony abnormalities
This individual had an extra cervical rib on both the right and left sides. An extra sacral facet is also present on the right and left ilium.

Pregnancy
Due to the protection of the foetus within the pelvic girdle, much of it had survived without severe mechanical damage and recovery at excavation was good. Ageing was

possible from the examination and measurement of the long bone lengths and the *pars basilaris*, both of which yielded an age of 20-24 weeks *in utero*.

Skeleton 027

Position
Skeleton 027 was buried in a supine and extended position with the right hand placed upon the pelvis and the left hand placed upon the lower chest.

Orientation
North-South

Preservation
The condition of the bones was moderate-good, however, the skull had suffered some mechanical damage from modern ploughing.

Sex
Male
Determination based upon the morphology of the skull, pelvis and long bones together with metrical data.

Age
50+ years
Determination based upon the auricular surface.

Stature
178cm
Estimation derived from measurements of both the right and left femora.

Dentition

Max R - - - 5 - - - - - . - - - 4 - - - - L

Mand R X X X 5 4 / X X . X X / 4 5 X X 8 L

***Ante-mortem loss of teeth*:** Very severe with extensive remodelling of the alveolar bone so that the sockets of the incisors and mandibular molars (with the exception of the right third mandibular molar where new bone growth was still underway) are no longer visible. Ante-mortem loss of the anterior teeth is less common than loss of the molars and in some circumstances is indicative of violence. However, in this individual the extensive ante-mortem loss of the teeth is likely to be an age related phenomenom. Although much of the maxilla is missing, it seems likely that tooth loss would have been equally as extensive here and such severe tooth loss would have placed great restrictions upon the individuals diet, with starvation very possibly contributing towards death

Attrition: As would be expected, attrition is severe, with the extensive ante-mortem tooth loss placing greater masticatory pressure upon the remaining teeth. An unusual pattern of attrition can be observed on the left 3rd molar which is worn heavily on the distal surface only. This condition is likely to have arisen from unusual occlusion with a maxillary tooth or teeth and again is likely to have resulted from the ante-mortem loss of so many teeth.

Calculus: With so few remaining teeth observations of calculus is limited, however, the right first pre-molar does exhibit a moderate calculus build-up.

Periodontal disease: There is a moderate amount of alveolar resorption around those teeth remaining. Periodontal disease, together with old age is likely to be a contributing factor to the loss of teeth.

Pathology

Degenerative Disease

a) Osteoarthritis: Moderate OA in the form of new bone growth is evident around the margins of the right and left acetabulum. C6-T2 vertebrae also show degenerative change in the form of porous vertebral bodies with reactive sclerotic bone growth. The carpals, metacarpals and phalanges of both the right and left hands all show minor OA with lipping around the joint surfaces. Slight OA is present around the margins of the glenoid of the left scapula.

b) Osteophytosis: L1-L5 vertebrae exhibit severe, symmetrical osteophytosis with curvature of the osteophytes onto the adjacent vertebrae, but with no fusion. The osteophytes of L1 and L5 are particularly large with a flowing appearance and this, together with those vertebrae affected, does appear to represent the condition ankylosing spondilitis (AS). However, the lack of inter-spinous and supra-spinous ossification of ligaments suggests that AS is not the condition present. The most probable cause of the pathology observed is likely to be Spondlylitis Deformans with the osteophytes forming in response to a reduction in the mechanical efficiency of the spine associated with increasing age. The vertebrae C6 and C7 and T10-T12 exhibit more moderate osteophytes which appear only as a frill on the anterior vertebral bodies.

Trauma

Schmorl's nodes are evident from the inferior vertebral body of T11 to the superior vertebral body of L4. T11 is wedged anteriorly and towards the right side of the vertebral body, this compression fracture may have resulted from mechanical pressure exerted upon a vertebral column which has been weakened by the loss of bone mass associated with age.

Infection

Primary periostitis is evident on the anterior of the left tibia at the mid-shaft level and the anterior of the left fibula towards the proximal end. The right tibia also exhibits primary periositis towards the medial side, again at the level of the midshaft. Periostitis around the anterior of the tibia and fibula would seem to indicate a chronic pathological process from

a non-specific infection, however, the precise aetiology of this condition is not known despite the common occurrence of this bony abnormality in the past. (Manchester, 1984)

Skeleton 034

Position
This individual was buried with the legs tightly flexed. The knees were bent upwards and towards the right and both the right and left hands were placed by the pelvis. For this very tight flexed position to be achieved it does seem likely that the individual was bound or tied in some way when inhumed.

Orientation
East-West

Preservation
The bones were in a poor-moderate state of preservation. The skeleton had undergone extensive fragmentation of almost all of the long bones, a factor which greatly restricts any metrical analysis.

Sex
Female ?
Determination based upon the highly fragmented pelvis and skull.

Age
Adult
Poor preservation of the relevant skeletal elements required for ageing, together with extensive ante-mortem tooth loss have resulted in an inability to age the remains.

Stature
161.5-166.6
Only a rough estimate as the values were obtained from the reconstructed left femur.

Dentition

Max R - - - 5 4 3 2 / . 1 2 / / 5 6 - - L

Mand. R 8 7 X X 4 3 2 / . 1 2 3 4 5 6 7 8 L

Ante-mortem tooth loss: The right mandibular M1 and the adjacent PM2 have been lost ante-mortem with subsequent remodelling of the alveolar bone.
***Attrition*:** Uneven wear patterns can be observed in this individual's dentition and is likely to have arisen from the ante-mortem loss of teeth on the right side which would have placed greater masticatory emphasis on the dentition on the left side, hence creating an unequal pattern of wear and resulting in the infection of the teeth on the left.

Calculus: Both sub gingival and supra-gingival calculus is present in moderate quantities predominantly around the molars.

***Carious cavities*:** Five caries are evident in this dentition, testifying to poor dental hygiene. The left mandibular P2 shows a chronic, deep carious lesion which penetrates the roots and is likely to have been the route of infection for the abscess on this tooth. The right M3 and M2 both exhibit interproximal neck caries, medial on M3 and distal on M2. The left M2 and M3 also show interproximal neck caries located medially on M3 and distally on M2.

***Abscesses*:** The left mandibular M1 has two periapical abscesses, one at the base of each root. The left mandibular M2 and M3 both suffer from root abscesses as does the right mandibular P1. The number of abscesses is severe and this individual would have been in intense pain and also have had a very restricted diet, a factor which may have been a contributing factor towards a death which may be considered a light relief from the agonies of this nightmare dentition.

***Periodontal Disease*:** Given such a poor dentition it is not surprising that the alveolar bone shows signs of infection with quite significant alveolar resorption evident, particularly around the molars.

Pathology

Degenerative Disease

There is no evidence of degeneration of the joints or vertebrae, however, if any arthropathies were present they are likely to have been obscured by the poor preservation of the bones.

Trauma

There is no evidence for any trauma, but severe fragmentation of the bones again may have obscured possible signs of fractures.

Congenital and other bony abnormalities

The metopic suture, which under normal circumstances fuses the frontal bones of the skull at approximately 1-2 years of age, has failed to fuse. This condition is thought to be congenital and is not uncommon, it is unlikely that the individual was aware of the defect.

Skeleton 081

Position

This individual was laid out in a supine and extended position with the right hand resting upon a spearhead placed at the right side and the left arm bent with the forearm laid across the body so that the left hand was placed on the right elbow.

Orientation

South-North

Preservation
The condition of the skeleton is poor. The skull is missing, as a result of the truncation of the grave by a later ditch and the legs from the knee down are missing due to modern ploughing. The remaining bones are very fragile and incomplete.

Sex
Male
Determination based upon the morphology of the pelvis and long bones.

Age
30-40 years
Age estimation based upon the auricular surface only.

Stature
174cm
Based on measurements of the femur.

Dentition
Not present due to the truncation of the grave cut by a later ditch.

Pathology
No evidence of any pathology, however, the incomplete nature of the skeleton and the poor preservation of those surviving bones may result in the obscuring of any pathological conditions.

Skeleton 1336

Position
The body was in an extended, supine position, with the arms flexed at the elbow so that the hands (not present) would have been placed upon the pelvis. A second skeleton (**1337**) had also been placed in the grave contemporaneously. This skeleton was positioned in such a way that it would have lain diagonally across the chest of skeleton **1336**. Several grave goods were recovered, including two small iron knives, one of which appears to have been associated with the skeleton **1336** and one with skeleton **1337**. A small copper alloy buckle was found on the pelvis of **1336** and an unidentifiable small iron object was also found near the right pelvis. A small iron object was also recovered adjacent to the proximal left humerus and is possibly a clasp of some sort associated with clothing.

Orientation
South East- North West

Preservation
Preservation was poor as a result of truncation of the grave cut by several later features. The skull had been removed by a linear ditch cutting the grave and the legs from the distal femur downwards had been removed by a medieval furrow. The medieval ploughing is likely to be responsible for the non survival of the ribs and vertebrae as the mechanical

damage would have accelerated the chemical diagenesis of these skeletal elements. Those bones remaining were heavily fragmented.

Sex
Male
Determination based upon the morphology of the pelvis.

Age
30-40 years
Based upon the auricular surface.

Stature
?
None of the long bones were sufficiently preserved.

Dentition
None.

Pathology
No evidence of any pathological processes.

Skeleton 1337

Position
See skeleton **1336**. Most of the details of the position is unknown as the skeleton has undergone extensive damage by medieval ploughing. The skeleton does appear to have been placed diagonally across the body of **1336,** however, this position is unusual and may have resulted from post-depositional disturbance.

Orientation
West-East

Preservation
Extremely poor due to extensive mechanical disturbance. Only parts of the pelvis, femora and distal humerus have survived.

Sex
Female
Determination based on pelvic morphology.

Age
Adult
The size of the bones and the fusion of the epiphyses indicates that this is an adult, however, none of the skeletal elements required for a more specific age determination are present.

Stature
?
None of the long bones were sufficiently complete for stature estimates to be calculated.

Dentition
None.

Pathology
None.

Skeleton 1511

Position
Skeleton 1511 had been buried in a relatively deep grave with the knees in a flexed position towards the right and with the feet together. The right arm was bent at the elbow and the hand placed by the skull, while the left arm was bent across the body so that the left hand was placed at the right elbow. The skull was on the right side. The position of the body indicates that the individual had been placed into a grave cut which was too small for him. A small iron knife was recovered from underneath the pelvis and the position suggests that it is likely to have been worn at the time of inhumation.

Orientation
East-West.

Preservation
The bones were in excellent condition, primarily as a result of the depth of burial which protected the skeleton from the physical disturbance of both Medieval and modern ploughing.

Sex
Male
Determination based on the morphology of the pelvis and skull together with metrical data from the long bones.

Age
18-24 years
Determination based on dental attrition, the appearance of the pubic symphyseal face, auricular surface, sternal clavicular epiphyses and ectocranial suture closure.

Stature
168 cm
Estimations based upon measurements of both the right and left femora.

Dentition

Max. R - 7 6 5 4 3 2 1 . 1 2 3 4 5 6 7 8 L

Mand. R * 7 6 5 4 3 2 1 . 1 2 3 4 5 6 7 * L

- = Jaw/ tooth missing
* = Congenital non-eruption.

Dental Pathology

Dental attrition: Attrition patterns are normal

Calculus: Only slight calculus deposits, located primarily lingually on the anterior teeth.

Pathology

Trauma
T6 has a Schmorl's node located on the superior surface.

Congenital and other bony abnormalities
C5, C6 and C7 vertebrae all show a hyperostotic division of the transverse foramen. This individual also only has four lumbar vertebrae, it is possible that L5 has become sacralised, however the sacrum is highly fragmentary and it is not possible to verify this.

3.2 Infants and Juveniles

Skeleton 006

Position
Skeleton 006 had been decapitated and buried with the head placed between the thighs. Both knees had been flexed upwards slightly to allow for the head to be fitted between the thighs and the head had been placed on the left side, facing the pelvis. Both arms were laid out by the side of the skeleton.

Orientation
East-West

Preservation
The bones were in a very good state of preservation and the skeleton was almost complete, only the pelvis and vertebrae had undergone serious deterioration.

Sex
The pelvis had not survived in a sufficient state of preservation for an attempt at the sex assessment of the child.

Age
7-9 years
Age determination based upon dental eruption and long bone growth.

Dentition

									(e)	2					
Max	**R**	**-**	**-**	**-**	**-**	**-**	**-**	**.**	**1**	**b**	**c**	**d**	**e**	**6**	**L**
....															
Mand.	**R**	**6**	**e**	**d**	**c**	**b**	**1**	**.**	**1**	**b**	**c**	**d**	**e**	**6**	**L**
						2				2					
						(e)	(e)								

a, b, c, ... etc. = deciduous teeth
(e) = erupting

Dental pathology
A small carious lesion is present medially on the upper first deciduous molar. The left first maxillary molar and the left mandibular second deciduous molar show evidence of trauma, however this is likely to have occurred post-mortem.

Pathology

Trauma
Evidence of the point of decapitation is visible on the cervical vertebrae. C1-C3 were present with the skull, together with the right and left superior and inferior articular facets of C4. The anterior of C2 and C3 were abraded and this evidence together with the appearance of C4 indicated that the decapitation occurred at the level of C3, proceeding from the anterior in a downwards motion so that the articular facets of C4 would remain with the skull whilst the vertebral body would be retained with the other vertebrae.

Skeleton 030

Position
No grave cut for this skeleton was discerned. The infant was in a prone position.

Orientation
North-South.

Preservation
The pelvis and the lower limbs of the skeleton was missing and the skull was highly fragmentary, most likely as a result of modern ploughing.

Sex
?

Age
Newborn-2.5 months
Age determination based upon dental development, measurement of the long bones, development of the *pars basilaris* and general skeletal maturity.

Dentition

Max	**R**	**-**	**-**	**-**	**-**	**-**	**.**	**-**	**-**	**-**	**-**	**-**	**L**	
Mand	**R**	**/**	**d**	**/**	**b**	**a**	**.**	**a**	**b**	**/**	**d**	**/**	**L**	
			u		**u**	**u**		**u**	**u**		**u**			

u = unerupted

None of the tooth crowns are complete.

Pathology
None evident

Skeleton 031

Position
This individual was part of a group burial, placed in a pit rather than a grave and with the male skeleton **023** and female skeleton **024**. Skeleton **031** was adjacent to skeleton **023** and was buried in a prone position with the head in the pit and the feet towards the top of the pit.

Preservation
The skeleton was in an excellent state of preservation and was virtually complete.

Orientation
North-East-South West.

Sex
Female?
Determination based upon pelvic morphology.

Age
2-4 years
Determination based upon the examination of dental development and eruption, long bones growth, skeletal maturation and measurement of the *pars basilaris*.

Dentition

							1									
Max	**R**		**e**	**d**	/	/	/	.	/	/	/	/	/			**L**
	....															
Mand	**L**		**e**	/	/	/	/	.	/	/	/	/	/	**e**		**L**
		6													**6**	

Dental Pathology
None

Pathology
None

4.0 Summary and Discussion

The following section will attempt to summarise the above information and to review the findings of the group as a whole. Conclusions concerning extant populations drawn from skeletal assemblages are often dubious for a substantial number of reasons, but when the skeletal assemblage shows evidence of significant temporal diversity, such as this, particularly with respect to the small number of individuals excavated, then any inferences regarding the population from which they derived should be extremely cautious. It is evident from both the variation in the style of burial rites practised and the date of the material within the graves, that this burial ground was in use over a period of hundreds of years and as such interpretations regarding the skeletal material as a group are limited. The primary purpose of this section, therefore, is to summarise the information into a more accessible format and to discuss the results of the analysis.

4.1 Demographic analysis

Assumptions involving the demography of a population from mortuary remains are on theoretically precarious ground, (Stirland, 1989; White and Folkens,1991; Walker et al., 1988) but when a sample is as small as this (n=17) and with the individual burials separated to such a degree temporally, then few predictions regarding the extant population can be extrapolated.

4.12 Juveniles

Three juvenile skeletons were amongst the material examined: one aged 7-9 years, one 2-4 years and a new born. The remaining thirteen skeletons were adults.

This information alone illustrates the problems of palaeodemography, with unrepresentative burial practises and taxonomic biases distorting the ability of mortuary analysis to reflect ancient populations. A number of documentary sources indicate that infant mortality was extremely high in both the Roman and Saxon periods. Burial practises concerning children, infants in particular, differed and they were not always buried within the same cemetery as the adults. Even when they were, burial was often confined to a discreet area and one which may easily be missed if not all of a cemetery is sampled. Walker et al. (1988) suggest that juvenile bones are subject to further bias in that the disintegration of immature bone is more rapid due to incomplete calcification, however, Molleson and Cox, (1993) believe that they actually have a greater chance of survival as a result of the higher collagen content in the bones. Although the smaller bones are more likely to be missed or mis-identified during excavation, it is likely that cultural burial practises are the primary cause for the under representation of juveniles in burial grounds.

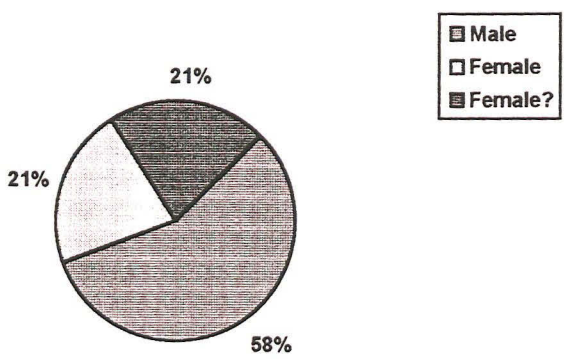
The small number of juveniles at this burial site is indeed mirrored at many other cemetery sites (e.g. Heseleton and Sewerby). The cemetery excavation at Great Chesterford, however, provides a true contrast, where almost half of the inhumations and cremations

were juveniles, a figure which is much more characteristic of the mortality of early peoples. (Evison, 1994)

4.13 Adult

Sexing

All of the adults were able to be sexed and of the fourteen, adults six have been classed as female (three definite, three probable) and eight have been classed as male (all definite).

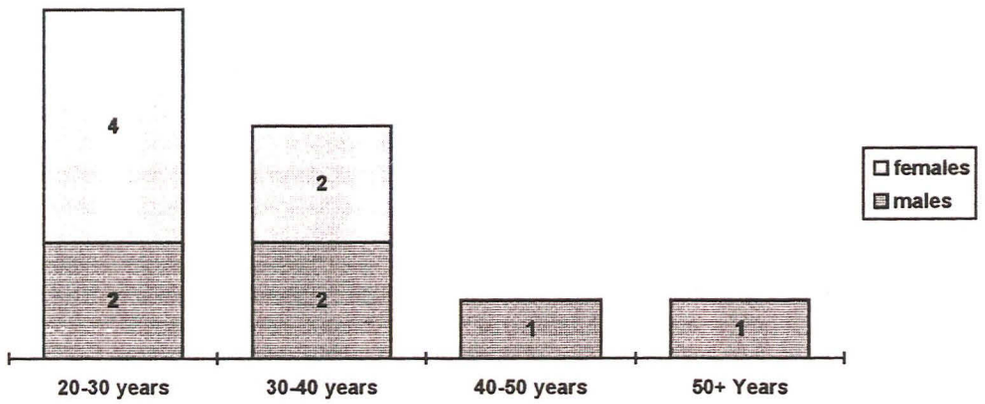


Although the sex ratio of the group is not 50:50 as would be expected, when the "probable" females are taken to be "definite" females, the anomaly is not that great and may be explained in terms of the small sample size. As such it appears that the burial ground was not reserved for one particular sex and there does not appear to be any obvious sex segregation within the cemetery.

Ageing

The majority of the skeletons were able to be aged with a satisfactory degree of confidence and within a reasonable age range, with only two of the adult skeletons not able to be aged. Skeletons **034** and **1337** were assigned to the adult age range as poor preservation meant that it was not possible to be more accurate than this. As a result these two skeletons have been excluded from the chart below.

Age Distribution of the Adults



From the above information it can be seen that the greatest number of deaths occurred in the 20-30 years age category, a statistic which by today's standards is exceptionally low. Of the six individuals in the 20-30 year age category however, four are females and it seems likely that one of the greatest causes of death amongst young females would have been child birth. Indeed the mortality profiles from many sites show a high number of deaths amongst women in their mid-late twenties (e.g. Sewerby and Whithorn). Furthermore there seems to be a systematic bias towards young adults in most burial grounds in that these bones tend to withstand diagenetic factors within the burial environment better than the bones of juvenile or older individuals which have generally undergone some decalcification. (Walker et al., 1988).

There is also a high number of deaths in the 30-40 year age category and although this would again seem to be a young age when considering present day mortality, it appears to be the norm for the majority of archaeological populations. Indeed the dearth of individuals surviving to greater than 50 years is a common feature in most cemetery reports and has been noticed by a number of authors (eg Cayton, 1980 and Weiss, 1973) to be somewhat at odds with the documentary sources which suggest that the biblical three score years and ten was not overly optimistic.

"it is evident that the people we glimpse through documents are still committing their deeds, and misdeeds, at ages when our skeletal populations have long been at rest." (Boddington, 1987)

This anomaly is likely to be the result of a combination of factors including, documentary exaggeration of age (particularly of those individuals deemed to be "great" or "wise"), preservation bias against elderly bones and osteological error. The latter reason is likely to be the primary factor and the methodological shortcomings in ageing skeletal material have been recognised for some time, with many techniques demonstrating a particular tendency to under age in later years.

Just as there was no sex segregation within the cemetery there also does not appear to be any division, arrangement or style of burial according to age, with burials of young adults, older adults and children interspersed.

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4.2 Stature

Stature estimates were able to be derived from twelve of the fourteen adults, with only skeletons **1336** and **1337** not being sufficiently complete. Perhaps the most noteable factor concerning the stature estimates is the extent of intra-sex variation, in particular amongst the males.

Sex	Stature range (cm)	Average Height (cm)
Male	165-178	172
Female	160-169	164

The average heights for the males and females is generally the norm for most cemetery reports, but the intra-sex stature range is more variable than that observed at the majority of sites, particularly when considering the small sample of skeletons involved. As there are known Roman-British and Saxon burials on the site, it is tempting to believe that this variation resulted from the introduction of new peoples to the area, with Saxons believed to be taller than the native, Romano-British population. There is thought to be an increase in stature with the Saxon period which then decreases again slightly in Medieval England. Harke (1990,1992) believes that in Anglo-Saxon cemeteries, bodies inhumed with weapons are taller than those without. From this he concludes that those without weapons represent the native, Romano-British population, whilst those with, represent Germanic descendants. Without firm dates at present for the skeletons at Market Deeping it is difficult to investigate the variation in stature satisfactorily.

4.3 Dentition

Skeletons **081**, **1336**, **1337** had no dental remains present and skeleton **003** had only one tooth present, as such they have been excluded from the following section. The information concerning the remaining dental material is included in the following tables.

Calculus

Calculus deposits are formed when the plaque around teeth becomes mineralised. Calculus deposits may be supra-gingival or sub-gingival, with the former being the most common. Sub-gingival, as its name suggests describes calculus deposits which form below the gum and tend to be darker and more greenish in colour that supra gingival calculus (Hillson, 1986; Roberts and Manchester, 1995). Calculus deposits were noted in various quantities in all of the individuals but with most showing moderate amounts, with only skeleton **009** showing very severe calculus including some sub-gingival deposits.

Table 1. Showing the dental pathology for each individual

Context	Caries	Abscesses	Calculus	Periodontal Disease	AM loss
009	5	5	severe	severe	3
010	0	0	mod-large	none	0
016	0	0	mod.	slight-mod.	6
019	0	0	mod.	none	0
020	2	3	slight	none	0
023	0	0	mod.	none	0
024	1	0	slight-mod	none	0
027	0	0	mod.	mod.	9
034	5	5	mod.	mod.	2
1511	0	0	slight	none	0

Table 2. The number of teeth available for examination and the proportions missing

	Male	Female	Total
Expected No. Teeth	160	160	320
Teeth missing from lost jaw	17	33	50
Observable	143	127	270
PM loss	14	7	21
AM loss	18	2	20
Unerupted/Congenital Absence	2	1	3
Remaining Teeth	109	117	226

Ante-mortem Tooth Loss

Ante-mortem tooth loss occurs for a number of reasons, including; violence, alveolar resorption with old age and periodontal disease. Ante-mortem tooth loss was noted in only four individuals, with the males showing tooth loss to a greater extent. 40 % of those individuals present lost teeth during life. The percentage of tooth loss for the group was 8.8 % (20 teeth out of 239): by sex the percentage of AM loss was 16.5 % in males and 1.7 % in females). These values are comparable to other Roman and Anglo-Saxon cemetery sites (e.g. Cirencester- 8.5 % [Wells, 1982]; North Elmham Park, Norfolk- 11.1 % [Wells, 1980]) and are probably a good reflection of ante-mortem tooth loss of the time.

Of the twenty teeth lost fifteen are molars, 4 are incisors and one is a pre-molar. The molars are the most commonly lost teeth in archaeological populations. This factor is likely to have resulted from greater difficulty in cleaning posterior teeth and generally higher attrition of the molars, both of which leave the mouth vulnerable to infection. It must be noted that the four incisors lost, are from just one individual and although infection, in the majority of cases, is responsible for tooth loss, when the anterior teeth are involved it is more likely to be due to trauma/violence, whether accidental or deliberate

Caries

If carbohydrates become trapped around the teeth together with plaque, the micro-organisms which ferment these carbohydrates create an acid environment which may dissolve the mineral phase of the teeth creating a carious cavity. (Hillson, 1986). Certain individuals have a greater, inherent susceptibility to caries and on the whole women show a higher incidence than males (Roberts and Manchester, 1995; Hillson, 1986) and this is borne out in this study.

Four out of the ten individuals showed carious lesions, three females and one male, with a total of thirteen caries present. The caries incidence for the females was 6.8 %, compared to 4.6 % for the males. Although the females showed more caries, this may not present an accurate reflection as the males showed a much higher incidence of ante-mortem tooth loss and it is possible that some of these teeth at least were carious. All but one of the thirteen caries are located on the molars, this is the most common location for carious lesions both in archaeological populations and today.

The caries rate for the group as a whole on the basis of those teeth remaining is 5.75% (13 caries out of 226 teeth), a figure which is comparable to the majority of Roman and Anglo-Saxon cemetery sites (e.g. Cirencester-5.1 % [Wells,1982]; North Elmham Park, Norfolk-6.5 % [Wells, 1980]).

Abscesses

Abscesses may form once the pulp cavity becomes exposed and infected with micro-organisms. Pus may then accumulate at the root apex where increased pressure due to the build up of infection results in the formation of a sinus from which the pus may escape. (Hillson, 1986; Roberts and Manchester, 1995). Any factors which allow the exposure of

the pulp cavity pre-dispose the teeth to infection and abscesses are correlated to chronic caries and severe attrition.

Three out of the ten individuals (skeletons **009**, **020** and **034**) suffered from abscesses and all three of those also showed severe chronic carious lesions. The group as a whole have an abscess incidence of 5.75 % (females- 6.8 %, males-4.6 %). This incidence is slightly higher than that seen in other Roman and Anglo-Saxon sites (e.g. Cirencester-1.2 % [Wells, 1982]; North Elmham Park-2.0 % [Wells, 1980]) but not to any significant extent.

Periodontal Disease

Calculus is thought to be linked to periodontal disease, as the deposits aggravate the gum leading to inflammation (gingivitis) which creates a predisposition to further infection of the underlying alveolar bone. A loose correlation of this hypothesis was evident in this analysis, skeleton **009** did exhibit both large calculus deposits and severe periodontis. Four out of ten individuals exhibited signs of periodontal disease with varying degrees of severity. Of the other skeletons which exhibited moderate calculus build up some showed evidence of alveolar infection and some did not, those with only minor calculus deposits did not show evidence of periodontal disease.

4.4 Pathology

4.41 Arthropathies and Degenerative Disease

Joint diseases are amongst the most commonly diagnosed pathological conditions observed in human skeletal remains. (Roberts and Manchester, 1995; Rogers et al., 1987). Changes in the bone structure of a joint surface may be associated with disease processes, old age, occupational activity or a result of trauma. This pathological condition may be characterised by new bone growth (osteophytes), increased porosity and, in severe cases eburnation (polishing) at the joint surface. An analysis of the distribution of joint changes throughout the entire skeleton must be taken into consideration, together with any other bony changes (e.g. ossification of ligaments) when formulating a diagnosis. In many cases a differential diagnosis, stressing the most likely cause is all that can be offered. (Rogers et al., 1987).

a) Osteoarthritis

Contest/sex	Age at Death	Shoulder	Hip	Knee	Vertebral joints	Wrist
009 (M)	40-50	minor	severe	-	minor	-
016 (M)	30-35	minor	-	minor	mod-severe	-
019 (F)	25-29	-	-	-	minor	minor
024 (F)	20-26	-	-	-	minor	-
027 (M)	50+	minor	mod	-	mod	minor

Of the fourteen adult skeletons analysed, five exhibited degenerative joint disease. Four of the skeletons, (**034**, **081**, **1336**, **1337**) were in a poor state of preservation and it is likely that this has led to an under-representation of osteoarthritis within the group. From the above it can be seen that although some of the younger adults did suffer from osteoarthritic change, this was only to a minor degree and as would be expected there is a general correlation with age with the older individuals suffering more severe forms.

b) Osteophytosis

Context/sex	Age	Cervical	Thoracic	Lumbar/Sacsal
009 (M)	40-50	-	frilling	-
010(F)	25-30	-	slight	-
016 (M)	30-35	-	moderate	severe
023 (M)	25-30	-	severe	minor
027 (M)	50+	minor	moderate	severe

Five individuals suffered from vertebral osteophytosis. Six of those remaining skeletons (**003**, **020**, **034**, **081**, **1336**, **1337**) had vertebrae which were in too poor a state of preservation for any evidence of osteophytosis to have survived. Of those with vertebrae sufficiently preserved for examination, only two individuals did not show any signs of osteophytosis, both of whom were females in their twenties. Osteophytosis is a common phenomenon in people today, a study conducted by Nathan (1962) on modern populations found that the majority of individuals suffered from osteophytosis by the third decade and by the fifth decade all of those studied exhibited osteophytes to some degree. It may be interesting to note that the changes appear to be more common and more severe in the males and it is possible that this is related to occupational divisions according to sex. It is also noticed from the above table that the cervical vertebrae are rarely affected and there is an increase in the severity of the osteophytes descending the spine. This is related to an increase in weight bearing towards the lumbar region of the vertebral column (Bridges, 1994) and is particularly well illustrated in skeleton **027**.

The effects of the increase in weight bearing descending the vertebral column has been negated (but only to a degree) by the increase in size of the vertebrae towards the base of the spine and the pattern of osteophytosis imposed upon the trend mentioned above, is one of greater severity at the points of maximum curvature of the vertebral column at C5, T8 and L4. (Roberts and Manchester, 1995; Bridges 1994). This is a factor which can be noted in the analysis of this skeletal material with osteophytes present in most individuals between T7-T10 whilst still maintaining an underlying trend of greater severity towards the base of the spine.

Whilst the cervical vertebrae suffers the least from osteophytosis they are most affected, together with the upper thoracic vertebrae, by OA of the articular facets. OA of the vertebrae in this skeletal assemblage is asymmetrical and it has been suggested by Bridges (1994) that this is the result of the imposition of mechanical stresses by the musculature of the arms. This is illustrated by skeleton **016** which exhibits severe OA on the articular facets of C3 and C4 in conjunction with minor arthritis of the shoulder joint and strong muscle insertion marks, particularly on the right humerus, both of which are indicative of strenuous activity.

4.42 Trauma

a) Schmorl's nodes

Schmorl's nodes describe a depression in the vertebral bodies which may be formed when the spine is under stress and the intervertebral discs become herniated and exert pressure upon the vertebral body. It is thought that these nodes are most likely to be formed in juveniles due to the greater placticity of the vertebrae during youth, however, if the vertebrae are weakened due to pathological processes they will also become more susceptible to Schmorl's nodes.

Context /sex	**Age at Death**	**Vertebrae affected**
009 (M)	40-50	T4-L1
010 (F)	25-30	T9-T10
016 (M)	30-35	T5-T7
023 (M)	25-30	T6-T12
024 (F)	20-26	T5-T10
027 (M)	50+	T11-L4
1511 (M)	18-24	T6

There is evidence of Schmorl's nodes in six of the individuals present, with only two of those individuals whose vertebrae were sufficiently preserved for examination not exhibiting the condition. This is a very high proportion and is likely to indicate that the population at this site were subject to a strenuous lifestyle. A significant number of younger adults also have Schmorl's nodes, a factor which seems to stress that heavy work was undertaken from a young age. The vertebrae most affected are again those which are most weight-bearing or furthest from the centre of gravity. Schmorl's nodes also occur as a result of trauma and this is evident in skeleton **016** and skeleton **027**, both of whom show Schmorl's nodes associated with compression fractures.

b) Fractures

Very few fractures were evident within the group. Skeleton **016** showed two healed fractured ribs and two compression fractures to T5 and T7. Skeleton **027** suffered from a compression fracture of the T11 vertebrae which may have resulted from a reduction in the mechanical integrity of the vertebrae associated with old age.

c) Other

It is possible that the loss of the anterior teeth of skeleton **027** may have been the result of violence. The incisors are rarely lost through factors such as periodontal disease, however when an individual is struck in the face these teeth are the most likely to suffer. The individual in question is old and it is possible that the teeth were evulsed as a result of more natural ageing processes.

4.43 Infectious Disease

Only skeleton **027** shows any evidence of infection and this is in the form of primary periostitis of the anterior mid-shaft of the tibia and fibula of both legs. Although the precise aetiology of this condition is unknown it is a common finding in archaeological populations, reaching a peak in Anglo-Saxon groups with as many as 25% of individuals affected. (Manchester, 1983).

The lack of skeletal evidence of infection in this assemblage by no means suggests that the incidence of infectious disease was low, but only reflects the lack of chronic, infectious disease processes.

4.44 Endocrine and Metabolic disorders

There was no evidence of nutritional deficiencies or endocrine abnormalities in any of the skeletons examined.

4.45 Congenital and Other Bony Abnormalities

Congenital or bony abnormalities were noted in 9 of the skeletons examined.

a) Skeleton **009** exhibited a small ossicle of bone with it's own suture on the left temporal ridge.

b) Skeletons **009** and **010** both showed asymmetric manubriums.

c) Skeleton **019** had a congenital fusion of T2 and T3,

d) Skeleton **019** and **024** both have an extra sacral facet on the ilium. This is quite a common trait amongst women

e) Skeleton **023** has a bony exostosis in both the right and left trochanteric fossa.

f) Skeleton **034** has an unfused metopic suture.

g) Skeleton **020** and **1511** both demonstrate the congenital non eruption of the third molars

h) Skeleton **023** has an extra cervical rib on both the right and left sides.

i) Skeleton **016** shows the presence of wormian bones along the lambdoidal suture.

j) Skeleton **010** has very minor spina bifida occulta affecting S1 only.

k) Skeletons **019** and **1511** both have only 4 LV, in both cases severe fragmentation of the sacrum makes it impossible to note whether L5 has become sacralised.

l)Skeleton **1511** shows a hyperostotic bridging of the transverse foramen of C5-C7.

m) Skeleton **034** has a supernumerary peg tooth between the right mandibular P1 and P2.

When a single congenital abnormality shows an exceptionally high frequency within a skeletal population it may be possible to infer a degree of inbreeding or the existence of

genetic relationships between particular individuals. In this study although a number of abnormalities show up twice this is not enough to offer any interpretations.

In one of the burials, which contained skeletons 009 and 010, a male and female, both individuals had particularly large bone structures and both had asymmetric manubria. This together with the age difference (the male was 40-50 years, the female was 25-30 years) may suggest a familial relationship such as father and daughter rather than a coupling as one would more naturally assume in male-female double burials.

4.6 Discussion of Burial Rites

The style of burial within this cemetery is anything but homogenous, with a wide range of practises being observed. Although no exact dates have been provided, the majority of the burials are Romano-British and Anglo-Saxon in date. It is fairly typical of rural cemeteries such as this that no formal, standardised burial practises similar to those associated with the larger urban settlements have been adhered to. Various orientations are evident and although the majority of the burials are extended and supine, two are flexed, two are decapitated and two juveniles were prone. Five of the skeletons were buried with iron knives, one of which also had a spearhead, while the rest were without grave goods. Two multiple burials were also present, one containing two individuals and one with three skeletons. The following section briefly reviews each of the methods of burial together with the various interpretative possibilities.

4.61 The Rite of Decapitation

Two individuals, skeleton **006** (7-8 years) and skeleton **020** (probable female, 20-30 years) had been decapitated. Skeleton **006** had been interred with the head between the thighs and facing the pelvis, whilst skeleton **020** had been buried with the head between the ankles. Both decapitations were located in the same part of the burial ground almost adjacent to each other and in both cases the body was aligned E-W.

The rite of decapitation is Romano-British in date, and although they continue into the Anglo-Saxon period the incidence then is much lower. The earliest examples of decapitated skeletons date from 50-100 AD at Cuxton in Kent, however, the rite does not appear to have been well established until the forth century. (Philpott, 1991). Decapitations are primarily confined to less formally arranged rural cemeteries of which the Market Deeping site is typical. In the vast majority of decapitations the detached head is placed between the lower legs as with skeleton **020**. Only in very few has the head been placed beside or between the femora as with Skeleton **006**, although a child decapitation at Leicester had been positioned in a very similar way to this skeleton. The of number decapitated children is relatively few even when taking into consideration the lack of juvenile burials in most early cemeteries. (Harman et al., 1981).

The level of the vertebrae at which the decapitation is conducted varies to some extent but is most common between the third and forth cervical vertebrae. In the majority of cases,

the blows have been inflicted from the front, although in some examples cut marks suggest that they have been delivered from the right. These findings correlate with the evidence of the skeletons from this site, with both showing evidence of the cut having been delivered from the anterior, towards the right side, and located at the level of C4. In both of these skeletons it seems that the head was not removed by a single blow but by a series of multiple cuts. It is thought that the majority of these decapitations were conducted post-mortem, due to the precision with which some of the cuts have been made, however, it is not possible to determine this absolutely. There does not seem to be any obvious reason for the choice of individuals accorded this rite with males, females and children of all ages being decapitated.

Suggestions for decapitations such as to prevent communication with the dead, to stop the dead from walking, or to release the soul, are not entirely satisfactory. The presence of grave furniture in some of the burials does suggest that destruction of the soul was not the aim. Futhermore the care with which the bodies were laid out, often with grave goods, together with osteological evidence suggesting that the head was removed post-mortem, negates the suggestion of it being a punitive act or human sacrifice. (Philpott, 1991)

Philpott (1991) suggests that the rite may have deep rooted foundations in the late Iron Age severed head cults, where the head was seen as the seat of the soul and as such decapitation would be a release rather than a destruction of an individuals life-force. The rural settings for many decapitation burials does suggest a more traditional, superstitious grounding to the ritual. Until more information concerning the rite has been accumulated, the practise is likely to remain something of an enigma

4.62 Weapon Burials.

Deposition of weapons within graves is known from as early as the Iron Age, found in the Arras Culture cemeteries of North East Yorkshire dating to the fourth century B.C. Weapon burials are also found in the later Iron Age from the end of the second century B.C, in isolated or small burial groups scattered across southern England. At the Arras cemetery at Rudston individuals were deposited with just single weapons such as a sword, spear or knife, whilst the inhumation at Owsley was accompanied by a complete set of weapons, sword, spear and shield. (Cunliffe. 1995).

These burials have been interpreted as the remains of warriors, pointing to the existence of a warrior elite within the Iron Age society, (eg. Cunliffe. 1995). Given the large number of weapons found as votive offerings from this period along with the impressive earthworks and the historical accounts of Roman authors this is not surprising. It is, however, dangerous to look at just one explanation for what may reflect several different social or cultural phenomena and archaeologists would do well to examine current research into Anglo-Saxon weapon burials. (See Below). There is at least some evidence that supports the idea of weapon burials denoting social status. Millet has pointed out that within Arras Culture cemeteries, weapon graves are the richest, suggesting a link between weapons and wealth and therefore, status. He argues that martial display, characterised not only in funerary practice, but also in the deposition of metal objects in rivers, was a symbol of the

dominance of elite groups over the rest of the population. (Millet. 1990). If this is the case then we should regard weapon burials as representing only one aspect of a wider social phenomena.

Skeleton **081** had been buried with it's right hand holding onto a spearhead and it's left arm lying across his body in a position which suggested that it had held a shield (although this is supposition). The burial of the skeleton actually holding the weapon it was inhumed with was initially suggestive of an Iron Age date, particularly as Iron Age structures and an abundance of Iron Age pottery have been excavated from the site. In Anglo-Saxon weapon burials the weapons are traditionally laid out adjacent to the body and it is rare that they are positioned holding them (Lucy, pers comm.). Analysis of the metal work and associated archaeology does however, suggest that an Anglo-Saxon date is more likely, and if this is indeed the case then the burial is unusual in style.

Weapon burials are far less common in Roman contexts. The exception being the knives found in late Roman cemeteries such as Lankhills where male inhumations have been found buried with knives worn on belts. Other associated grave goods are a crossbow brooch and an offering placed by the right foot. (Arnold. 1984). These graves are a phenomena of the fourth century but occur within cemeteries where existing funerary rites were already in place. This has led some authors to suggest that the male burials are those of German mercenaries, though current research suggests that they are part of the official issue of imperial offices. (Millet. 1990).

Skeleton **1336** had been buried wearing an iron knife worn on a belt, with the copper alloy buckle of the belt surviving, and a metal object, which may have been a brooch, at the shoulder. Truncation of the grave prevents any further comparison with those male inhumations from Lankhills. It may be of interest to note that another similarity that this burial ground shares with Lankhills is the presence of decapitation burials.

Within a Saxon context weapons are a typically male grave good, occurring in 47% of Early-Saxon adult male graves, though they are also found in the graves of juveniles (12% of early Saxon male juvenile graves) and very occasionally in the graves of adult females. (Harke. 1992). Proportions however, do vary between cemetery populations to a large degree and so these figures should be treated as statistical averages only.

The ritual of burying the dead with weapons is a phenomena of the early Saxon period and, to a great extent, dies out during the seventh century. Further, in the later burials the diverse assemblage of weapons is replaced by the increasing practice of burying the body with a just a knife. (Harke. 1992). This is a generalisation only as Saxon burial practices are notoriously erratic, with a notable exception being the burial in Barrow 2 at Sutton Hoo. Following this trend, it would seem that those Saxon burials at Market Deeping where the body has been inhumed with a knife (e.g. **1511** and **23**) are later Saxon in date whilst the weapon burial (**081**) is earlier.

One way in which Saxon weapon burials have been interpreted is within a functional-structuralist framework which perceives a direct relationship between the effort taken over burial rite and social status. Following such ideas Chris Arnold has attempted to rank all Saxon grave goods with numerical value relating to wealth in order to observe patterns

both within and between Saxon period cemeteries. According to his work weapons have various values, with swords and helmets given greater wealth values than spears and knives. They are thus regarded as belonging to a wider funerary ritual where wealth is displayed at the funerary rite. (Arnold. 1980). This theory has a number of fundamental flaws, firstly that it fails to identify more meaningful patterning within cemeteries such as who is buried with the weapons. Secondly, though it is mentioned by Arnold, there is no attempt to distinguish between grave goods that come from the surrounding area and those which had to be imported as this will vary between cemeteries making meaningful comparison impossible.

What holds far greater potential is the examination of the symbolism of the weapons themselves. The symbolic importance of weapons within Germanic society was noted by Tacitus' 'Germania'. (Mattingly. 1948). The symbolism is also apparent in Late Saxon society, the name of the Danelaw equivalent to the Hundred assembly was called the Wapentake, participation at which required the individual to arrive bearing arms. The Late Saxon social system also included the giving of weapons from a lord to his retainers and the rite of Heregeld where by inheritance was on the condition of the heir to supply lord with the arms (or the monetary equivalent) that had been provided for his father. (Stenton. 1971).

A purely functional explanation for weapon burials which seeks to equate weapons with warriors has been shown to be flawed by, among others, Hienrich Harke who raised a number of points which argue against this interpretation. Firstly, in many cases the assemblage of weapons deposited in the burial do not form functional weapon sets. Secondly, in some instances the individual would have been unable to have wielded the weapons buried with them, the classic example being one individual with severe spina bifida, though juvenile burials are also cited to support his case. (Harke. 1990). A further argument against a functional meaning lies in the fact that weapons are placed besides the bodies of the dead possibly indicating their primary function as a symbol. The fact that some burials are found where the individual is holding the weapons argues in favour of a number of interpretations for this phenomena rather than any single. This is backed up the instances of predominantly male weapon burial cemeteries which are difficult to interpret as anything other than war bands.

Heinrich Harke has interpreted the weapon burial rite as a part of the phenomena which he regards as Anglo-Saxon ethnogenesis. (Harke, 1992). This, he believes, was the active creation of an Anglo-Saxon ethnic identity where weapons are one of a number of symbols which actively sought to represent Anglo-Saxon identity. Looking at a number of cemeteries with both weapon and non weapon burials Harke uses osteological evidence to reach the conclusion that the individuals interred with weapons form a distinct racial group. Firstly, comparison of the average height of individuals buried with weapons shows them to be, on average, two inches taller than males buried without weapons. Further, this corresponds to height differences observed in pre-migration burials in Britain and the Saxon homelands. (Harke, 1992). Secondly, using epigenetic traits in teeth, Harke has showed that, in the cemeteries studied, where the population was buried both with and without weapons those with weapons came from different line of descent than those without . (Harke, 1992)

The problem with the study of Anglo-Saxon weapon burials is the huge variability observed in the data and the large numbers of graves where weapons have been deposited. This would suggest that there are a number of reasons for this practice and funerary evidence can only reflect a part of the wider social activity. Though there is some evidence to suggest that ethnicity was a cause for at least some of the weapon burials, we should not forget that many of our preconceptions concerning the Anglo-Saxons are coloured by Victorian creation myths. (Lucy, 1995) Nor should we reject more functional interpretations, such as weapon burials reflecting the burial of actual warriors, in favour of current social and symbolic theory if evidence suggests to the contrary.

4.63 Position of the body

There is no standard way of positioning a body within a grave that characterises any single archaeological period. Instead the deceased is laid out in one of a number of ways that are found throughout the archaeological record. That said, it is possible to identify very general trends throughout time. During the Bronze Age individuals are usually laid out in crouched or flexed positions with extended supine burials, occurring only infrequently. The practice of inhumation in general, is far more common in the early part of the Bronze Age before being replaced by cremation or excarnation. (Cunliffe. 1995). The skeleton found during the evaluation of the Market Deeping site was crouched, and this together with the associated archaeology, suggests that it is likely to be Bronze Age in date

Inhumation continues to be an unusual phenomena during the Iron Age with the exception of the afore mentioned Arras Culture of East Yorkshire (fifth to the first century B.C) and occasional isolated, or small groups of inhumations, found across the south of England (late second to first century B.C). In these cases the bodies are, again, typically crouched or flexed, though extended, supine burials are not unknown. (Cunliffe. 1995).

Skeleton **034** had been buried in a tightly flexed position and Iron Age pottery sherds were contained within the grave fill. Anglo-Saxon burials are also occasionally flexed and a later date must not be ruled out, however, the skeletons in this period generally do not tend to be as tightly flexed as this individual.

Typically Later Roman inhumations are extended and supine, with the graves laid out in an orderly fashion, following cardinal orientation. It must be remembered that Roman funerary archaeology is, however, biased towards an urban context, with the mortuary treatment of the rural population being more varied. (Higham. 1992). The majority of the rural population during this period are, to a large extent, archaeologically invisible and this has led some authors to suggest that burial ritual may not have changed since the Iron Age. (Higham. 1992). This would be in keeping with the continuity between Iron Age head cults and the decapitation burials within rural contexts mentioned earlier.

Funerary ritual in the Anglo-Saxon period is characterised by its diversity in all aspects. Inhumation and cremation were both practised, sometimes within the same cemetery, as at Spong Hill. Although the majority of inhumations are extended and supine, and are often laid out in orientated graves, crouched and flexed burials are known from this period and orientation may be random. This is the case with the burials from the Market Deeping site

where the majority of the burials are of Saxon date but demonstrate very little uniformity of practise.

One flexed burial (**1511**) at the Market Deeping site which is of Saxon date, gives the appearance that the individual was placed in such a position only as it was necessary in order for the body to fit within the grave cut. It is possible that the body was flexed simply because it had been placed in a pre-dug grave which was too small. Alternatively Lucy (1995) identifies a relationship between the presence of grave good assemblages and the degree of flexure in the Saxon graves at Sewerby and Heslerton, suggesting that burials with grave goods tend to be extended due to the arrangement of the assemblage, whereas those without are more likely to be flexed. Many of the burials at Market Deeping are both extended and without grave assemblages and it is difficult to decipher any pattern of ritual within the burial ground, particularly due to the lack of precise dating evidence.

The multiple burials from Market Deeping include the double burial of skeletons **009** and **010** (a male and female) and the burial of a group of individuals; skeletons **023**, **024** and **031** (a male, a pregnant female and a child) within a used pit. Both of these burials are dated to the late Saxon period. The lack of care with the deposition of the skeletons within the pit, especially with respect to the child who is prone and head first, suggests a hurried burial, perhaps disease having killed the group (which do appear to be a family) and necessitating a hasty disposal. This burial bares a resemblance to a burial in fifth century Canterbury where a group of individuals, two adults, a male and female and two juveniles, along with the remains of two dogs, were found deposited within a pit. No grave goods were present except for objects which were worn by the deceased. (Higham , 1992).

Virtually all of the burials are North-South or West-East in orientation. This could be interpreted as the West-East burials being later in date with the introduction of Christianity, however, pre-Christian burials were also orientated in this fashion and at Market Deeping the decapitations (a very "pagan" practise) also had a "cardinal" orientation. Hirst interprets the variability in orientation as "the reflection of the wide spectrum of pagan beliefs: some being buried according to the sun's rising or setting may perhaps indicate the presence of some sort of sun cult however generalised, whereas others buried to north or south may be buried pointing towards some mythical place such as Valhalla" (Hirst, 1985).

It is likely that the variation in the treatment of the body at the Market Deeping site has arisen due to a number of reasons. It has been suggested that considerable temporal diversity in some of the burials is evident and may be responsible for some of the differences observed. Of those burials of similar date it is possible that diverse religious practises or possibly the need to distinguish in death individuals from different groups or communities (Lucy, 1995). These ideas combined with practical considerations such as the quick disposal of the group burial within a pit due to disease, or the fitting of a skeleton into a too small grave cut, are likely to account for much of the rich diversity evident at the Market Deeping site.

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Appendix A:

Archive compilation

Part 1 : Adults

Contains skeletal charts, metrical data, sexing and ageing data and a catalogue of the bones and dentition present for each skeleton.

NB
All measurements on the metrical sheet are in centimetres.
Measurements of the shaft of the tibia were taken at the level of the nutrient foramen.

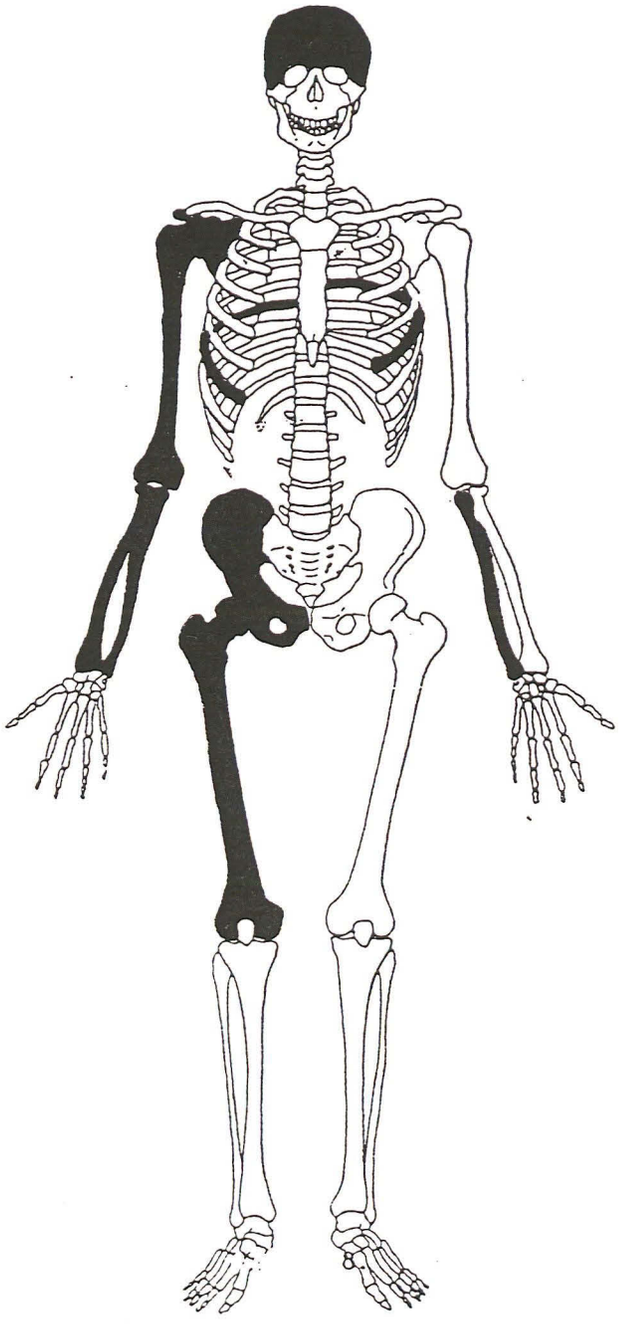
NP = Not present
CV = cervical vertebrae
TV = thoracic vertebrae
LV = lumbar vertebrae
SV = sacral vertebrae

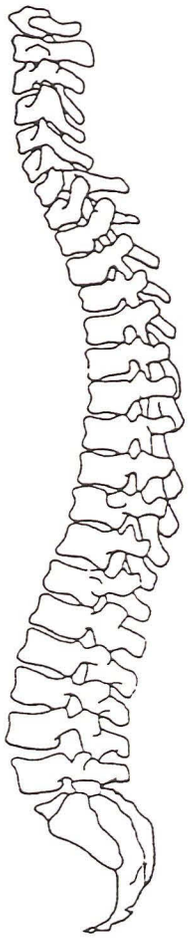
Skeleton: 003

Preservation: moderate
Age: 30-35 years

Position: Disarticulated
Sex: Male

Orientation: None
Stature: 165 cm





Skeleton 003

Dentition: Right mandibular pre-molar only

Bones Present

Right Arm	humerus, radius, ulna
Left Arm	ulna
Right Hand	NP
Left Hand	NP
Right Leg	femur
Left Leg	NP
Right Foot	NP
Left Foot	NP

Cervical Vertebrae	NP
Thoracic Vertebrae	NP
Lumbar Vertebrae	NP
Sacral Vertebrae	NP
Coccyx	NP

Pelvis	Right innominate present
Manubrium	NP
Sternum	NP

Right ribs	1
Left Ribs	1
Right scapula	NP
Left scapula	NP
Right clavicle	NP
Left clavicle	NP

Skull	Majority present but fragmented
Mandible	NP

Congenital or other bony abnormalities: None

Skeleton 003

Femur	Left	Right
Max. Length	/	44.5
Oblique length	/	42.9
Diam. Head	/	4.85
A.P. Diam. Midshaft	/	2.75
M.L. Diam. midshaft	/	2.72
Bicondylar W.	/	8.41

Stature = 165 cm

Tibia	Left	Right
Max L.	/	/
Max. A P Diam.	/	/
Transverse Diam.	/	/
Bycondylar W.	/	/

Fibula	Left	Right
Max L.	/	/

Humerus	Left	Right
Max. L.	/	31.6
Diam. Hd.	/	4.44
Epicond. W	/	/

Radius	Left	Right
Max.L	/	22.4

Ulna	Left	Right
Max. L	24.4	24.6

Clavicle	Left	Right
Max. L	/	/

Skeleton 003

SEXING DATA

Pelvis	Sex
Sub pubic angle	M
Ischiopubic ramus	M
Ischial spines	NP
Pubic symphyseal face	M
Iliac auricular surface	NP
Ilium blade	M?
Pre-auricular sulcus	NP
Greater sciatic notch	NP
Obturator foramen	M
Acetabulum	M
Conclusion	M

Skull	Sex
Eminences	M
Orbits	M
Nasal aperture	NP
Zygomatic arch	M
Glabellar region	M?
Mastoid process	M
Foramen magnum	NP
Occipital condyles	NP
Nuchal region	M?
Conclusion	M

Mandible	Sex
Goneal angle	NP
Goneal region	NP
Mental trigon	NP
Depth between incisors and mental trigon	NP
Conclusion	?

Metrical Data	Sex
Sacral Index	NP
Diam. Hum. Head	?
Diam. Fem. Head	M
Conclusion	M?

Overall Conclusion: M

AGEING DATA

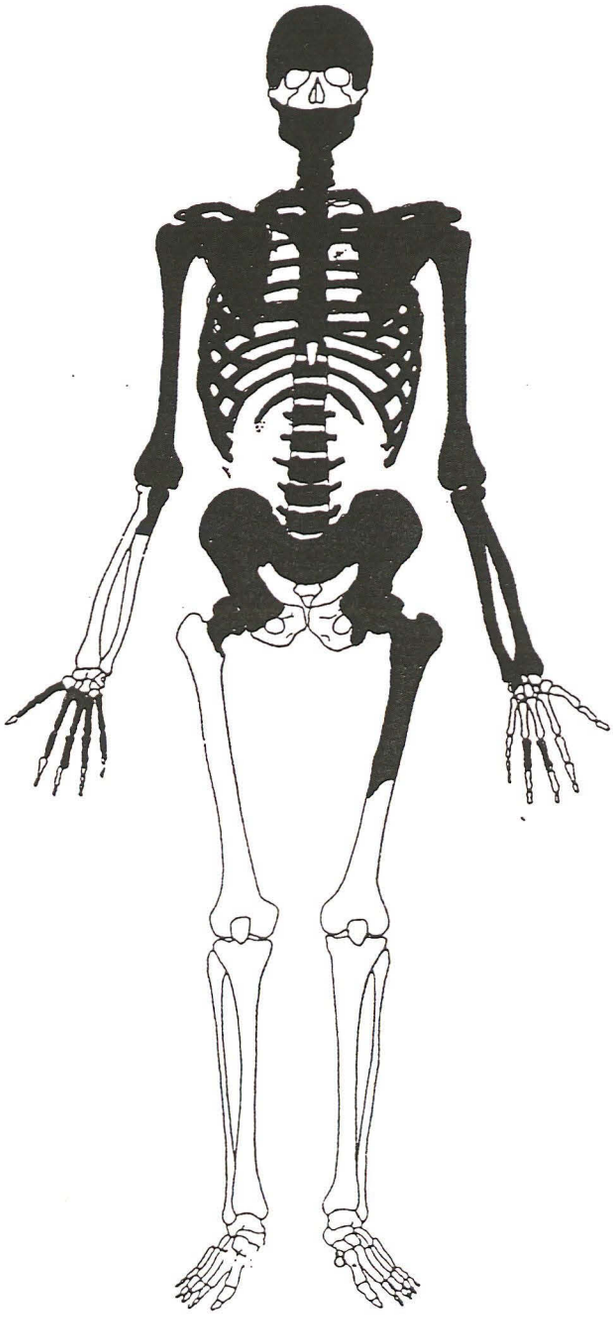
Ageing Method	Age Obtained (years)
Auricular surface	NP
Pubic symphyseal face	30-35
Dental attrition	NP
Late fusing epiphyses	NA
Forth sternal end rib	NP
Ectocranial suture closure	NA
Conclusion	30-35

Skeleton: 009

Preservation: Excellent
Sex: Male

Position: Supine
Age: 40-50 years

Orientation: W-E
Stature: 178 cm



Skeleton 009

Dentition

																A	c			
Max.	**R**	X	X	X	5	4	3	/	1	.	1	2	3	4	5	6	/	/		**L**
Mand.	**R**	8	7	6	5	4	3	2	1	.	1	2	3	4	5	6	7	8		**L**
				AA												c	c		c	
																AA				

X = A.M. loss A = abscess - = jaw/tooth missing
/ = P.M. loss C = caries * = congenital non-eruption

Bones Present

Right Arm	humerus, proximal radius
Left Arm	humerus, radius, ulna
Right Hand	No carpals, 5 metacarpals, 5 proximal phalanges, 1 intermediate phalanx, 2 distal phalanges
Left Hand	scaphoid, no metacarpals, 2 intermediate phalanges,
Right Leg	femoral head only
Left Leg	proximal femur
Right Foot	NP
Left Foot	NP

Cervical Vertebrae	C1-C5 (C6 and C7 fragmented)
Thoracic Vertebrae	T1-T12
Lumbar Vertebrae	L1-L5
Sacral Vertebrae	S1-S5
Coccyx	Present

Pelvis	Both right and left innom. present
Manubrium	Present
Sternum	Present
Right ribs: 12	Left ribs:12
Right clavicle	Present
Left clavicle	Present
Right scapula	Present
Left scapula	Present

Skull	Almost complete but fragmented

Congenital or other bony abnormalities: Bilateral asymmetry of manubrium and sternum; small ossicle of bone with it's own suture on the left temporal ridge.

Skeleton 009

Femur	Left	Right
Max. Length	/	/
Oblique length	/	/
Diam. Head	5.59	/
A.P. Diam. Midshaft	/	/
M.L. Diam. Midshaft	/	/
Bicondylar W.	/	/

Tibia	Left	Right
Max L.	/	/
Max. A P Diam.	/	/
Transverse Diam.	/	/
Bycondylar W.	/	/

Fibula	Left	Right
Max L.	/	/

Humerus	Left	Right
Max. L.	34.3	34.6
Diam. Hd.	5.08	/
Epicond. W	7.60	7.60

Radius	Left	Right
Max.L	25.5	/

Ulna	Left	Right
Max. L	28.2	/

Clavicle	Left	Right
Max. L	/	/

Stature = 178 cm

Skeleton 009

SEXING DATA

Pelvis	Sex
Sub pubic angle	NP
Ischiopubic ramus	NP
Ischial spines	NP
Pubic symphyseal face	NP
Iliac auricular surface	M
Ilium blade	M
Pre-auricular sulcus	M
Greater sciatic notch	M
Obturator foramen	NP
Acetabulum	M
Conclusion	M

Skull	Sex
Eminences	NP
Orbits	NP
Nasal aperture	NP
Zygomatic arch	M
Glabellar region	M
Mastoid process	M
Foramen magnum	NP
Occipital condyles	NP
Nuchal region	M
Conclusion	M

Mandible	Sex
Goneal angle	M
Goneal region	M
Mental trigon	M
Depth between incisors and mental trigon	M
Conclusion	M

Metrical Data	Sex
Sacra index	M
Diam. Humeral head	M
Diam. Femoral head	M

Overall Conclusion: M

AGEING DATA

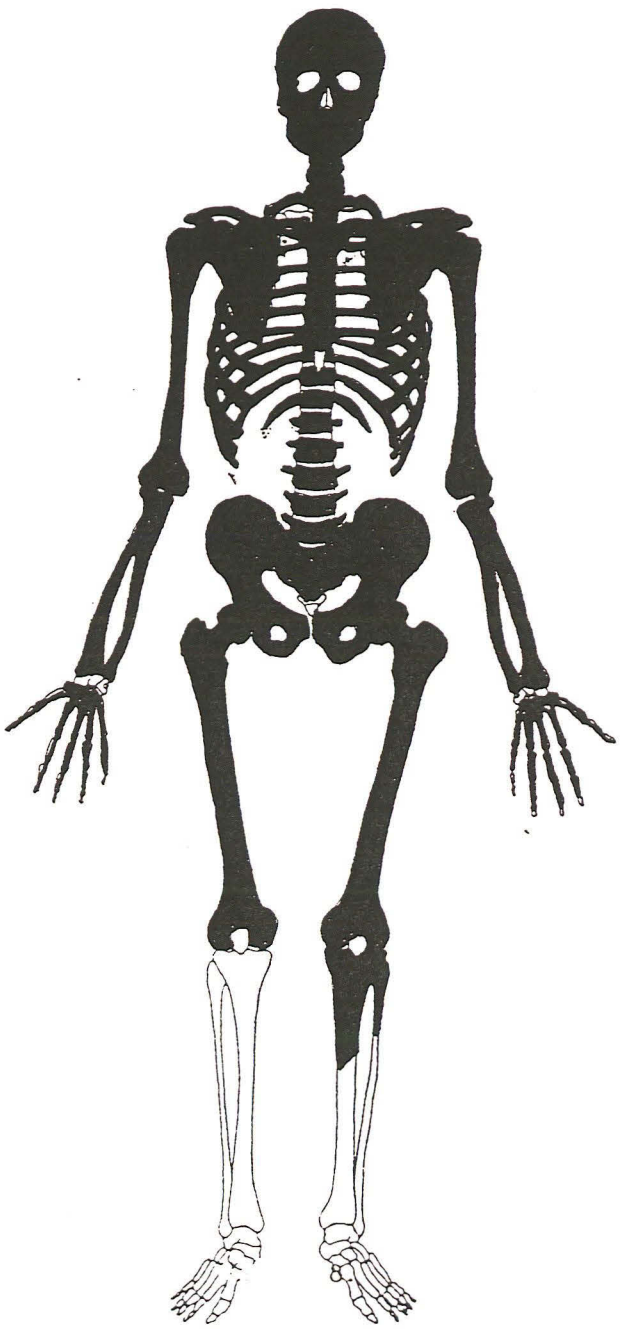
Ageing method	Age obtained (years)
Auricular surface	40-50
Pubic symphyseal face	NP
Dental attrition	NA
Late fusing epiphyses	NA
Forth sternal end rib	NP
Cranial suture closure	NA
Conclusion	40-50

Skeleton: 010

Preservation: Excellent
Age: 25-30 years

Position: Supine
Sex: Female

Orientation: W-E
Stature: 169 cm



Skeleton 010

Dentition

Max.	**R**	8	7	6	5	4	3	2	1	.	1	2	3	4	5	6	7	8	**L**
Mand.	**R**	8	7	6	5	4	3	2	1	.	1	2	3	4	5	6	7	8	**L**

X = A.M. loss A = abscess - = jaw/tooth missing
/ = P.M. loss C = caries * = congenital non-eruption

Bones Present

Right Arm	humerus, radius, ulna
Left Arm	humerus, radius, ulna
Right Hand	capitate, lunate, triquetral, hamate, scaphoid, trapezoid, 5 metacarpals, 2 proximal phalanges, 1 distal phalanx
Left Hand	capitate, lunate, triquetral, scaphoid, hamate, 5 metacarpals, 5 proximal phalanges, 5 intermediate phalanges, 2 distal phalanges
Right Leg	femur
Left Leg	femur, proximal tibia, proximal fibula
Right Foot	NP
Left Foot	NP

Cervical Vertebrae	C1-C7
Thoracic Vertebrae	T1-T12
Lumbar Vertebrae	L1-L5
Sacral Vertebrae	S1-S5
Coccyx	Present

Pelvis	Both right and left innom. Bones present
Manubrium	Present
Sternum	Present
Right ribs:10 (min)	Left ribs: 10 (min)
Right clavicle	Present
Left clavicle	Present
Right scapula	Present
Left scapula	Present

Skull	Almost complete, very fragmentary

Congenital or other bony abnormalities: Asymmetrical manubrium; very minor spina bifida occulta in first sacral segment.

Skeleton 010

Femur	Left	Right
Max. Length	47.1	47.0
Oblique length	46.4	46.6
Diam. Head	4.69	4.77
A.P. Diam. Midshaft	3.05	2.85
M.L. Diam. Midshaft	2.89	2.95
Bicondylar W.	7.97	7.94

Stature = 169 cm

Tibia	Left	Right
Max L.	/	/
Max. A P Diam.	4.05	/
Transverse Diam.	2.07	/
Bycondylar W.	7.64	/

Fibula	Left	Right
Max L.	/	/

Humerus	Left	Right
Max. L.	35.1	34.6
Diam. Hd.	4.96	4.87
Epicond. W	6.30	6.30

Radius	Left	Right
Max.L	25.8	25.8

Ulna	Left	Right
Max. L	/	27.8

Clavicle	Left	Right
Max. L	14.3	14.3

Skeleton 010

SEXING DATA

Pelvis	Sex
Sub pubic angle	F
Ischiopubic ramus	F
Ischial spines	F
Pubic symphyseal face	F
Iliac auricular surface	F
Ilium blade	F
Pre-auricular sulcus	F
Greater sciatic notch	F
Obturator foramen	F
Acetabulum	F
Conclusion	F

Skull	Sex
Eminences	F
Orbits	F?
Nasal aperture	NP
Zygomatic arch	F
Glabellar region	F?
Mastoid process	F?
Foramen magnum	F?
Occipital condyles	?
Nuchal region	?
Conclusion	F?

Mandible	Sex
Goneal angle	M?
Goneal region	M?
Mental trigon	M
Depth between incisors and mental trigon	M
Conclusion	M

Metrical Data	Sex
Sacral index	F
Diam. Hum. Head	M
Diam. Fem. Head	M?

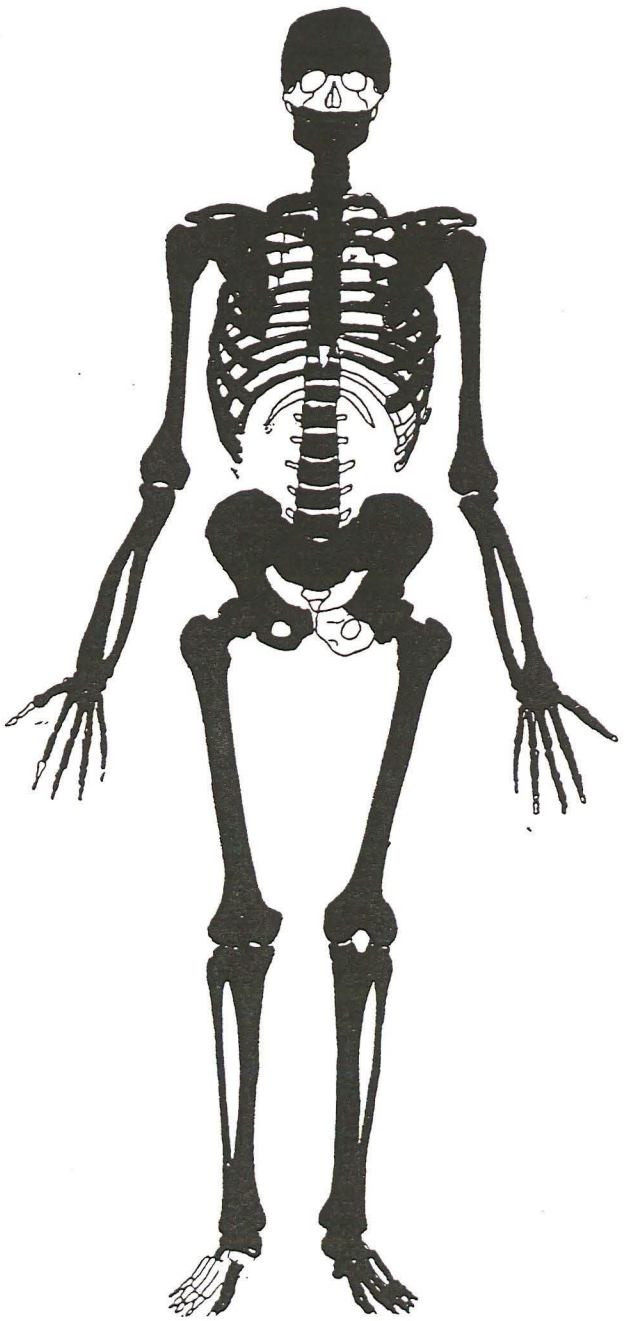
Overall conclusion: F (Although a very robust skeleton, the features of the pelvis arundoubtedly female)

AGEING DATA

Ageing method	Age obtained (years)
Auricular surface	25-29
Pubic symphyseal face	25-30
Dental attrition	25-35
Late fusing epiphyses	25-30
Forth sternal end rib	24-28
Cranial suture closure	Younger adult
Conclusion	25-30 years

Skeleton: 016

Preservation: Very good **Position:** Supine **Orientation:** N-S
Age: 30-35 years **Sex:** Male **Stature:** 168 cm



Skeleton 016

Dentition

Max. **R** X X X / / 3 2 1 . 1 / / 4 5 X X X **L**

.....

Mand. **R** 8 7 6 5 4 3 2 1 . / / 3 4 5 6 7 8 **L**

X = A.M. loss
/ = P.M. loss
A = abscess
C = caries
- = jaw/tooth missing
* = congenital non-eruption

Bones Present

Right Arm	humerus, radius, ulna
Left Arm	humerus, radius, ulna
Right Hand	capitate, lunate, triquetral, scaphoid, trapezium, hamate, 5 metacarpals, 4 proximal phalanges, 4 intermediate phalanges, 4 distal phalanges
Left Hand	capitate, lunate, scaphoid, trapezoid, trapezium, hamate, pisiform, 5 metacarpals, 4 proximal phalanges, 4 intermediate phalanges, 4 distal phalanges
Right Leg	femur, tibia, fibula, patella
Left Leg	femur, tibia, fibula,
Right Foot	calcaneum, talus, first cuneiform, 1 metatarsals, 1 proximal phalanx,
Left Foot	calcaneum, talus, cuboid, naviculum, 3 cuneiform bones, 5 metatarsals, 5 proximal phalanges, 4 intermediate phalanges, 3 distal phalanges

Cervical Vertebrae	C2-C7
Thoracic Vertebrae	T2-T12
Lumbar Vertebrae	L1-L5
Sacral Vertebrae	S1-S5
Coccyx	NP

Pelvis	Both right and left innom. Bones present
Manubrium	Present
Sternum	Present
Right ribs: 12	Left ribs: 11 (min)
Right clavicle	Present
Left clavicle	Present
Right scapula	Present
Left scapula	Present

Skull	Majority present

Congenital or other bony abnormalities: Wormian bones along the lambdoidal suture

Skeleton 016

Femur	Left	Right
Max. Length	44.5	44.5
Oblique length	44.1	44.1
Diam. Head	4.66	4.70
A.P. Diam. Midshaft	3.10	3.10
M.L. Diam Midshaft	27.7	27.7
Bicondylar W.	7.72	7.69

Stature = 168 cm

Tibia	Left	Right
Max L.	35.8	36.0
Max. A P Diam.	4.0	3.61
Transverse Diam.	2.67	2.80
Bycondylar W.	7.17	7.17

Fibula	Left	Right
Max L.	35.0	/

Humerus	Left	Right
Max. L.	31.9	32.1
Diam. Hd.	4.59	4.57
Epicond. W	6.50	6.50

Radius	Left	Right
Max.L	23.5	23.5

Ulna	Left	Right
Max. L	26.2	26.0

Clavicle	Left	Right
Max. L	15.4	/

Skeleton 016

SEXING DATA

Pelvis	Sex
Sub pubic angle	NP
Ischiopubic ramus	M
Ischial spines	M
Pubic symphyseal face	M
Iliac auricular surface	M
Ilium blade	M?
Pre-auricular sulcus	M
Greater sciatic notch	M
Obturator foramen	NP
Acetabulum	M
Conclusion	M

Skull	Sex
Eminences	NP
Orbits	M?
Nasal aperture	NP
Zygomatic arch	?
Glabellar region	M
Mastoid process	M
Foramen magnum	NP
Occipital condyles	NP
Nuchal region	M?
Conclusion	M?

Mandible	Sex
Goneal angle	M
Goneal region	M
Mental trigon	M?
Depth between incisors and mental trigon	M
Conclusion	M

Metrical Data	Sex
Sacral index	M
Diam. Hum. Head	?
Diam. Fem. Head	M?

Overall conclusion: M

AGEING DATA

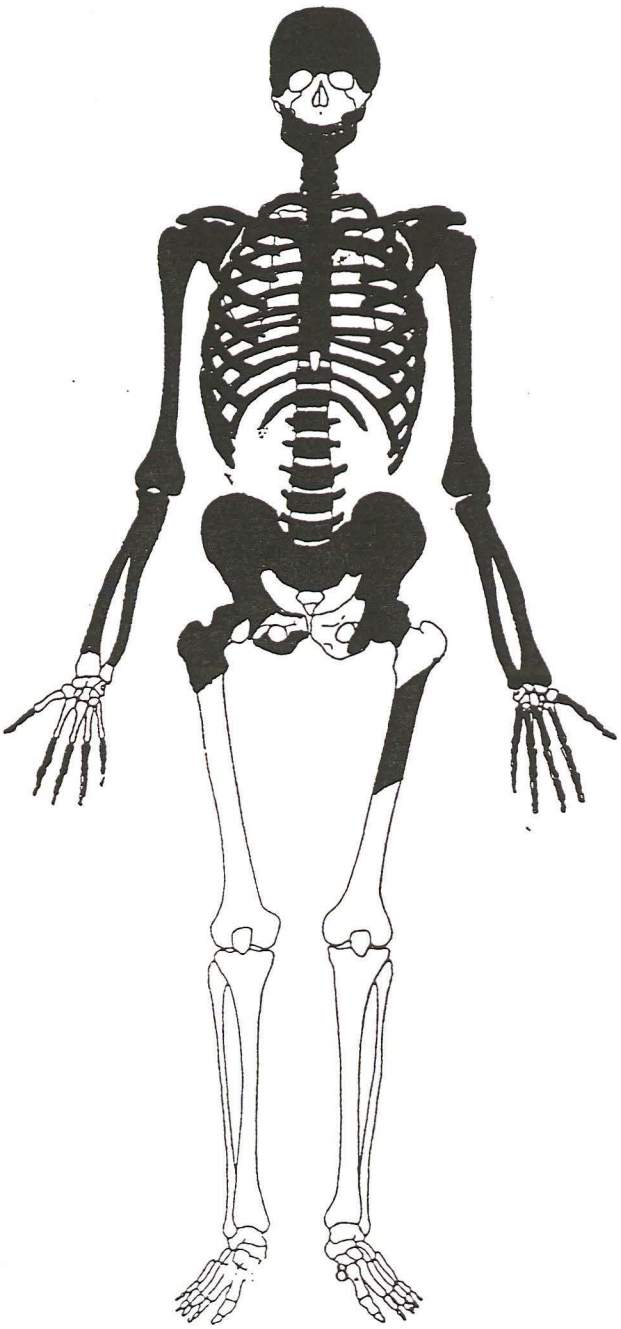
Ageing method	Age obtained (years)
Auricular surface	30-35
Pubic symphyseal face	30-35
Dental attrition	NA
Late fusing epiphyses	NA
Forth sternal end rib	NP
Cranial suture closure	NA
Conclusion	30-35

Skeleton: 019

Preservation: Good
Age: 25-29 years

Position: Supine
Sex: Female

Orientation: W-E
Stature: 166 cm



Skeleton 019

Dentition

Max.	**R**	-	-	-	-	-	-	-	-	.	-	-	-	-	5	6	7	8	**L**
Mand.	**R**	8	7	6	5	4	3	2	1	.	1	2	3	4	5	6	7	8	**L**

X = A.M. loss A = abscess - = jaw/tooth missing
/ = P.M. loss C = caries * = congenital non-eruption

Bones Present

Right Arm	humerus, radius, ulna
Left Arm	humerus, radius, ulna
Right Hand	proximal phalanges, intermediate phalanges, distal phalanges
Left Hand	hamate, pisiform, 2 metacarpals, 3 proximal phalanges, 4 intermediate phalanges, 4 distal phalanges
Right Leg	proximal femur
Left Leg	proximal femur and mid shaft of femur
Right Foot	NP
Left Foot	NP

Cervical Vertebrae	C2-C7
Thoracic Vertebrae	T1-T12
Lumbar Vertebrae	L1-L5
Sacral Vertebrae	Present but fragmentary
Coccyx	Present

Pelvis	Both right and left innom. Bones are present.
Manubrium	Present
Sternum	Present
Right ribs:10 (min)	Left ribs: 12
Right clavicle	Present
Left clavicle	Present
Right scapula	Present
Left scapula	Present

Skull	Very fragmentary and incomplete

Congenital or other bony abnormalities: Congenital fusion of T2 and T3; extra sacral facet on ilium; only 4 LV present, possible sacralisation of L5 but sacrum too fragmentary to confirm.

Skeleton 019

Femur	Left	Right
Max. Length	/	/
Oblique length	/	/
Diam. Head	4.20	4.30
A.P. Diam. Midshaft	/	/
M.L. Diam. Midshaft	/	/
Bicondylar W.	/	/

Stature = 166 cm

Tibia	Left	Right
Max L.	/	/
Max. A P Diam.	/	/
Transverse Diam.	/	/
Bycondylar W.	/	/

Fibula	Left	Right
Max L.	/	/

Humerus	Left	Right
Max. L.	31.7	32.8
Diam. Hd.	4.35	4.32
Epicond. W	5.70	5.74

Radius	Left	Right
Max.L	2.32	/

Ulna	Left	Right
Max. L	/	/

Clavicle	Left	Right
Max. L	14.4	/

Skeleton 019

SEXING DATA

Pelvis	Sex
Sub pubic angle	NP
Ischiopubic ramus	NP
Ischial spines	NP
Pubic symphyseal face	NP
Iliac auricular surface	F
Ilium blade	F
Pre-auricular sulcus	F
Greater sciatic notch	F
Obturator foramen	NP
Acetabulum	F
Conclusion	F

Skull	Sex
Eminences	NP
Orbits	NP
Nasal aperture	NP
Zygomatic arch	F
Glabellar region	NP
Mastoid process	F
Foramen magnum	NP
Occipital condyles	NP
Nuchal region	F
Conclusion	F

Mandible	Sex
Goneal angle	NP
Goneal region	F?
Mental trigon	F
Depth between incisors and mental trigon	F
Conclusion	F

Metrical Data	Sex
Sacral Index	NA
Diam. Hum. Head	F
Diam. Fem. Head.	F

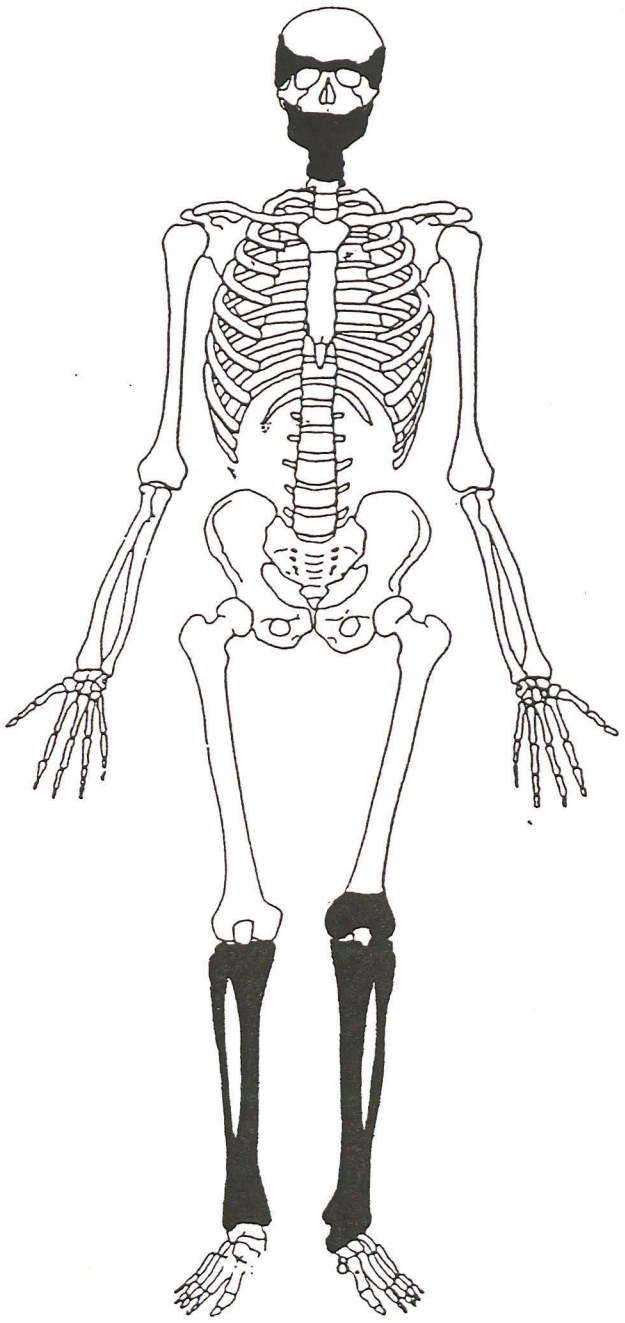
Overall Conclusion: F

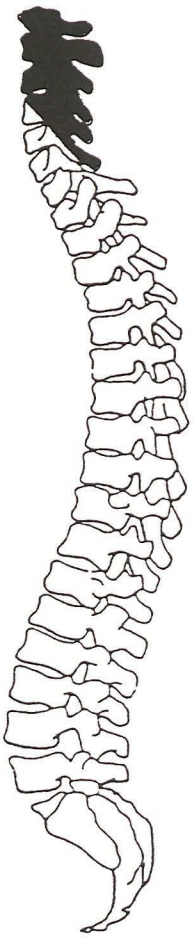
AGEING DATA

Ageing method	Age obtained (years)
Auricular surface	25-29
Pubic symphyseal face	NP
Dental attrition	25-35
Late fusing epiphyses	25-30
Forth sternal end rib	NP
Cranial suture closure	NA
Conclusion	25-30

Skeleton: 020

Preservation: Poor **Position:** Decapitated (head between ankles) **Orientation:** W-E
Age: 25-35 **Sex:** Female ? **Stature:** 160.7 cm





Skeleton 020

Dentition

				Ac	c										A				
Max.	**R**	/	7	6	5	4	3	2	1	.	1	2	3	4	/	/	7	8	**L**
Mand.	**R**	*	7	6	5	4	3	2	1	.	1	2	3	4	5	6	7	8	**L**
				A															

X = A.M. loss A = abscess - = jaw/tooth missing
/ = P.M. loss C = caries * = congenital non-eruption

Bones Present

Right Arm	NP
Left Arm	NP
Right Hand	NP
Left Hand	NP
Right Leg	tibia, fibula,
Left Leg	distal femur, tibia, fibula,
Right Foot	NP
Left Foot	calcaneum, talus,

Cervical Vertebrae	C1-C5 (C4 and C5 fragmented)
Thoracic Vertebrae	NP
Lumbar Vertebrae	NP
Sacral Vertebrae	NP
Coccyx	NP

Pelvis	NP
Manubrium	NP
Sternum	NP
Right ribs: NP	Left ribs: NP
Right clavicle	NP
Left clavicle	NP
Right scapula	NP
Left scapula	NP

Skull	Base of skull only

Congenital or other bony abnormalities: congenital non eruption of right third mandibular molar

Skeleton 020

Femur	Left	Right
Max. Length	/	/
Oblique length	/	/
Diam. Head	/	/
A.P. Diam, Midshaft	/	/
M.L. Diam midshaft	/	/
Bicondylar W.	7.41	/

Stature = 160.7

Tibia	Left	Right
Max L.	34.2	34.2
Max. A P Diam.	3.40	/
Transverse Diam.	2.25	/
Bycondylar W.	7.18	6.91

Fibula	Left	Right
Max L.	/	32.9

Humerus	Left	Right
Max. L.	/	/
Diam. Hd.	/	/
Epicond. W	/	/

Radius	Left	Right
Max.L	/	/

Ulna	Left	Right
Max. L	/	/

Clavicle	Left	Right
Max. L	/	/

Skeleton 020

SEXING DATA

Pelvis	Sex
Sub pubic angle	NP
Ischiopubic ramus	NP
Ischial spines	NP
Pubic symphyseal face	NP
Iliac auricular surface	NP
Ilium blade	NP
Pre-auricular sulcus	NP
Greater sciatic notch	NP
Obturator foramen	NP
Acetabulum	NP
Conclusion	?

Skull	Sex
Eminences	NP
Orbits	NP
Nasal aperture	NP
Zygomatic arch	F
Glabellar region	NP
Mastoid process	F
Foramen magnum	F?
Occipital condyles	F?
Nuchal region	?
Conclusion	F?

Mandible	Sex
Goneal angle	F
Goneal region	F
Mental trigon	F
Depth between incisors and mental trigon	?
Conclusion	F

Metrical Data	Sex
Sacral Index	NP
Diam. Hum. Head.	NP
Diam. Fem. Head	NP

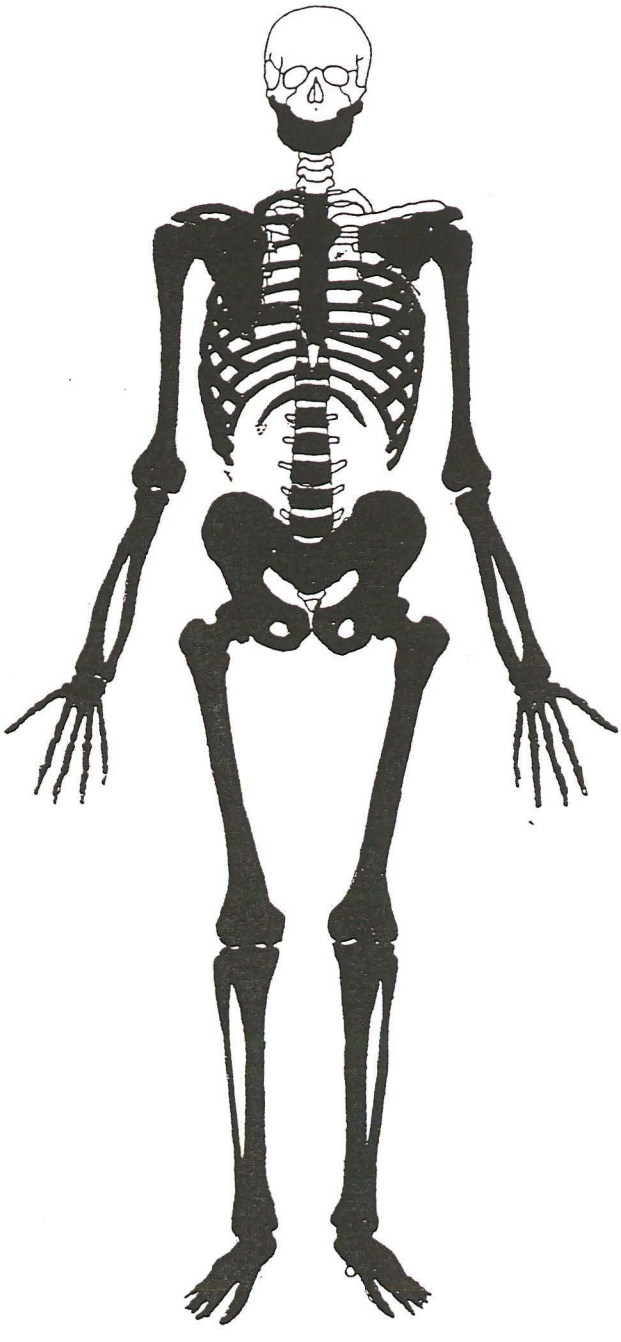
Overall Conclusion: F?

AGEING DATA

Ageing method	Age obtained (years)
Auricular surface	NP
Pubic symphyseal face	NP
Dental attrition	25-35
Late fusing epiphyses	NP
Forth sternal end rib	NP
Cranial suture closure	NA
Conclusion	25-35

Skeleton: 023

Preservation: Excellent **Position:** Supine **Orientation:** E-W
Age: 25-30 **Sex:** Male **Stature:** 173 cm
Grave Goods: Small iron knife, iron buckle



Skeleton 023

Dentition

Max. **R** 8 / 6 - - 3 2 1 . 1 2 3 4 5 6 7 8 **L**

.....

Mand. **R** 8 7 6 5 4 3 2 1 . 1 2 3 4 5 6 7 8 **L**

X = A.M. loss
/ = P.M. loss
A = abscess
C = caries
- = jaw/tooth missing
* = congenital non-eruption

Bones Present

Right Arm	humerus, radius, ulna
Left Arm	humerus, radius, ulna
Right Hand	capitate, lunate, triquetral, scaphoid, hamate, 5 metacarpals, 5 proximal phalanges, 4 intermediate phalanges, 4 distal phalanges
Left Hand	capitate, scaphoid, trapezium, 5 metacarpals, 4 proximal phalanges, 4 intermediate phalanges, 4 distal phalanges
Right Leg	femur, tibia, fibula, patella
Left Leg	femur, tibia, fibula, patella
Right Foot	calcaneum, talus, cuboid, naviculum, 2nd cuneiform, 5 metatarsals. 5 proximal phalanges, 3 intermediate phalanges 2 distal phalanges
Left Foot	calcaneum, talus, naviculum, 3 cuneiform bones, 5 metatarsals. 4 proximal phalanges, 3 intermediate phalanges, 3 distal phalanges

Cervical Vertebrae	C4-C7
Thoracic Vertebrae	T1-T12
Lumbar Vertebrae	L1-L5
Sacral Vertebrae	S1-S5
Coccyx	Present

Pelvis	Both right and left innom. bones present
Manubrium	Present
Sternum	Present
Right ribs:12	Left ribs:12
Right clavicle	Present
Left clavicle	NP
Right scapula	Present
Left scapula	Present

Skull	NP

Congenital or other bony abnormalities: Bony exostosis in right and left trochanteric fossa

Skeleton 023

Femur	Left	Right
Max. Length	48.5	48.4
Oblique length	46.4	46.5
Diam. Head	5.17	5.11
A.P. Diam. Midshaft	2.98	3.17
M.L. Diam. Midshaft	2.98	2.97
Bicondylar W.	8.62	8.68

Stature = 173 cm

Tibia	Left	Right
Max L.	37.6	37.8
Max. A P Diam.	3.71	35.6
Transverse Diam.	2.80	2.75
Bycondylar W.	8.16	8.11

Fibula	Left	Right
Max L.	/	/

Humerus	Left	Right
Max. L.	31.9	31.8
Diam. Hd.	4.41	4.55
Epicond. W	4.98	5.05

Radius	Left	Right
Max.L	25.4	25.7

Ulna	Left	Right
Max. L	/	28.5

Clavicle	Left	Right
Max. L	/	15.9

Skeleton 023

SEXING DATA

Pelvis	Sex
Sub pubic angle	M
Ischiopubic ramus	M
Ischial spines	M
Pubic symphyseal face	M
Iliac auricular surface	M
Ilium blade	M
Pre-auricular sulcus	M
Greater sciatic notch	M
Obturator foramen	M
Acetabulum	M
Conclusion	M

Skull	Sex
Eminences	NP
Orbits	NP
Nasal aperture	NP
Zygomatic arch	NP
Glabellar region	NP
Mastoid process	NP
Foramen magnum	NP
Occipital condyles	NP
Nuchal region	NP
	NP
Conclusion	?

Mandible	Sex
Goneal angle	M
Goneal region	M
Mental trigon	M
Depth between incisors and mental trigon	M
Conclusion	M

Metrical Data	Sex
Sacral Index	M
Diam. Hum. Head	?
Diam. Fem. Head	M

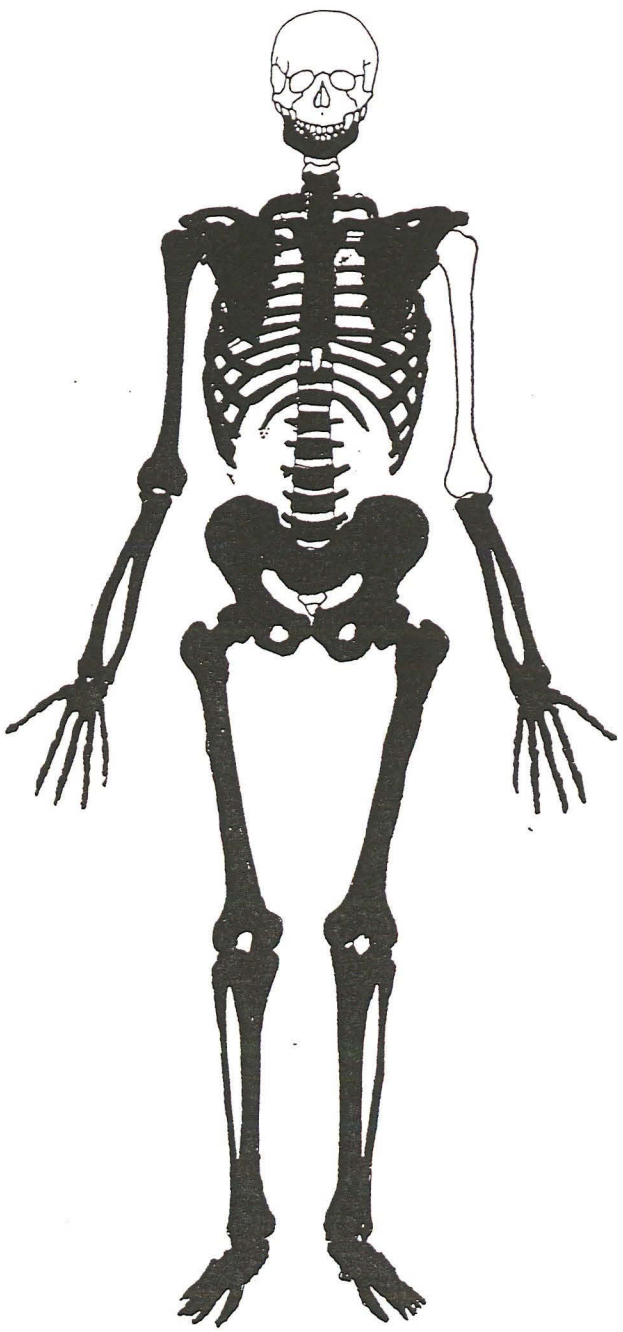
Overall Conclusion: M

AGEING DATA

Ageing method	Age obtained (years)
Auricular surface	25-29
Pubic symphyseal face	25-29
Dental attrition	25-35
Late fusing epiphyses	25-29
Forth sternal end rib	NP
Cranial suture closure	NP
Conclusion	25-29

Skeleton: 024

Preservation: Excellent **Position:** Supine **Orientation**: E-W
Age: 20-26 years **Sex:** Female **Stature:** 166.2 cm
Grave Goods: Small quartz bead



Skeleton 024

Dentition

Max. **R** - - - - - - - - - . - - - - - - - - - **L**

.....

Mand. **R** 8 7 6 5 4 3 2 1 . 1 2 3 4 5 6 7 8 **L**

c

X = A.M. loss A = abscess - = jaw/tooth missing

/ = P.M. loss C = caries * = congenital non-eruption

Bones Present

Right Arm	humerus, radius, ulna
Left Arm	radius, ulna
Right Hand	capitate, lunate, triquetral, scaphoid, trapezoid, trapezium, pisiform, metacarpals, proximal phalanges, intermediate phalanges, distal phalanges
Left Hand	capitate, lunate, triquetral, scaphoid, trapezoid, trapezium, pisiform, metacarpals, proximal phalanges, intermediate phalanges, distal phalanges
Right Leg	femur, tibia, fibula, patella
Left Leg	femur, tibia, fibula, patella
Right Foot	calcaneum, talus, navicular, 3 cuneiform bones, 5 metatarsals, 4 proximal phalanges, 4 intermediate phalanges
Left Foot	calcaneum, talus, navicular, cuboid, 2nd cuneiform, 1 metatarsal,

Cervical Vertebrae	C6 and C7
Thoracic Vertebrae	T1-T12
Lumbar Vertebrae	L1-L5
Sacral Vertebrae	S1-S5
Coccyx	NP

Pelvis	Both right and left innom. bones present
Manubrium	Present
Sternum	Present
Right ribs: 13	Left ribs: 13
Right clavicle	Present
Left clavicle	Present
Right scapula	Present
Left scapula	Present

Skull NP

Congenital or other bony abnormalities: Extra cervical rib on both right and left sides; extra sacral facet on ilium

Skeleton 024

Femur	Left	Right
Max. Length	46.3	46.2
Oblique length	45.4	45.3
Diam. Head	4.32	4.46
A.P. Diam, Midshaft	2.82	/
M.L. Diam midshaft	2.61	/
Bicondylar W.	7.64	7.64

Stature = 166.2 cm

Tibia	Left	Right
Max L.	36.8	36.8
Max. A P Diam.	3.26	3.19
Transverse Diam.	2.71	2.69
Bycondylar W.	7.02	7.05

Fibula	Left	Right
Max L.	/	35.4

Humerus	Left	Right
Max. L.	/	32.6
Diam. Hd.	/	4.44
Epicond. W	/	/

Radius	Left	Right
Max.L	23.6	24.6

Ulna	Left	Right
Max. L	/	26.9

Clavicle	Left	Right
Max. L	/	13.9

Skeleton 024

SEXING DATA

Pelvis	Sex
Sub pubic angle	F
Ischiopubic ramus	F
Iscial spines	F
Pubic symphyseal face	F
Iliac Auricular surface	F
Ilium blade	F
Pre-auricular sulcus	F
Greater Sciatic notch	F?
Obturator Foramen	F
Acetabulum	F
Conclusion	F

Skull	Sex
Eminences	NP
Orbits	NP
Nasal aperture	NP
Zygomatic arch	NP
Glabellar region	NP
Mastoid process	NP
Foramen magnum	NP
Occipital condyles	NP
Nuchal region	NP
Conclusion	?

Mandible	Sex
Goneal angle	NA
Goneal region	F?
Mental trigon	?
Depth between incisors and mental trigon	F?
Conclusion	F?

Metrical Data	Sex
Sacral Index	F
Diam. Hum. Head.	?
Diam. Fem. Head.	F

Overall conclusion: F (Individual is also pregnant)

AGEING DATA

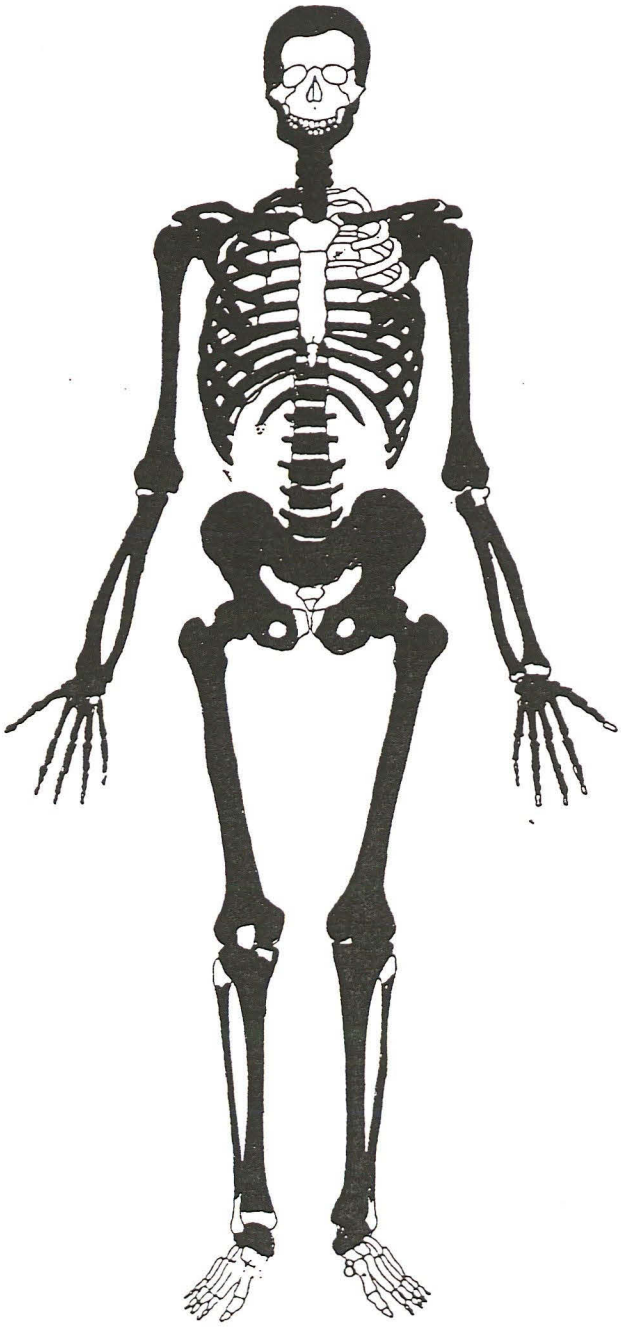
Ageing method	Age obtained (years)
Auricular surface	20-24
Pubic symphyseal face	24-26
Dental attrition	17-25
Late fusing epiphyses	21-25
Forth sternal end rib	20-25
Cranial suture closure	NP
Conclusion	20-25

Skeleton: 027

Preservation: Moderate-Good
Age: 50+ Years

Position: Supine
Sex: Male

Orientation: N-S
Stature: 178 cm



Skeleton 027

Dentition

Max. **R** - - - 5 - - - - - . - - - 4 - - - - **L**

Mand. **R** X X X 5 4 / X X . X X / 4 5 X X 8 **L**

X = A.M. loss
/ = P.M. loss
A = abscess
C = caries
- = jaw/tooth missing
* = congenital non-eruption

Bones Present

Right Arm	humerus, radius, ulna
Left Arm	humerus, radius, ulna
Right Hand	capitate, lunate, scaphoid, trapezoid, trapezium, 5 metacarpals. 5 proximal phalanges, 4 intermediate phalanges, 4 distal phalanges
Left Hand	capitate, lunate, triquetral, trapezoid, trapezium, hamate, 5 metacarpals. 5 proximal phalanges, 4 intermediate phalanges, 4 distal phalanges
Right Leg	femur, tibia, fibula,
Left Leg	femur, tibia, fibula, patella
Right Foot	calcaneum, talus,
Left Foot	calcaneum, talus,

Cervical Vertebrae	C1-C7
Thoracic Vertebrae	T1-T12
Lumbar Vertebrae	L1-L5
Sacral Vertebrae	Present but fragmentary
Coccyx	NP

Pelvis	Both right and left innom. bones are present
Manubrium	NP
Sternum	NP
Right ribs: 12	Left ribs: 7 (min)
Right clavicle	Present
Left clavicle	Present
Right scapula	Present
Left scapula	Present

Skull	Most present but very fragmentary

Congenital or other bony abnormalities: None

Skeleton 027

Femur	Left	Right
Max. Length	49.2	/
Oblique length	48.3	/
Diam. Head	5.17	5.20
A.P. Diam, Midshaft	/	/
M.L. Diam. Midshaft	/	/
Bicondylar W.	/	5.17

Stature = 177.6 cm

Tibia	Left	Right
Max L.	/	/
Max. A P Diam.	/	/
Transverse Diam.	/	/
Bycondylar W.	/	/

Fibula	Left	Right
Max L.	/	/

Humerus	Left	Right
Max. L.	/	/
Diam. Hd.	/	/
Epicond. W	/	/

Radius	Left	Right
Max.L	/	/

Ulna	Left	Right
Max. L	/	/

Clavicle	Left	Right
Max. L	/	16.6

Skeleton 027

SEXING DATA

Pelvis	Sex
Sub pubic angle	NP
Ischiopubic ramus	NP
Ischial spines	NP
Pubic symphyseal face	NP
Iliac auricular surface	M
Ilium blade	M
Pre-auricular sulcus	M
Greater sciatic notch	M
Obturator foramen	NP
Acetabulum	M
Conclusion	M

Skull	Sex
Eminences	NP
Orbits	NP
Nasal aperture	NP
Zygomatic arch	M
Glabellar region	NP
Mastoid process	M
Foramen magnum	NP
Occipital condyles	NP
Nuchal region	M
Conclusion	M

Mandible	Sex
Goneal angle	M
Goneal region	M?
Mental trigon	M?
Depth between incisors and mental trigon	M
Conclusion	M

Metrical Data	Sex
Sacral index	NP
Diam. Hum. Head	NP
Diam. Fem. Head	M

Overall Conclusion: M

AGEING DATA

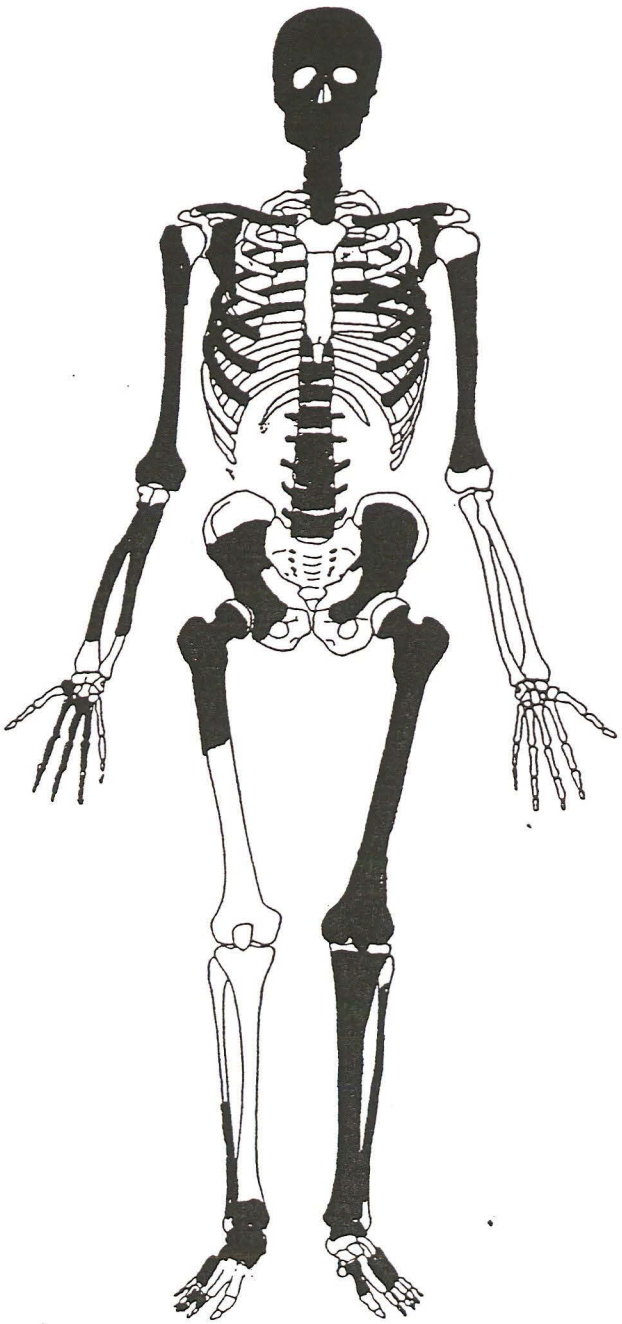
Ageing method	Age obtained (years)
Auricular surface	50+
Pubic symphyseal face	NP
Dental attrition	50+
Late fusing epiphyses	NA
Forth sternal end rib	NP
Cranial suture closure	Older individual
Conclusion	50+

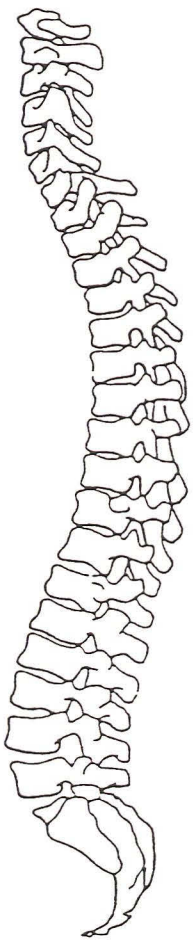
Skeleton: 034

Preservation: Poor-Moderate
Age: Adult

Position: Flexed
Sex: Female ?

Orientation: E-W
Stature: 161.5-166.6 cm





Skeleton 034

Dentition

Max.	**R**	-	-	-	5	4	3	2	/	.	1	2	/	4	5	6	-	-	**L**
Mand.	**R**	8	7	X	X+	/	3	2	1	.	1	2	3	4	5	6	7	8	**L**
		c	c				A								cA	AA			

X = A.M. loss A = abscess - = jaw/tooth missing + = supernumerary peg tooth
/ = P.M. loss C = caries * = congenital non-eruption

Bones Present

Right Arm	humerus, radius, ulna
Left Arm	humerus,
Right Hand	capitate, 3 metacarpals, 3 proximal phalanges, 3 intermediate phalanges, 1 distal phalanx
Left Hand	NP
Right Leg	proximal femur, distal tibia, distal fibula
Left Leg	femur, tibia, fibula, patella
Right Foot	calcaneum talus, cuboid, 3 cuneiform bones, 2 metatarsals, 2 proximal phalanges, 3 intermediate phalanges
Left Foot	calcaneum, talus, cuboid, cuneiform bones, 2 metatarsals, 3 proximal phalanges, 2 intermediate phalanges,
Cervical Vertebrae	few, highly fragmented
Thoracic Vertebrae	few, highly fragmented
Lumbar Vertebrae	few, highly fragmented
Sacral Vertebrae	NP
Coccyx	NP
Manubrium	NP
Sternum	NP
Right ribs: 2 (min)	Left ribs: 4 (min) very fragmentary
Right clavicle	Present (fragmentary)
Left clavicle	Present (fragmentary)
Right scapula	Present (fragmentary)
Left scapula	Present (fragmentary)
Skull	Almost complete but highly fragmentary

Congenital or other bony abnormalities: Unfused metopic suture; supernumerary peg tooth.

Skeleton 034

Femur	Left	Right
Max. Length	/	/
Oblique length	/	43.2
Min AP Diam.	/	/
Transverse Diam.	/	/
Diam. Head	/	/
A.P. Diam, Midshaft	/	2.94
M.L. Diam midshaft	/	2.57
Bicondylar W.	/	/

Stature = 161-166 cm

Tibia	Left	Right
Max L.	/	/
Max. A P Diam.	/	3.14
Transverse Diam.	/	2.29
Bycondylar W.	/	/

Fibula	Left	Right
Max L.	/	/

Humerus	Left	Right
Max. L.	/	/
Diam. Hd.	/	/
Epicond. W	/	/

Radius	Left	Right
Max.L	/	/

Ulna	Left	Right
Max. L	/	/

Clavicle	Left	Right
Max. L	/	/

Skeleton 034

SEXING DATA

Pelvis	Sex
Sub pubic angle	NP
Ischiopubic ramus	NP
Ischial spines	NP
Pubic symphyseal face	NP
Iliac auricular surface	NP
Ilium blade	NP
Pre-auricular sulcus	NP
Greater sciatic notch	NP
Obturator foramen	NP
Acetabulum	NP
Conclusion	?

Skull	Sex
Eminences	NP
Orbits	F?
Nasal aperture	NP
Zygomatic arch	F
Glabellar region	F?
Mastoid process	F?
Foramen magnum	NP
Occipital condyles	NP
Nuchal region	F?
Conclusion	F?

Mandible	Sex
Goneal angle	F
Goneal region	F
Mental trigon	F
Depth between incisors and mental trigon	F
Conclusion	F

Metrical Data	Sex
Sacral Index	NP
Diam. Hum. Head	NP
Diam. Fem. Head	NP

Overall conclusion: F?

AGEING DATA

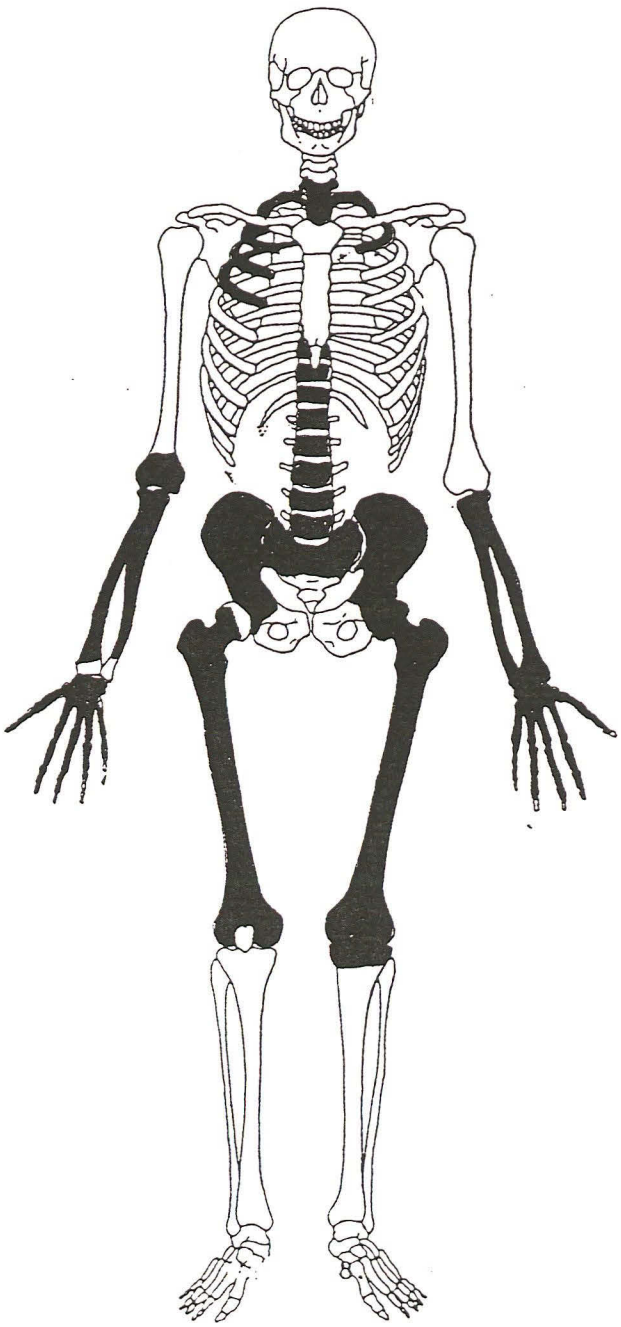
Ageing method	Age obtained (years)
Auricular surface	older adult (30+)
Pubic symphyseal face	NP
Dental attrition	older adult (30+)
Late fusing epiphyses	NP
Forth sternal end rib	NP
Cranial suture closure	older adult
Conclusion	Adult (30+)

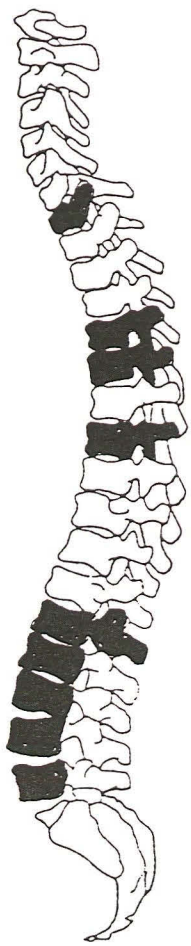
Skeleton: 081

Preservation: Poor
Age: 30-40 years
Grave Goods: Iron Spearhead

Position: Supine
Sex: Male

Orientation: S-N
Stature: 174 cm





Skeleton 081

Dentition

None present

Bones Present

Right Arm	distal humerus, radius, ulna
Left Arm	radius, ulna
Right Hand	hamate, capitate, lunate, scaphoid, triquetral, 2 metacarpals, 5 proximal phalanges, 2 intermediate phalanges
Left Hand	hamate, lunate, capitate, triquetral, scaphoid, 3 metacarpals, 4 proximal phalanges, 4 intermediate phlanges
Right Leg	femur
Left Leg	femur, proximal tibia, patella
Right Foot	NP
Left Foot	NP

Cervical Vertebrae	NP
Thoracic Vertebrae	Few vertebral bodies, very fragmented
Lumbar Vertebrae	Few vertebral bodies, very fragmented
Sacral Vertebrae	Very fragmented
Coccyx	NP

Pelvis	Present but fragmented
Manubrium	NP
Sternum	NP
Right ribs: 2 (min)	Left ribs: 4 (min)
Right clavicle	NP
Left clavicle	NP
Right scapula	NP
Left scapula	NP

Skull	NP

Congenital or other bony abnormalities: None

Skeleton 081

Femur	Left	Right
Max. Length	/	
Oblique length	/	46.8
Min AP Diam.	2.78	2.71
Transverse Diam.	2.87	2.90
Diam. Head	4.98	5.13
A.P. Diam. Midshaft	2.70	2.70
M.L. Diam. Midshaft	2.90	2.92
Bicondylar W.	/	/

Stature = 174 cm

Tibia	Left	Right
Max L.	/	/
Max. A P Diam.	/	/
Transverse Diam.	/	/
Bycondylar W.	/	/

Fibula	Left	Right
Max L.	/	/

Humerus	Left	Right
Max. L.	/	/
Diam. Hd.	/	/
Epicond. W	/	/

Radius	Left	Right
Max.L	/	/

Ulna	Left	Right
Max. L	/	/

Clavicle	Left	Right
Max. L	/	/

Skeleton 081

SEXING DATA

Pelvis	Sex
Sub pubic angle	M
Ischiopubic ramus	NP
Ischial spines	NP
Pubic symphyseal face	NP
Iliac auricular surface	M
Ilium blade	M
Pre-auricular sulcus	M
Greater sciatic notch	M
Obturator foramen	NP
Acetabulum	M
Conclusion	M

Skull	Sex
Eminences	NP
Orbits	NP
Nasal aperture	NP
Zygomatic arch	NP
Glabellar region	NP
Mastoid process	NP
Foramen magnum	NP
Occipital condyles	NP
Nuchal region	NP
Conclusion	?

Mandible	Sex
Goneal angle	NP
Goneal region	NP
Mental trigon	NP
Depth between incisors and mental trigon	NP
Conclusion	?

Metrical Data	Sex
Sacral Index	NP
Diam. Hum. Head.	NP
Diam. Fem. Head	M

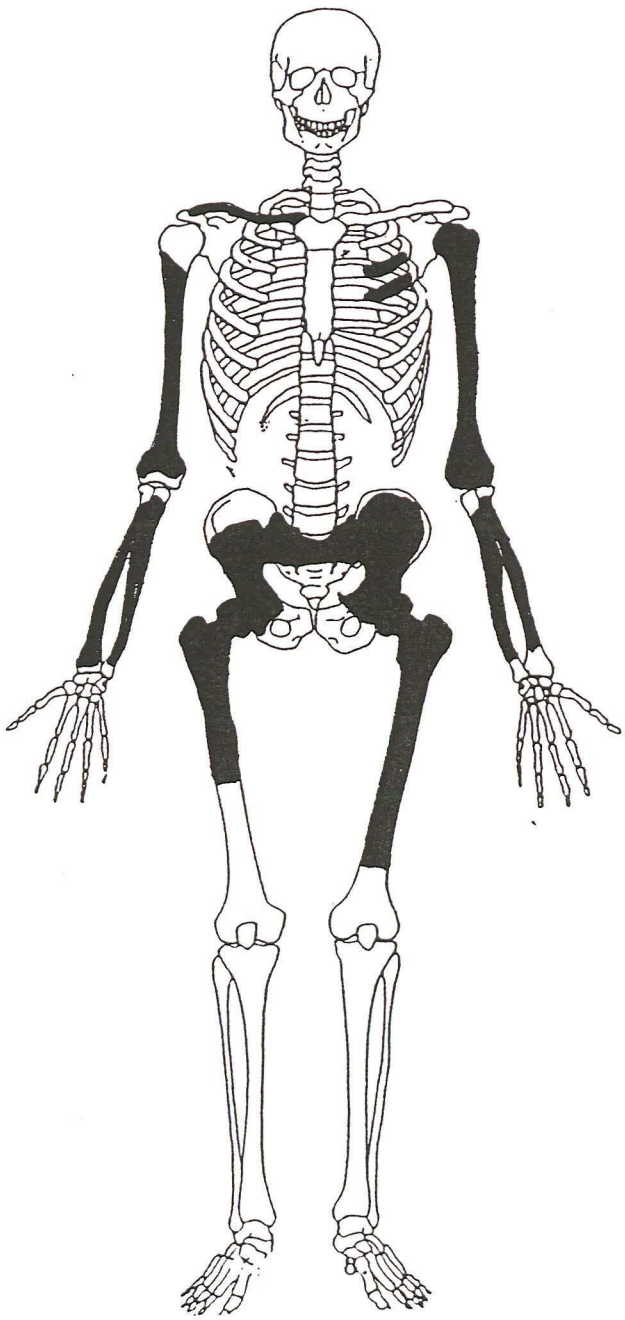
Overall conclusion: M

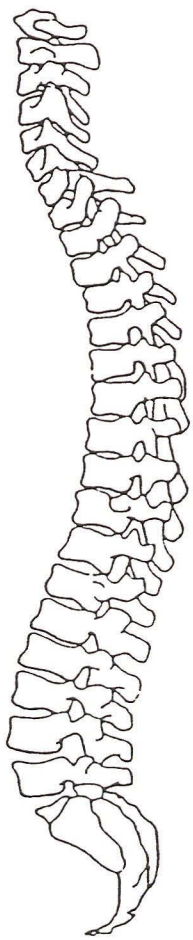
AGEING DATA

Ageing method	Age obtained (years)
Auricular surface	30-40
Pubic symphyseal face	NP
Dental attrition	NP
Late fusing epiphyses	NP
Forth sternal end rib	NP
Cranial suture closure	NP
Conclusion	30-40

Skeleton 1336

Preservation: Poor **Position:** Supine **Orientation:** S-N
Age: 30-40 years **Sex:** Male **Stature:** ?
Grave Goods: Two small iron knives, copper alloy buckle, two unidentified metal objects.





Skeleton 1336

Dentition

None present

Bones Present

Right Arm	humerus, radius, ulna
Left Arm	humerus, radius, ulna
Right Hand	NP
Left Hand	NP
Right Leg	proximal femur
Left Leg	proximal femur
Right Foot	NP
Left Foot	NP

Cervical Vertebrae	NP
Thoracic Vertebrae	NP
Lumbar Vertebrae	NP
Sacral Vertebrae	very fragmented
Coccyx	NP

Pelvis	Present but fragmented
Manubrium	NP
Sternum	NP
Right ribs: 0	Left ribs: 2
Right clavicle	Present
Left clavicle	NP
Right scapula	NP
Left scapula	NP

Skull	NP

Congenital or other bony abnormalities: None

Skeleton 1336

Femur	Left	Right
Max. Length	/	/
Oblique length	/	/
Diam. Head	/	49.0
A.P. Diam. Midshaft	3.03	3.0
M.L. Diam. Midshaft	2.90	2.80
Bicondylar W.	/	/

Stature = ?

Tibia	Left	Right
Max L.	/	/
Max. A P Diam.	/	/
Transverse Diam.	/	/
Bycondylar W.	/	/

Fibula	Left	Right
Max L.	/	/

Humerus	Left	Right
Max. L.	/	/
Diam. Hd.	/	/
Epicond. W	/	/

Radius	Left	Right
Max.L	/	/

Ulna	Left	Right
Max. L	/	/

Clavicle	Left	Right
Max. L	/	/

Skeleton 1336

SEXING DATA

Pelvis	Sex
Sub pubic angle	NP
Ischiopubic ramus	M
Ischial spines	M
Pubic symphyseal face	NP
Iliac auricular surface	M
Ilium blade	M
Pre-auricular sulcus	M
Greater sciatic notch	M
Obturator foramen	NP
Acetabulum	M
Conclusion	M

Skull	Sex
Eminences	NP
Orbits	NP
Nasal aperture	NP
Zygomatic arch	NP
Glabellar region	NP
Mastoid process	NP
Foramen magnum	NP
Occipital condyles	NP
Nuchal region	NP
Conclusion	?

Mandible	Sex
Goneal angle	NP
Goneal region	NP
Mental trigon	NP
Depth between incisors and mental trigon	NP
Conclusion	NP

Metrical data	Sex
Sacral Index	NP
Diam. Hum. Head.	NP
Diam. Fem. Head.	M

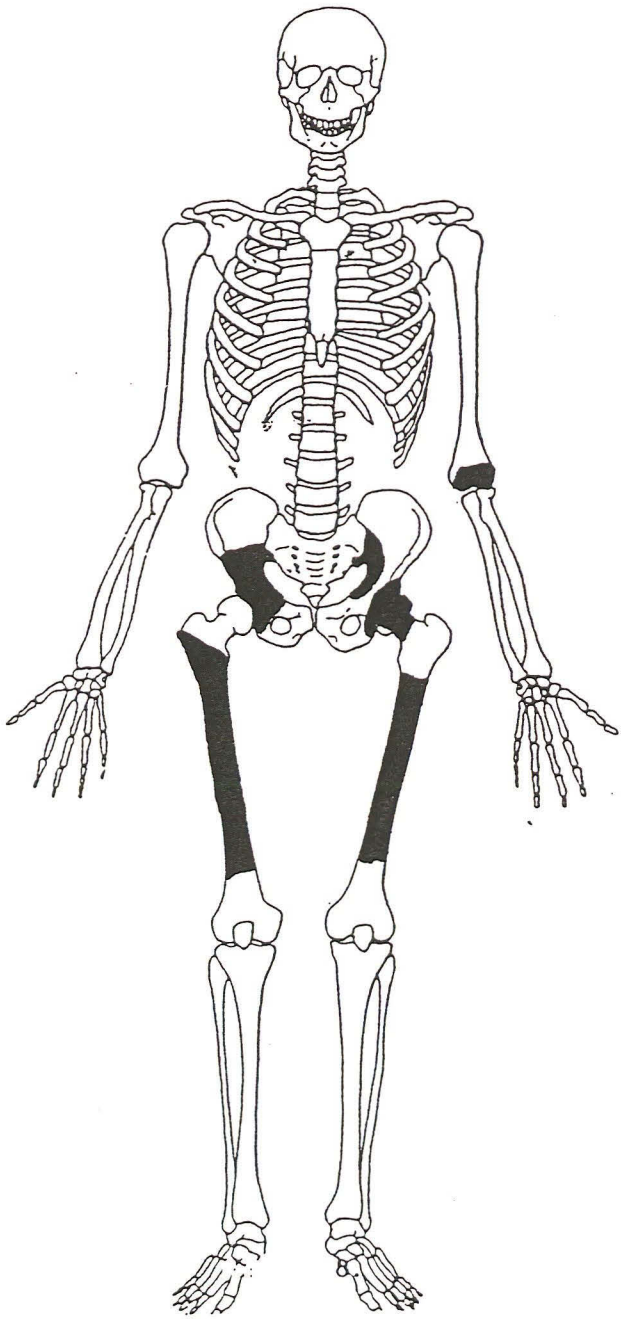
Overall conclusion: M

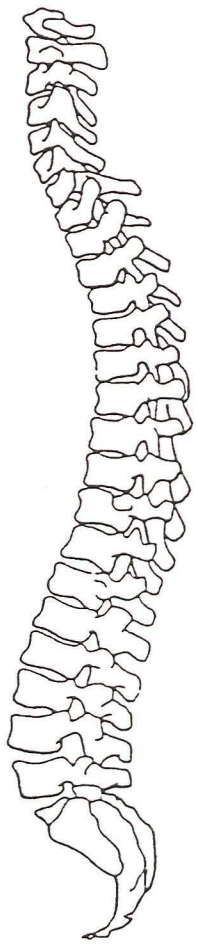
AGEING DATA

Ageing method	Age obtained (years)
Auricular surface	30-40
Pubic symphyseal face	NP
Dental attrition	NP
Late fusing epiphyses	NP
Forth sternal end rib	NP
Cranial suture closure	NP
Conclusion	30-40

Skeleton: 1337

Preservation: Very Poor **Position:** Supine **Orientation:** SE-NW
Age: Adult **Sex:** Female ? **Stature:** ?
Grave goods: Same grave as **1336**, one iron knife possibly associated with **1337**





Skeleton 1337

Dentition

None present

Bones Present

Right Arm	NP
Left Arm	distal humerus
Right Hand	NP
Left Hand	NP
Right Leg	femur mid shaft
Left Leg	proximal femur and mid shaft
Right Foot	NP
Left Foot	NP

Cervical Vertebrae	NP
Thoracic Vertebrae	NP
Lumbar Vertebrae	NP
Sacral Vertebrae	NP
Coccyx	NP

Pelvis	Fragments of ilium and ischium
Manubrium	NP
Sternum	NP
Right ribs: 0	Left ribs:0
Right clavicle	NP
Left clavicle	NP
Right scapula	NP
Left scapula	NP

Skull	NP

Congenital or other bony abnormalities: None

Skeleton 1337

Femur	Left	Right
Max. Length	/	/
Oblique length	/	/
A.P. Diam. Midshaft	27.0	28.3
M.L. Diam. Midshaft	28.2	28.9
Bicondylar W.	/	/

Stature =?

Tibia	Left	Right
Max L.	/	/
Max. A P Diam.	/	/
Transverse Diam.	/	/
Bycondylar W.	/	/

Fibula	Left	Right
Max L.	/	/

Humerus	Left	Right
Max. L.	/	/
Diam. Hd.	/	/
Epicond. W	/	/

Radius	Left	Right
Max.L	/	/

Ulna	Left	Right
Max. L	/	/

Clavicle	Left	Right
Max. L	/	/

Skeleton 1337

SEXING DATA

Pelvis	Sex
Sub pubic angle	NP
Ischiopubic ramus	NP
Ischial spines	NP
Pubic symphyseal face	NP
Iliac auricular surface	NP
Ilium blade	NP
Pre-auricular sulcus	NP
Greater sciatic notch	F
Obturator foramen	NP
Acetabulum	F
Conclusion	F

Skull	Sex
Eminences	NP
Orbits	NP
Nasal aperture	NP
Zygomatic arch	NP
Glabellar region	NP
Mastoid process	NP
Foramen magnum	NP
Occipital condyles	NP
Nuchal region	NP
Conclusion	?

Mandible	Sex
Goneal angle	NP
Goneal region	NP
Mental trigon	NP
Depth between incisors and mental trigon	NP
Conclusion	?

Metrical Data	Sex
Sacral Index	NP
Diam. Hum. Head	NP
Diam. Fem. Head	NP

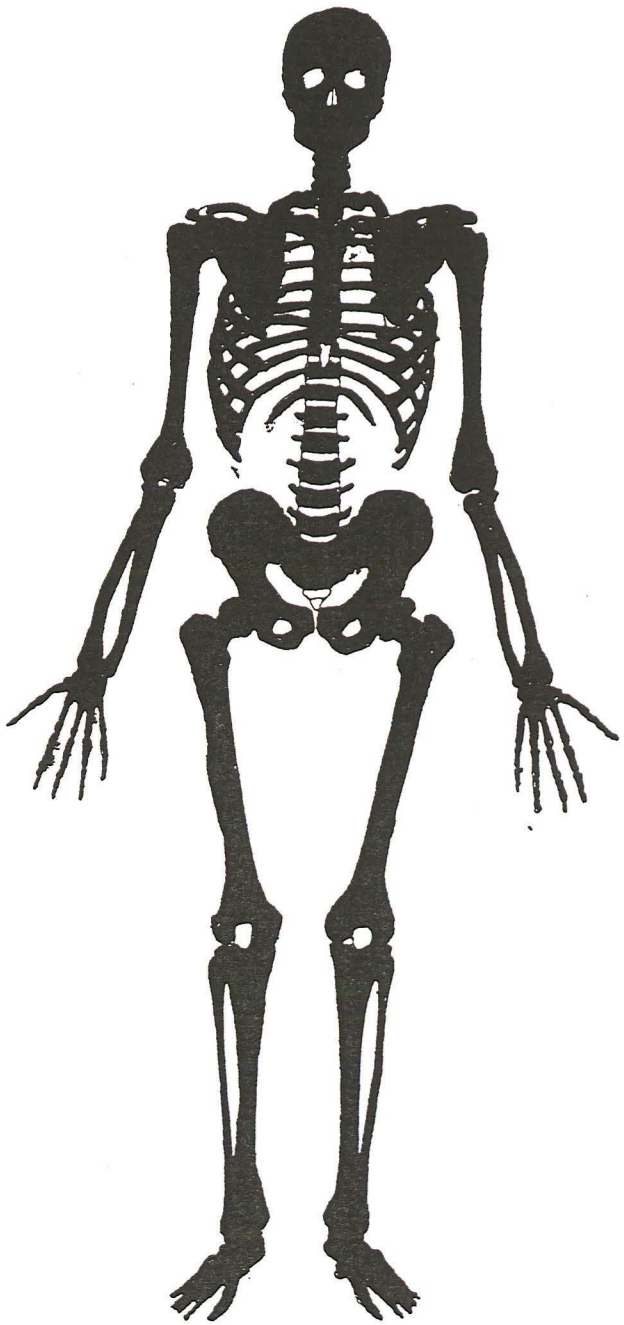
Overall Conclusion: F?

AGEING DATA

Ageing method	Age obtained (years)
Auricular surface	NP
Pubic symphyseal face	NP
Dental attrition	NP
Late fusing epiphyses	Adult
Forth sternal end rib	NP
Cranial suture closure	NP
Conclusion	Adult

Skeleton: 1511

Preservation: Excellent **Position:** Flexed towards right side **Orientation:** E-W
Age: 18-24 years **Sex:** Male **Stature:** 168 cm
Grave goods: A small iron knife, positioned under the pelvis



Skeleton 1511

Dentition

Max.	**R**	-	7	6	5	4	3	2	1	.	1	2	3	4	5	6	7	8	**L**
Mand.	**R**	*	7	6	5	4	3	2	1	.	1	2	3	4	5	6	7	*	**L**

X = A.M. loss A = abscess - = jaw/tooth missing
/ = P.M. loss C = caries * = congenital non-eruption

Bones Present

Right Arm	humerus, radius, ulna
Left Arm	humerus, radius, ulna
Right Hand	lunate, triquetral, scaphoid, trapezium, 5 metacarpals, 5 proximal phalanges, 4 intermediate phalanges, 5 distal phalanges
Left Hand	hamate, capitate, scaphoid, trapezoid, trapezium, 4 metacarpals, 4 proximal phalanges, 4 intermediate phalanges, 4 distal phalanges
Right Leg	femur, tibia, fibula
Left Leg	femur, tibia, fibula, patella
Right Foot	calcaneum, talus, cuboid, naviculum, 3 cuneiform bones, 5 metatarsals, 5 proximal phalanges, 4 intermediate phalanges, 4 distal phalanges
Left Foot	calcaneum, talus, cuboid, naviculum, 3 cuneiform bones, 5 metatarsals, 5 proximal phalanges, 4 intermediate phalanges, 3 distal phalanges

Cervical Vertebrae	C1-C7
Thoracic Vertebrae	T1-T12
Lumbar Vertebrae	L1-L4
Sacral Vertebrae	present but very fragmented
Coccyx	NP

Pelvis	Both right and left innominate bones are complete
Manubrium	Present
Sternum	Present
Right ribs: 11(min)	Left ribs: 10 (min)
Right clavicle	Present
Left clavicle	Present
Right scapula	Present
Left scapula	Present

Skull	Complete but fragmented

Congenital or other bony abnormalities: Congenital non-eruption of right and left mandibular third molars; only 4 LV present, possible sacralisation of 5th but too fragmentary to tell.

Skeleton 1511

Femur	Left	Right
Max. Length	44.07	/
Oblique length	44.25	/
Diam. Head	4.90	4.87
A.P. Diam. Midshaft	2.94	2.96
M.L. Diam. Midshaft	2.85	2.81
Bicondylar W.	7.86	7.80

Stature = 168 cm

Tibia	Left	Right
Max L.	37.2	37.5
Max. A P Diam.	3.51	3.69
Transverse Diam.	2.70	2.63
Bycondylar W.	7.30	7.25

Fibula	Left	Right
Max L.	/	/

Humerus	Left	Right
Max. L.	32.6	/
Diam. Hd.	4.65	/
Epicond. W	6.79	6.89

Radius	Left	Right
Max.L	25.6	25.7

Ulna	Left	Right
Max. L	28.3	28.2

Clavicle	Left	Right
Max. L	/	/

Skeleton 1511

SEXING DATA

Pelvis	Sex
Sub pubic angle	M
Ischiopubic ramus	M
Ischial spines	M
Pubic symphyseal face	M?
Iliac auricular surface	M
Ilium blade	M
Pre-auricular sulcus	M
Greater sciatic notch	M
Obturator foramen	M?
Acetabulum	M
Conclusion	M

Skull	Sex
Eminences	M
Orbits	M
Nasal aperture	M
Zygomatic arch	M
Glabellar region	M
Mastoid process	M
Foramen magnum	M
Occipital condyles	M
Nuchal region	M
Conclusion	M

Mandible	Sex
Goneal angle	M
Goneal region	M
Mental trigon	M
Depth between incisors and mental trigon	M
Conclusion	M

Metrical Data	Sex
Sacral Index	?
Diam. Hum. Head	?
Diam. Fem. Head	M

Overall Conclusion: M

AGEING DATA

Ageing method	Age obtained (years)
Auricular surface	20-24
Pubic symphyseal face	18-22
Dental attrition	17-25
Late fusing epiphyses	18-20
Forth sternal end rib	NP
Cranial suture closure	Young adult
Conclusion	18-24

Archive compilation

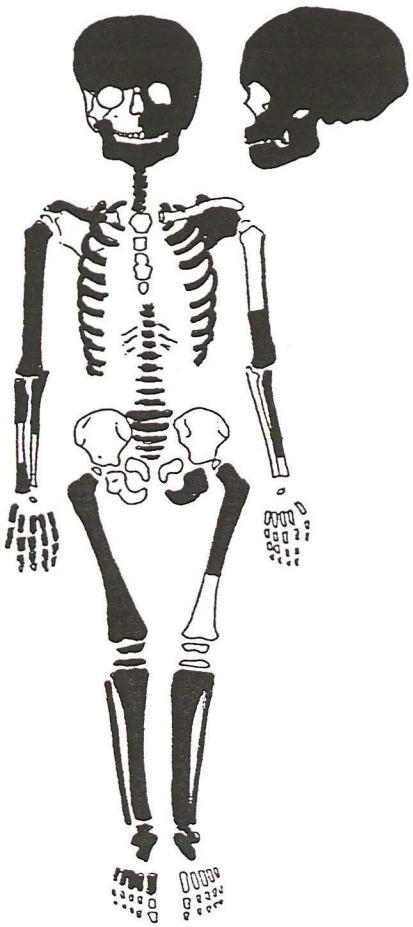
Part 2: Infants and Juveniles

Contains a skeletal chart and a catalogue of the bones and dentition present together with ageing data for each skeleton.

Skeleton: 006

Preservation: Very Good
Orientation: E-W

Position: Decapitated (head between femora)
Age: 7-9 years



Skeleton 006

Dentition

									n	2e					
Max	**R**	**/**	**/**	**/**	**/**	**/**	**/**	**.**	**1**	**b**	**c**	**d**	**e**	**6**	**L**
Mand.	**R**	**6**	**e**	**d**	**c**	**b**	**1**	**.**	**1**	**b**	**c**	**d**	**e**	**6**	**L**
						2e	n		n	2e	3				

a, b, c, ...etc. = deciduous teeth
1,2,3,.... etc. = permanent teeth
e = erupting
n = not yet fully erupted
/ = P.M. tooth loss

Bones present

Right arm	humerus (18.7 cm), radius (14.1 cm), proximal ulna
Right hand	5 metacarpals, 4 proximal phalanges, 1 intermediate phalanx
Left arm	diatal humerus, radius (incomplete)
Left hand	NP
Right leg	femur (incomplete), tibia (19.5 cm), fibula (19.9 cm)
Left leg	proximal femur, tibia (19.7 cm), fibula (19.9 cm)
Right foot	calcaneum, talus, 5 metatarsals, 1 proximal phalanx, 2 intermediate phalanges
Left foot	calcaneum, talus, cuboid, 2 cuneiform bones, 5 metatarsals, 2 proximal phalanges

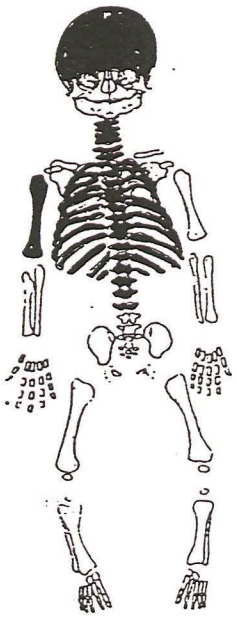
Left clavicle	NP
Right clavicle	Present
Left scapula	Present
Right scapula	NP
Ribs	Fragmentary but most present
Pelvis	Left pubis only
Vertebrae	Very fragmentary- min 5 CV, min 5 TV, min 2 LV
Skull	Almost complete, highly fragmentary.

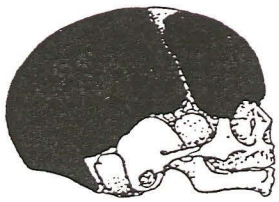
Ageing Data

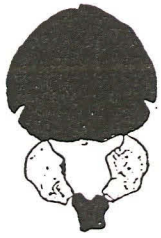
Dental development and eruption: 7-9 years
Long bone growth: 7-9 years

Skeleton: 030

Preservation: Poor **Position:** Prone **Orientation:** S-N
Age: Newborn-2.5 months







Skeleton 030

Dentition

Max R - - - - - - . - - - - - - L

Mand. R / d / b a . a b / d / L
u u u u u u

/ = P.M. tooth loss u = tooth unerupted
The crowns were not yet fully formed on any of the teeth present.

Bones Present

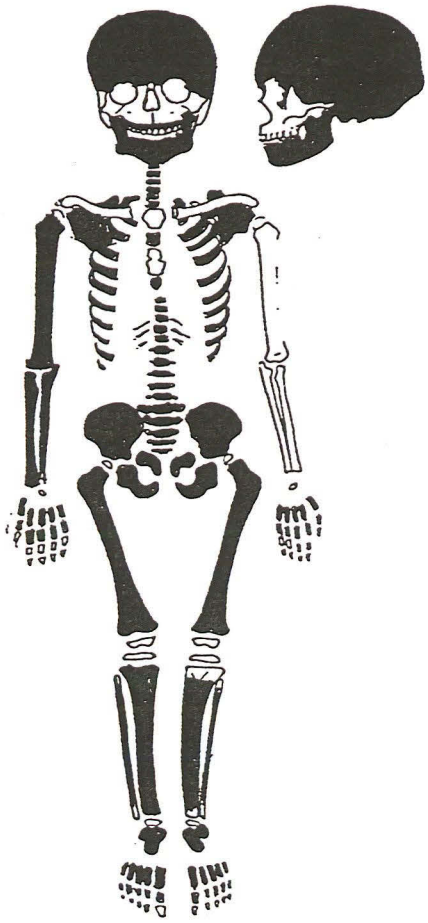
Right arm	humerus (6.51 cm), ulna (not complete), radius (not complete)
Right hand	3 metacarpals and 2 phalanges
Left arm	NP
Left hand	NP
Right leg	NP
Left leg	NP
Right foot	NP
Left foot	NP
Right scapula	Present
Left scapula	NP
Right clavicle	NP
Left clavicle	NP
Pelvis	NP
Ribs	A number of rib fragments present
Vertebrae	Majority of vertebral bodies and arches were present, the arches were unfused in the mid-line (< 1 year)
Skull	Very fragmented, majority present, incl. Parietals, frontal, occipital and temporal fragments. *Pars basilaris* 18 mm length (width not available)

Ageing Data

Dental development and eruption: Crown formation indicates newborn- 2.5 months
Long bone growth: Humeral length (< 6 months)
Skeletal maturation: Vertebral arches unfused (< 1 year), *pars basilaris* indicates newborn- 3 months

Skeleton: 031

Preservation: Very Good
Orientation: North East-South West
Position: Prone (head first in a pit)
Age: 2-4 years



Skeleton 031

Dentition

										1												
Max.	**R**			**e**	**d**	/	/	/	.	/	/	/	/	/		**L**
Mand.	**R**			**e**	/	/	/	/	.	/	/	/	/	**e**		**L**
				6												**6**

a, b, c, ... etc. = deciduous teeth / = P.M. loss
1, 2, 3, ... etc. = permanent teeth

dm1 and dm2 roots fully formed (3 years), upper I1 crown fully formed (3.7 years), lower M1 crown almost fully formed (2.7 years)

Bones Present

Right arm	humerus (12.7 cm), ulna, (10.4 cm), radius (9.36 cm)
Left arm	NP
Right hand	metacarpals, proximal and intermediate phalanges
Left hand	metacarpals, proximal and intermediate phlanges
Right leg	femur (16.8 cm), tibia (incomplete), fibula (incomplete)
Left leg	femur (16.8 cm), tibia (incomplete), fibula (incomplete)
Right foot	calcaneum, talus, 5 metatarsals, 4 proximal phalanges, 4 intermediate phalanges
Left foot	calcaneum, talus, 5 metatarsals, 3 proximal phalanges, 3 intermediate phalanges
Right scapula	Present
Left scapula	Present
Right clavicle	NP
Left clavicle	NP
Vertebrae	all vertebrae present (archaes fused in the midline, unfused to bodies)
Pelvis	right ilium, ischium and pubis; left ilium, ischium and pubis
Ribs	Majority present
Skull	Almost complete, incl. Parietals, frontal, temporals and occipital bones

Ageing Data

Dental development and eruption: 3-4 years
Long bone growth: 2.5-3.5 years
Skeletal maturation: *Pars basilaris* 25.1 mm width, 24.0 mm length (2-3 years); vertebral fusion = 3 years