Lackford, Suffolk LKD 001

Assessment Report on excavations on the early Anglo-Saxon cremation cemetery 2015-2016

Historic England project 7593

Faye Minter with Sue Anderson and Jude Plouviez

Suffolk County Council Archaeological Service

2018

Document Control

Project Name	7593 Lackford, Suffolk, early Anglo-Saxon cremation cemetery
Report title	An assessment of the archaeological context of the early Anglo-Saxon cremation cemetery at Lackford (LKD 001), Suffolk
Organisation	Suffolk County Council Archaeological Service, Bury Resource Centre, Hollow Road, Bury St Edmunds,IP32 7AY
Authors, contact	Faye Minter, Senior Archaeological Officer, Suffolk County Council, faye.minter@suffolk.gov.uk, 01284 741228 Sue Anderson, Spoilheap Archaeology, sue@spoilheap.co.uk Jude Plouviez, jude@plouviez.co.uk, 01473 602295
Other contributors	Julie M Bond, School of Archaeological and Forensic Sciences, University of Bradford Peter Marshall, Historic England Anna West, Suffolk Archaeology CIC Ian Riddler Dr Rose Broadley
Origination date	01 October 2018
Revised date	May 2019
Circulation to	Historic England
Version	LackfordAssessmentReport_02

Summary

Cremation burials were discovered in and below the ploughsoil during 2015 and 2016 in the area of the Anglo-Saxon cemetery excavated in 1947 by T Lethbridge. The 2015 burials consisted of a small group of disturbed cremations and the 2016 burials were found in two groups with one outlier, consisting of 39 scatters of pottery and/or calcined bone on the surface of the ploughsoil and 13 burials in pots partially surviving below the ploughsoil. The pottery includes substantial amounts of at least 59 vessels, with variable amounts of damage and dispersion; the majority were narrow mouthed jar forms in granitic and quartz tempered fabrics, many of them decorated. Cremated bone was in good condition, allowing the identification of individuals in both the surface scatters and the more complete burials; there was also a high percentage of cremated animal bone, including a horse burial and a cow. Eight of the urned burials contained grave goods, mainly dress accessories (beads, brooches), personal possessions (purse rings, combs, miniature tweezers) and glass vessel fragments; a few other artefacts were found amongst the surface scatters.
The radiocarbon dating of all the cremations inside urns suggests that deposition may have been during a fairly short period within the second half of the 5th or early 6th century, and this seems to correlate with the preliminary dating for the finds.

Given the high significance of this cemetery within the early Anglo-Saxon period in East Anglia it is suggested that the inadequately published finds (pottery and grave goods) from 1947 be re-examined and catalogued alongside analysis of the 2015-16 material to inform a publication and digital record, such as an East Anglian Archaeology volume with associated data on the Archaeological Data Service (ADS).

An updated project design draws on this assessment to define the analysis and reporting proposals.

CONTENTS

Appendices:

Figures:

Tables

1. Background

Location

The early Anglo-Saxon cremation cemetery (Suffolk HER reference LKD 001) lies at TL 775714 between 15m and 20m AOD on the former Mill Heath to the south-west of the River Lark. To the west the Cavenham Brook runs north to the Lark and marks the boundary between the parishes of Lackford and Cavenham (the boundary is on the east side of the Brook valley and within 150m of the cemetery). The soils are of the Newport 4 series (soil map 0551g), deep, well drained sandy soils overlying glaciofluvial drift.

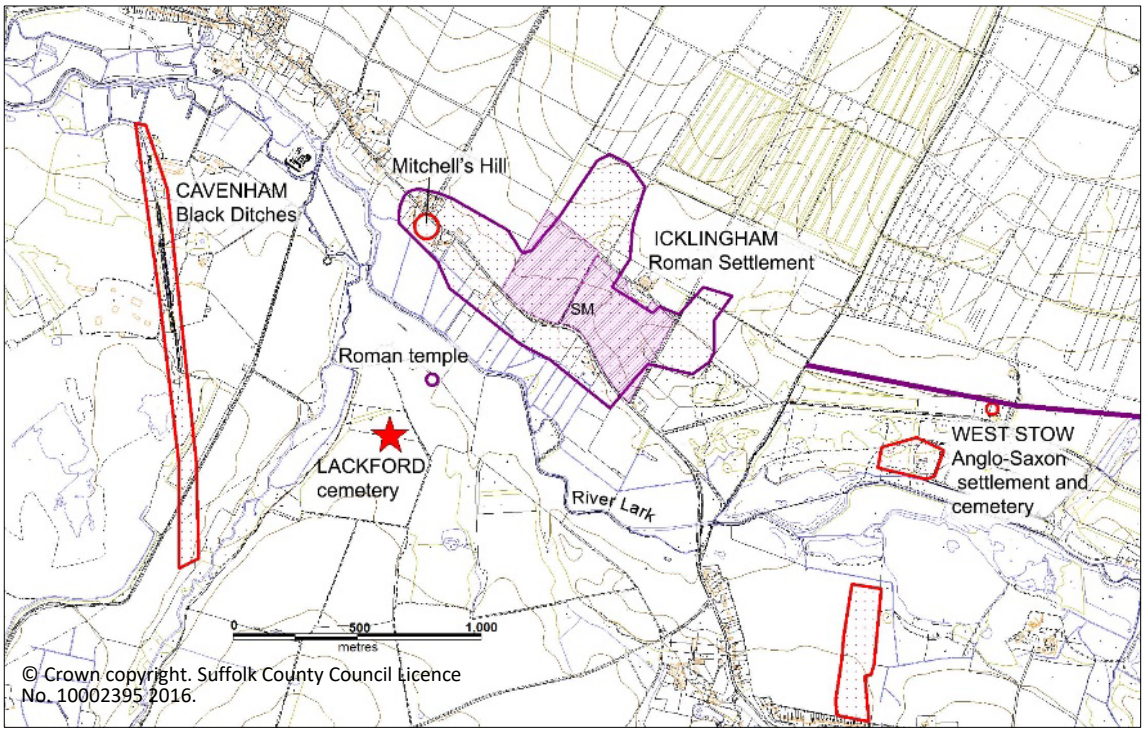

Fig 1 Map showing Lackford and other Roman and early Anglo-Saxon sites

Archaeological background

The context of the site is considered and mapped in detail in Minter & Plouviez 2018. Only a brief summary of previous discoveries is presented here.

The first recorded discoveries of urns on Mill Heath were in the 19th and early 20th centuries, but the location of the cemetery was pinpointed following ploughing of the heath in 1945. Areas were excavated in 1947 by Tom Lethbridge and published in 1951 (Lethbridge 1951). Over 500 urns were excavated with around 90 associated grave goods; the cremated bone was minimally examined and apparently discarded but most other finds are held in the Cambridge University Museum of Archaeology and Anthropology. Subsequently there have been intermittent reports of early Anglo-Saxon pottery sherds in the cultivated area on the south side of the cemetery (recorded under HER ref LKD 001) and in recent years metal detectorists have recorded surface finds of pottery sherds (and no metal objects in this area) with the Portable Antiquities Scheme.

In 2015 a first small group of freshly disturbed cremation debris was reported by a detectorist and rapidly excavated by SCCAS (Brown 2015). In May 2016 further, more extensive, groups of sherds and calcined bone were observed and a larger area excavated. These two excavated areas form the subject of this assessment which was funded by Historic England in March 2017.

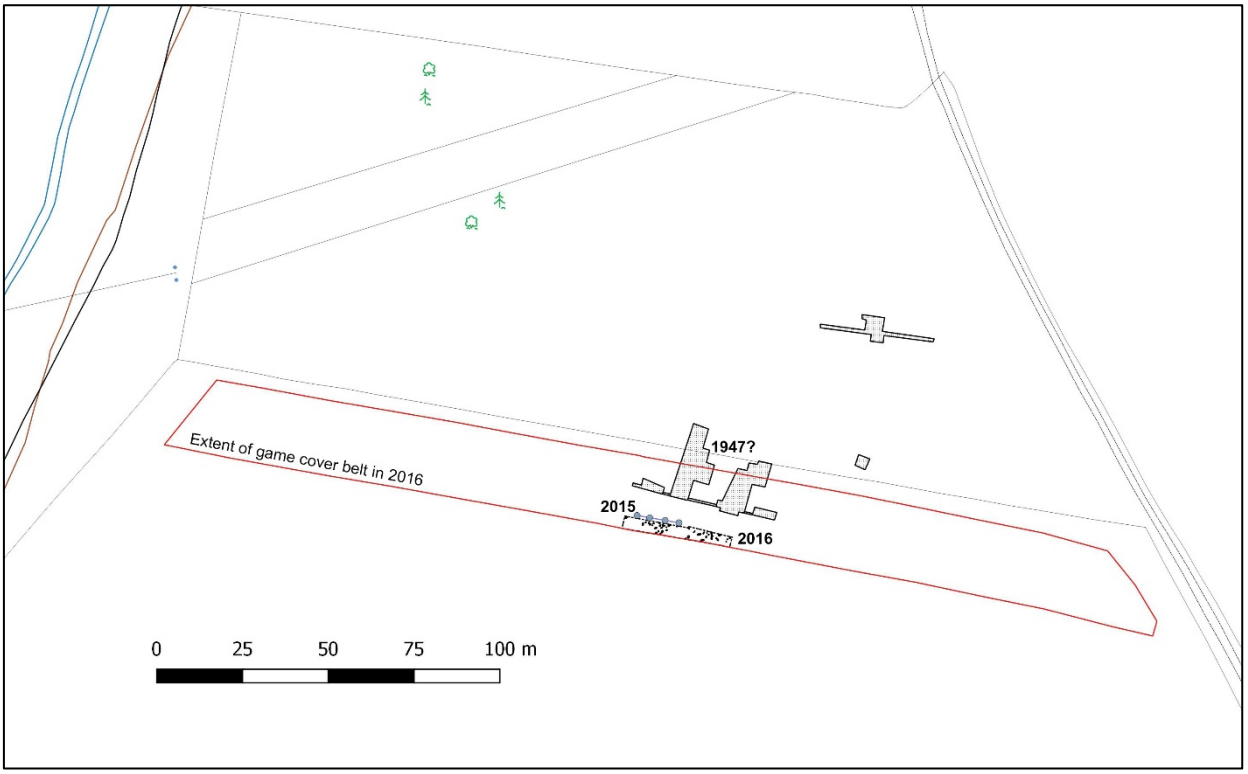

Fig 2 Location of the 2015 and 2016 excavations and possible location of 1947 areas

2. The Excavations

Methodology

The excavation in 2015 was carried out on 1st and 5th June following the report of freshly disturbed cremation material. Both surface material and some pots visible in the subsoil in a plough furrow were very rapidly excavated by members of SCCAS and subsequently planned.

Following the report of further freshly disturbed cremation material in 2016, an excavation was again quickly organised by SCCAS to retrieve data, especially the finds visible within the ploughsoil. With permission from the landowner, Robert Gough, this took place before a new crop was planted over the area on 16 -17th May 2016 with volunteer and SCCAS staff; surveying support was provided *gratis* by Suffolk Archaeology CIC Ltd.

Groups of sherds and/or burnt or calcined bone identified on the ploughsoil surface were planned, allocated a context number (single sequence unique 4-digit numbers from 0101 onwards, 0001-0025 having been allocated to the 2015 record) and removed; soil and cremated bone was taken out in sample buckets, with pottery sherds bagged separately. An area around and below each surface assemblage was excavated to maximise recovery. Where a more complete vessel was found in the sandy subsoil beneath a ploughsoil scatter it was allocated a separate context number and lifted with contents for later examination, using bandages (or occasionally cling film) for support. Semi-complete vessels were also found cut into the subsoil in the deep plough furrow at the south edge of the cover belt and these were also lifted with their contents; in this area some correlation could be suggested between the lower part of the vessel and the upturned sherds and bone found nearby on the surface of the ploughsoil. The entire area was metal-detected, by experienced detectorists, at surface level and each excavated scatter and pot was further scanned with a detector.

Features were recorded in relation to a temporary baseline which was located using an RTK GPS. The extent of each individual excavation area was also planned, and heights relative to Ordnance Datum

recorded at the base of each in situ pot. All ploughsoil scatters and in situ pots were photographed using a digital camera.

Subsequently twelve of the individual partially complete urns were excavated in 20 mm spits, where possible, following the recommendations of McKinley (2013). Each spit was sieved at 10mm, 4mm and 2mm meshes and recorded in plan.

A digital archive including a database of site and finds records, scanned copies of site drawings (plans and sections), X-radiographs and photographs is held at SCCAS. Following completion of the project this data can also be deposited with the ADS. The material archive (paper and finds) has been deposited with SCCAS and accessioned into the County Council archaeological archive for permanent storage.

Results

2015 excavation (summarised from Brown 2015)

Two incomplete cremation pots (0015, 0017) were lifted as they survived cut into the subsoil and natural in a plough furrow at the south edge of the maize belt as defined in 2015. A further three scatters of burnt and calcined bone and pottery were identified in the ploughsoil and excavated as related groups (0019, 0020, 0021). In the subsequent examination of small areas around pots 0015 and 0017 and below ploughsoil group 0020 three features cutting the natural sandy gravel were identified:

0003, a small north-south linear feature, below cremation 0015 so potentially prehistoric or Roman in date but containing no finds.

0005, a small pit (said to contain hand-made pottery) identified after the removal of cremation 0017. Possibly another cremation, not excavated.

0011, a small pit discovered below and west of surface cremation scatter 0020 – possibly the original pit for this cremation group? No datable finds recovered.

The total area within which the cremation pots were discovered was an east–west strip 14m long.

Examination of the pottery and the bone suggested that there were substantial amounts of six vessels present as well as small amounts from numerous other vessels, but that only four groups of cremated bone could be identified (the fifth group, 0021 surface scatter contained almost no bone) representing probably two adult males and two adult females. Animal bone was also present in two of the cremated bone groups. An incomplete copper-alloy small long brooch was found in one of the pots.

2016 excavation

Following cultivation of a game cover belt, previously planted with maize, surface scatters of pottery and burnt bone were found over an area 32m by 3.5m, with in situ material visible in the deep open furrow that marked the south edge of the cover belt. The ploughsoil (0101) was recorded as a mid-grey-brown sandy loam and between 0.25m and 0.35m in depth, with a distinct subsoil of reddish light brown sandy gravel below.

In total 39 surface scatters were examined and thirteen partial pots were lifted, potentially representing the plough-damaged remains of about 52 cremation burials; assessment of the pottery suggested that substantial proportions of 59 vessels were retrieved.

The surface scatters were mostly (25 examples) contained within the upper 0.25m of ploughsoil

0101, but sometimes scattered sherds were found throughout the ploughsoil and in a few cases the excavation then identified a damaged urn cut into the subsoil or the underlying sandy gravel.

Assessment of the pottery and the cremated bone shows that some of the surface scatters may derive from several individuals and pots. Given that this material was all within a ploughsoil that has been continuously cultivated since the mid 20th century this mixing is not surprising. Some of the semi-complete pots can be related to the surface scatters (for example surface scatter 0109 and pot 0144 were identified as likely to be a single vessel during the excavation and this was confirmed in the pottery assessment).

Small pits that contained the individual pots could sometimes be identified cutting into the natural sandy gravel. No other cut features were seen.

Of the thirteen semi-complete pots, seven were found in or adjacent to the open plough furrow that defined the south edge of the cultivated game cover belt. This includes a group of five pots found close together and likely to form a single deposit (0158, 0159, 0160, 0161, 0163). One other pot in the plough furrow (0144) had been placed in a pit (0146) containing cremated animal bone, which has been identified as largely or entirely a horse (see cremated animal bone assessment below).

There was one example of superimposed cremation pots, pot 0151 was found directly above pot 0153.

The cremations seem to concentrate in two groups, with surface scatter 0102 as an outlier 5m to the north-west and a 3m gap between the two groups. However this may simply be a product of the level of plough damage in 2015-16 rather than a meaningful distribution as the areas excavated related solely to visibility on the surface (see Fig 3).

Although a high proportion of the material recovered was from the ploughsoil the assessment of the finds shows that a majority of the discrete scatters of pottery and bone identified as surface concentrations did represent a single burial, although inevitably with pieces from other disturbed groups mixed into the samples. The links already identified show pots that have been recently broken and the upper part deposited by the plough on the surface about 50cm away from the lower part that remained in the subsoil. This association would only be identifiable in the first year of damage, as the surface scatters would then be turned back and re-mixed in subsequent ploughing; some of the single sherd joins noted span up to five metres and reflect this ongoing process.

This evidence suggests that rapid retrieval of plough-damaged material under controlled conditions as carried out in 2016 was a productive method for obtaining new and valuable evidence about this significant site. The role of volunteers, most particularly the observation of the freshly damaged burials on the surface by metal detector users (Mark Frost and Ian Shipp) and the prompt reporting of this was crucial. Some of the excavation also involved volunteers, as did the processing of the soil samples for this assessment, but in these cases funded professional input was also essential.

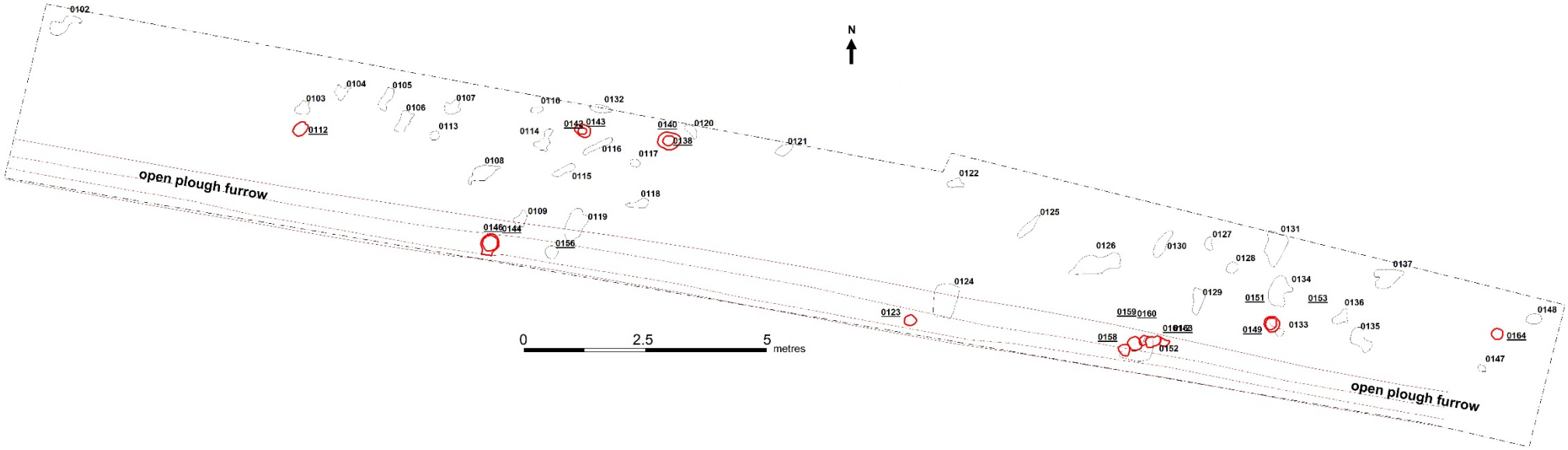

Fig 2 Plan showing the surface scatters and sub-surface features and semi-complete pots (in red)

3.The Finds

The finds from the 2016 excavation have been assessed by appropriate specialists (rather than fully analysed) as required by the HE approved project design. The 2015 finds were previously assessed (Brown et al 2015) and the results from this work have been incorporated.

As an initial stage the soil samples associated with the 25 surface scatters were processed and sieved and the cremated bone and artefactual material quantified and marked as appropriate.

The thirteen semi-complete pots that had been lifted with their fills were excavated and recorded in spits where possible; one of the group of five pots (below 0152) consisted of two groups of sherds (0161-0162) that could not be excavated and were sieved as single groups. The number of 20mm spits excavated in a pot ranged from three to six (see Appendix 3 for spits listed per pot).

The condition of the artefacts has been assessed and a conservation assessment has been carried out by Norfolk Museums Service conservators, see Appendix 4. This indicates that the material is mostly stable and is appropriately stored.

Table 1 shows the total bulk finds assemblages from the 2016 and 2015 excavations.

Most of the ceramic building material (CBM) derived from a group of surface finds collected on the field surface by the metal detectorists over a much wider area (0165) than the excavation. A single piece was collected during the excavation (0120) of a ploughsoil assemblage and is therefore also unstratified. This material has been retained but has no obvious relationship with the cemetery assemblage although some pieces might be Roman in date.

Material	2016 Weight	2016 Number	2015 Weight	Total weight gm
Pottery	32,996	6,564	5,252	38,248
Ceramic building material	994	33		994
Worked flint		9		
Heat affected flint	414			414
Cremated bone: human	16,790		2,508	19,298
Cremated bone: animal	2,779		14	2,793

Table 1 Total quantities of bulk finds

Very small quantities of prehistoric worked flint were found, reflecting widespread early activity along the Lark valley, all from ploughsoil contexts except for one piece in the pit (0146, fill 0145) that contained cremation pot 0144. Similarly a small amount of burnt flint was collected in the ploughsoil finds scatters and a single piece from a cremation pot (0123). These seems to reflect accidental incorporation rather than deliberate re-use of prehistoric material.

The pottery by Sue Anderson

Introduction

Early Anglo-Saxon pottery (6564 sherds, 32,996g) was collected from 55 contexts during the 2016 excavation. This total includes a high proportion of small sherds recovered during sieving of the contents of more complete vessels. Up to 379 vessels are present in the assemblage, of which 186 are represented by only one or a few sherds recovered as stray finds in the topsoil.

In addition, there were 679 sherds (5252g) of pottery from 21 contexts in an adjacent excavation, carried out in 2015 (Anderson 2015a). This group is not included in the following descriptive report, but forms part of the assessment.

Methodology

The material was fully catalogued during the assessment. Quantification was carried out using sherd count, weight and estimated vessel equivalent (EVE). The minimum number of vessels (MNV) within each context was also recorded, but cross-fitting was not attempted unless particularly distinctive

vessels were observed in more than one context. Early Saxon fabric groups have been characterised by major inclusions. Form terminology and dating for Early Anglo-Saxon pottery follows Myres (1977) and Hamerow (1993). The results were input directly onto an MS Access table, which forms the archive catalogue.

Fabrics

Nineteen generic fabric groups were distinguished, as listed in Table 2.

Description	Fabric	No	Wt/g	EVE	MNV
Fine sandy, well-sorted	ESFS	659	3920	1.67	104
Fine sandy micaceous	ESSM	41	265	0.25	1
Medium sandy, well-sorted	ESMS	85	751	0.30	17
Abundant fine/medium sparkly greensand sand	ESFQ	1	7		1
Moderate coarse sub-rounded quartz in a finer sandy matrix	ESCQ	114	982		7
Total sand/quartz tempered		*900*	*5925*	*2.22*	*130*
Granitic (felspar and gold mica)	ESCF	995	5786	1.91	103
Granitic and calcareous	ESCM	1680	8567	2.02	38
Granitic and organic	ESOM	487	3049	2.63	34
Total granitic tempered		*3162*	*17402*	*6.56*	*175*
Fine/medium sandy with red grog	ESGS	54	648		3
Sand, red grog and granitic inclusions	ESGG	418	1844	0.41	3
Sand, grog and sparse organic inclusions	ESGO	3	12		2
Sand, grog and calcareous inclusions	ESGC	193	346		3
Total grog tempered		*668*	*2850*	*0.41*	*11*
Heavily grass tempered with few other inclusions	ESO1	286	885	0.10	4
Grass tempered with greater proportion of sand	ESO2	195	565	0.77	30
Total organic tempered		*481*	*1450*	*0.87*	*34*
Sparse (leached) calcareous and sparse organics	ESCO	23	146		2
Sparse (leached) calcareous and fine to medium sand	ESSC	885	4252	1.04	22
Total calcareous tempered		*908*	*4398*	*1.04*	*24*
Quartz conglomerates in a fine or medium sandy matrix	ESQC	27	884		4
Sparse coarse flint	ESFF	1	5		1
Small fragments, fabric uncertain	ESHM	417	122		-
Total miscellaneous		*445*	*1011*		*5*
Total		**6564**	**32996**	**63.60**	**379**

Table 2 Summary of pottery quantification.

Fabrics are grouped on major inclusions (other than sand, except where sand is the only inclusion). However, it should be noted that, as with all handmade pottery, fabrics were extremely variable even within single vessels and categorisation was often difficult. Background scatters of calcareous material, unburnt flint, grog, white mica and other less common inclusions,

such as felspar and ferrous pieces, were present in many of the fabrics. All Saxon wares were handmade, and colours varied throughout from black through grey, buff and brown to red, often within single vessels.

Many sites in East Anglia and the Midlands have produced similar fabric groups, although they occur in different proportions. In general, quartz-tempered and granitic types tend to be the most common fabric groups at sites in East Anglia, although in the later Early Anglo-Saxon period these appear to have been replaced to some extent by grass-tempered pottery.

At this site, granitic and quartz tempered fabrics were the most frequent, based on MNV. All other fabric types were represented by fewer than 35 vessels each.

Summary description by context

The pottery was recovered as unstratified finds from topsoil (0101, 0165), 35 discrete finds scatters within the topsoil, and thirteen *in situ* burials below the topsoil, some of which could be related to overlying scatters. Table 3 presents a summary of the pottery recovered from the stratified contexts:

Context	No.	Wt	Main vessel(s)	Additional pottery	Related to
Table3 Notes: Numbers in **bold** refer to in situ semi-complete vessels; IHL/IVL/IDL – incised horizontal/vertical/diagonal lines; * – also Rom pottery from this context					
0102	42	229	ESCF ?globular jar with slightly concave neck; IHL		
0103	118	881	ESCF ?globular jar, ?vertical rim, ?rounded base, undecorated		
	6	35		ESCQ jar, flaring rim	0104?
	2	27		ESOM body sherds	
	9	34		ESO2 jar	
0104	46	448	see **0112**		0106, **0112**
	2	13		ESCQ body sherds	0103?
0105	290	956	ESCF ?globular jar, flaring rim; 3 deep IHLs above random dots between 2-3 IVLs, shallow vertical bosses		
	24	178	ESOM globular jar, flaring rim, undecorated		
	1	4		ESFS body sherd with stamp	0108
0106	49	239	ESCM jar, flaring rim, undecorated		
	1	9		ESCM body sherd	0104, **0112**
	4	31		ESCM body sherds	
	2	6		ESCM body sherds	
	1	4		ESFS body sherd	
0107	49	260	ESMS sub-biconical ?jar; IVLs - chevrons		
	3	18		ESCM body sherds	
0108	119	343	ESFS 'horned urn'; IVLs on 'horn', stamps		0105 0116
	1	2		ESCF body sherd with stamp	

Context	No.	Wt	Main vessel(s)	Additional pottery	Related to
0109	64	191	see **0144**		**0144** 0145
0110	18	38	ESCM body sherds; ?bossed, deep IHLs & rough IDLs		
	1	4		ESCF body sherd	
0112	62	1428	ESCM sub-biconical jar, ?flaring rim, flat-rounded base; bands of IHLs with stamps between, chevrons of 3 IDLs below		0104 0106
0113	73	543	ESCM globular jar, short vertical rim, undecorated		
0114	34	180	see **0143**		**0143**
0115	11	210	ESMS sub-biconical jar, vertical rim; line of 3xIHLs, 2xIHLs, band of stamps/stabs, 2+ lines of 2xIHLs		
	2	10		ESO2 body sherds with deep knife-incised lines, poss stabmarks	
	1	18		ESMS body sherd	
0116/7	18	473	ESFS biconical jar, vertical rim; IHLs and IVLs above carination, vertical bosses		
	33	108	ESCF ?globular jar, flaring rim; 2+ IHLs at neck		
	30	71	ESSC biconical jar; 2+ IHLs above and 4 below row of stamps - groups of 4xIVLs below, with vertical bosses		
	5	53		ESSC body sherds, bosses and incised lines	0132
	1	5		ESFS body sherd, stamped	0108
	1	5		ESFS ?jar, flaring rim	
	31	51		body sherds of ESMS, ESSC, ESOM, ESCF, ESFS and ESHM	1 in 0120
0118	21	232	ESCF sub-biconical jar, vertical rim; 2 rows of stamps with 2xIHLs between, 4xIVLs below, with triangle stamps in gaps		
	33	166	ESCQ jar; deep corrugations on neck		
	5	46		ESCM body sherds	
0119	100	391	ESSC vessel, footstand base		
0120	200	491	ESCM ?globular jar, vertical rim, flat-rounded base; undecorated		0122?
	96	239	ESFS globular ?jar, flat-rounded base		

Context	No.	Wt	Main vessel(s)	Additional pottery	Related to
	1	34		ESCF body sherd; 4xIHLs, 2xIVLs, boss?	
	1	3		ESSC body sherd	0124 **0140**
	1	5		ESCF body sherd; IHLs, cordon	0121
	1	10		ESOM body sherd	0116/7
	1	2		ESO1 body sherd	
0121	3	14		ESCF body sherds; IHLs, cordon	0120
	1	21		ESCF body sherd, applied boss, stamps	
	4	33		ESCF body sherds	
	2	12		ESO2 flaring rim	
	1	11		ESFS flaring rim	
	1	1		ESFS body sherd	
0122	13	68	ESSC jar, vertical rim		
	1	1		ESCM body sherd	0120?
	7	13		body sherds of ESCQ, ESCF, ESMS	
0123	150	1122	ESGG sub-biconical jar, flaring rim, rounded base; thin IHLs(x3) above line of stamps, above 3xIHLs, with 4xIVLs below at intervals		0124
0124	140	360	see **0123**		0123
	2	3		sherds of ESMS and ESO1	
0125	61	580	ESCF biconical jar, vertical rim; 3xIHLs, line triangular stamps, 3xIHLs, large sub-triangular stamps with 5-6xIVLs between, 2xIHLs, square stamps, 2xIHLs, diamond stamps, 1xIHL at carination, chevrons (3xIDLs) containing U stamps below, 1xIHL		
0126	42	330	ESCF sub-biconical jar, vertical rim; 4xIHLs above carination		0127
	4	117	ESCF pedestal/footring base; pairs of IDLs with vert bosses		
	86	68	ESGG jar, vertical rim; IHLs		
	3	47	ESO2 jar, short vertical rim; curving incised lines		
	1	22		ESOM rim sherd	0131 0134

Context	No.	Wt	Main vessel(s)	Additional pottery	Related to
	3	26		ESCQ body sherds, 4xIHLs close to carination	
	1	9		ESFS body sherd, IHL	
0127	12	234	ESCF jar; 4xIHLs, row of large sub-triangular stamps, 4xIHLs, chevrons of 3-5 IDLs, line of U-shaped stamps in each, large vert boss		
	1	55		ESCF body sherd	0128
	1	8		ESCF body sherd, IHLs	0126
	4	19		sherds of ESCF and ESMS	
0128	3	61	ESSC jar, flaring rim		
	1	5		ESCF body sherd	0127
	7	53		sherds of ESCF, ESFS and ESMS	
0129	41	265	ESSM globular jar, short vertical rim		
	114	51		ESO2 jar, vertical rim	
	10	51		ESOM sub-biconical jar, flaring rim, dec	0160 0161/2
	2	9		sherds of ESCF and ESFS	
0130	94	493	ESCM sub-biconical bowl, flaring rim; angular wavy line of stamps, 3xIHLs, narrower wavy line of stamps, 3xIHLs, vertical oval facetting at carination, swags of 3 incised curving lines below, with angular 'S' stamps in between		
	14	178	ESFS decorated sherds, vertical bosses, some applied & some hollow, hollowed out areas, incised curvilinear and large ring ?stamps		
	10	65		sherds of ESCF, ESCM and ESFS	
0131	13	196	ESOM jar, sloping neck, vertical rim; 4xIHLs on neck, vertical corrugations/ bosses?, hollowed areas		0126 0134
	18	53	ESCO vessel; curving incised chevrons with R&D stamps, IHLs with line of + stamps		
	20	35		ESCF jar, vertical rim	
	63	177		sherds of ESCF, ESCM and ESFS	
0132	33	92	ESSC sub-biconical vessel; bosses (like vertical corrugations) with IVLs between,		0116/7

Context	No.	Wt	Main vessel(s)	Additional pottery	Related to
			IHLs above carination and above that random stamps		
	8	48		ESSC body sherds; 3 widely spaced IHLs on neck, solid boss, 3 IHLs either side, random stabs/stamps	
	9	36		sherds of ESFS, ESOM, ESO2 and ESFF	
0133*	69	392	ESCM globular jar; 4xIHLs, line of stamps, 5xIHLs, vert bosses and IVLs on lower half?		
	2	43	ESO2 small globular jar, flaring rim, rounded base – burnt/calcined		
	10	107		ESCF body sherds	0134
	10	172		ESOM body sherds	0151
	10	84		sherds of ESOM, ESFS and ESO2	
0134	51	498	ESSC jar, vertical rim, flat-rounded base; IHLs, IVLs, IDLs, bosses - not enough joining to be certain of design		0136?
	58	301	ESCF body sherds, undecorated		0133
	28	175	ESCF jar with angled shoulder, flaring rim; 6xIHLs on neck, IDLs across and below carination - fine lines		0135, 0136? 0137?
	30	220		ESCM body sherds	
	11	104		ESSC body/base sherds	
	25	140		ESCF body sherds	
	15	96		ESCF body sherds	
	7	21		ESCF body/base sherds	
	1	27		ESOM jar rim	0126 0131
	211	158		sherds of ESOM, ESCF, ESFS, ESSC, ESMS and ESHM	
0135	41	264	ESGG body sherds		0136
	74	258	ESCF ?globular jar, vertical rim; 3xIHLs, row of stamps, 2xIHLs		
	2	5		ESCF rim/body	0136
	1	3		ESCF body sherd	0134
	2	25		ESCF body sherds	

Context	No.	Wt	Main vessel(s)	Additional pottery	Related to
0136	190	336	ESGC ?sub-biconical jar; 3xIHLs above carination, bosses with IVLs either side, random stamps		0148
	8	22	ESCF jar, vertical rim, flat-rounded base		0135
	3	27		ESCF body sherds	0134?
	2	20		ESCF body sherds	0134?
	1	30		ESGG body sherd	0135
	1	27		ESCM body sherd	0152 0159
	2	7		sherds of ESOM and ESFS	
0137	67	726	ESCQ sub-biconical jar; 11+IHLs, S stamps, 3xIHLs, asterisk stamps, 3xIHLs, 5-star stamps, 3xIHLs, below carination chevrons around random stamps (S and ring)		
	153	166	ESOM jar, everted rim		
	1	6		ESCF body sherd	0134?
	1	8		ESFS rim	0152 **0161/2**
	1	2		ESCM body	0147
	13	142		sherds of ESOM, ESFS and ESMS	
0139	16	62	see **0140**		**0140**
0140	100	981	ESSC jar, flaring rim, rounded base; bossed, incised lines, stamps - scheme not clear		0139
0143	49	626	ESGS jar, pedestal/footring base; groups of 4 IVLs and long narrow shallow vert bosses		
	2	2		ESFS body sherds	
0144	410	1507	ESSC globular jar, flat-angled base; bossed, below waist: IHLs & IDls with areas of stamps; upper area less clear but more panels with stamps above 3xIHLs		0109 0145
0145	8	2		ESSC sherds	0109 **0144**
	1	37		ESFS body sherd	
0147	22	190	ESCM sub-biconical jar, vertical rim; IHL, row of stabs, IHL, diagonal strips of incised lines around stab lines		0137
	1	2		ESFS body sherd	
0148	126	784	see **0164**		**0164**
	1	1		ESGC body sherd	0136
	2	14		ESSC body sherds	

Context	No.	Wt	Main vessel(s)	Additional pottery	Related to
	2	10		ESCQ body sherds	
0151	70	771	ESOM globular jar, flat-rounded base; 4xIHLs, line of stamps, 5xIHLs, vert bosses and IVLs on lower half?		0133
0152	190	702	ESCM vessel; 2xIHLs, row of stamps, 2xIHLs, IDLs and IVLs in groups of 2-3		0136 0159
	133	553	see **0159**		**0159**
	3	34		ESFS rim/body sherds	0137 **0161/2**
	170	56		sherds of ESCF, ESFS, ESGC and ESHM	
0153	127	799	ESFS sub-biconical jar, everted rim, rounded base		
0154	19	35	see 0119		0119
0155	194	128	ESOM bowl?, vertical rim		
	2	5		ESFS jar rim	
0158	21	803	ESQC jar, flat-angled base; IVLs		
	2	25		ESOM body sherd, IHL	
0159	170	1114	ESCM globular jar, flaring rim, flat-rounded base; 2xIHLs, chevrons with stamps, 3xIHLs, IVLs around small bosses		0152 **0160**
	2	1		ESCM body sherds	0136 0152
0160	93	677	ESOM sub-biconical jar, flaring rim, flat-angled base; 3xIHLs, row of stamps, 3xIHLs, IDLs & stamps on/below carination		0129 **0161/2**
	3	8		ESCM body sherds	0152 0159
0161/2	157	1143	ESFS globular jar, short thick vertical rim, flat-angled base, undecorated		0137 0152
	5	72		ESOM rim/body	0129 **0160**
	1	1		ESO1 body sherd	**0163**
0163	282	878	ESO1 ?globular jar, long vertical rim, rounded base, undecorated		**0161/2**
	8	21		ESFS body sherds	
0164	220	740	ESCM sub-biconical jar, flaring rim, rounded base; 2xIHLs, 2 lines of ring stamps, 2xIHL, incised interlocking curves, 2xIHL, double-ring stamps, 2xIHL, V stamps, 2xIHL; below carination - bands of 7+IVLs		0148

Notes: IHL/IVL/IDL – incised horizontal/vertical/diagonal lines; * also Rom pottery from this context

Table 3 Pottery in stratified contexts. Numbers in bold represent in situ urns.

Based on this summary, there are at least 59 vessels of which a high proportion survives. Some of these were *in situ*, and others appeared not to have moved far from their original burial site, although in a few cases fragments of individual vessels were scattered across several metres. For example, fragments of the main vessel in 0161/2 were found in the overlying scatter 0152, and also in a scatter 0137, some 5m to the north-east. With further analysis, it may be possible to re-unite more of the upper fragments with bases.

Almost every context, including some of the *in situ* urns, contained fragments of more than one vessel. Fragments of ten or more vessels were recovered from 0116/7, 0130, 0131, 0133, 0134 and 0152, the majority of which were towards the east of the site (0116/7 appears to have been mixed up during processing). This may indicate greater plough disturbance in this area, or perhaps a higher concentration of lost burials.

The range of vessels identified at this stage comprises largely narrow-mouthed jars, with only one or two wide-mouthed jars or bowls present. The majority of vessels are decorated and the schemes include linear, stamped, chevrons, bosses, and combinations of these. Fragments of an unusual 'horned urn' were also recovered (cf Myres 1977, Pl.1).

In addition to the vessels listed above, there were a few fragments in the unstratified collection which are of particular interest, including several joining body sherds of a jar with animal stamp decoration.

Cremated bone: human by Sue Anderson

Introduction

Groups of cremated bone from 13 urned burials and 36 discrete scatters of bone and pottery were fully catalogued and assessed. The urned burials are of Early Anglo-Saxon date and the scatters are also associated with pottery of this period. In addition, five burials were excavated in an adjacent excavation, carried out in 2015 (Anderson 2015). This group is not included in the following descriptive report, but forms part of the assessment.

Methodology

Bone from the scattered burials was collected as bulk samples and flotation-sieved, the entire residue being retained as a single group for each context or spit. Twelve urned burials were excavated, in controlled conditions after storage, in 20mm spits as far as possible, with between three and six spits recorded. The residues were seived into >10mm, >4mm, >2mm and <2mm fractions. Methods used follow the Workshop of European Anthropologists (WEA 1980) and McKinley (1994 and 2004). The bone from each of the fractions above 2mm was sorted into five categories: skull, axial, upper limb, lower limb, and unidentified. An estimate of the weight of bone from unsorted residue of <2mm has been included in the weights. All fragment groups were weighed to the nearest nearest tenth of a gram. Measurements of maximum skull and long bone fragment sizes were recorded. Observations have been made, where possible, concerning bone colour, age, sex, dental remains and pathology. Identifiable fragments have also been noted. All data were recorded onto an Excel spreadsheet.

Condition

The scattered material recovered from the topsoil has clearly been disturbed from either underlying urns or represents urns buried higher in the subsoil which were more vulnerable to plough damage. Assessment of the pottery has shown that in some cases the scatters contained small amounts of ten or more vessels, but it is not possible to determine the minimum number of individuals in the

bone assemblage with such accuracy. It is likely that, as with the pottery, the majority of bone in each discrete scatter represents one individual, with occasional bones of other individuals also present but not necessarily identified.

The bone itself is generally in good condition with little abrasion, although each group contains at least a few fragments of white/grey abraded bone. In terms of preservation, the scatters of bone generally have high proportions of bone below 10mm in size, whilst the groups from urns contain higher proportions above 10mm. A high proportion of cancellous bone survives in both the scatters and the urns.

Summary of the assemblage

Table 4 provides a summary of the condition and quantities of bone in the scatters, together with age and sex identifications where possible, alongside the associated artefactual evidence.

Burial	Wt (g)	Age/Sex	Animal	Associated pottery; finds
0102	176.9	adult ?male	+	single vessel
0103	417.2	sub-adult (c.14-18?) ??male		mainly one vessel, sherds of 3 others
0104	-	see urn 0112		mainly sherds of 0112 vessel, plus two extra sherds
0105	259.5	sub-adult (=0103?) and at least one adult	+	mainly one vessel, several sherds of another and one additional body fragment
0106	225.3	mature ?male		mainly one vessel, sherds of 4 others
0107	273.8	young and middle-aged adults, male and ?female	+	mainly one vessel, 3 additional body sherds; SF 1001 vessel fragment; 1002, 1014 metal fragments
0108	644.6	adult male	++	mainly one vessel, 1 other sherd
0110	96.0	unsexed adult	+	mainly one vessel, 1 other sherd
0113	313.7	older female (3+ individuals?)	+	single vessel
0114	77.1	unsexed adult		single vessel = 0143; SF1065 ivory ring
0115	3.1	unidentified		mainly one vessel, a few sherds of two others
0116	362.8	adult and infant/juvenile, male and female	+	large parts of 3 vessels, sherds of 11 others
0117	1.6	unidentified		mixed with 0116
0118	25.0	unsexed adult	+	fragments of two main vessels, plus 5 body sherds
0119	227.4	mature male		single vessel; SF1017, 1018 beads; 1019 glass vessel
0120	450.3	2+ adults, ?juvenile, male & female?	+	large parts of two vessels and body sherds of 5 others; SF1004, 1005, 1006, 1007, 1020 glass vessel
0121	22.8	young adult, unsexed	+	a few sherds representing 6 vessels
0122	23.3	juvenile		mainly one vessel, sherds of 4 others

Burial	Wt (g)	Age/Sex	Animal	Associated pottery; finds
0124	-	see 0123		mainly one vessel = 0123, plus two other sherds
0125	199.3	young ?female	+	single vessel; SF1008, 1013 copper-alloy sheet (?casket); 1064 ivory ring
0126	655.9	?young female, juvenile	+	large fragments of 3 vessels, smaller quantities of 4 others; SF1003 miniature iron tweezer; 1053 iron ?; 1026 copper alloy sheet; 1074 ivory ring
0127	1.4	unidentified		mainly one vessel, fragments of 4 others
0128	66.1	unsexed adult		small quantities of 7 vessels
0129	161.1	unsexed adult		fragments of 5 vessels
0130	38.2	perinatal, juvenile and adult	+	mainly 2 vessels, fragments of 10 others
0131	30.2	juvenile and adult		mainly 2 vessels, fragments of 14 others; SF1077 bead?
0132	119.8	infant/juvenile and adult		mainly one vessel, fragments of 7 more
0133	80.3	mature ?male		mainly one vessel, fragments of 10 others
0134	853.2	juvenile, adult male & female?	++	mainly three vessels, fragments of 14 others; SF1027,1029 copper-alloy sheet; 1028,1030,1031,1032,1033, 1034 beads
0135	347.7	young and mature+ adults, ??male	++	mainly two vessels, fragments of 3 others; SF1012 copper-alloy sheet
0136	379.6	?young female	++	mainly one vessel, fragments of 7+ others
0137	992.5	?juvenile, mature adult, male and female?	+	mainly two vessels, fragments of 6+ others; SF1009 copper-alloy sheet
0145	-	see urn 0144	+++	small quantity of sherds from two vessels
0148	-	see urn 0164		mainly one vessel = 0164, plus sherds of 5 others
0152	958.1	unidentified	+++	mainly two vessels, sherds of 9 others
0154	111.3	adult ?female	+	single vessel =0119; SF1061 ?glass fragment
0155	92.5	adult and juvenile?	+	mainly one vessel, plus 2 sherds; SF1043, 1044 comb; 1045 copper-alloy sheet; 1046 bead; 1066 ivory ring

Table 4 Summary of the bone and associated finds from surface scatters.

With a few exceptions (0108, 0126, 0134, 0137, 0152), this group comprises mostly small quantities of bone in fair condition. Nevertheless, some identifiable fragments are present in all but the smallest groups. Several groups clearly contain more than one individual, and the largest groups are associated with sherds from a number of vessels.

Table 5 shows the quantities of bone recovered from the urned burials, together with age/sex. All burials included loose material from around and beneath the burials, which also contained bone. It is likely that these represent the same individual(s) as those contained in the urn.

Burial	Wt (g)	Age/Sex	Animal	No. spits	Notes	Finds	C14 sample
0112	701.7	adult ?female	+	4	includes 0104	1015,1016,1071 comb; 1056 uncoloured glass vessel; 1060 burnt ivory ring; 1073 melted metal?	3.5g femur; 2.7g femur
0123	1096.5	older male and younger female?	+	5	includes 0124	1021,1024,1025, 1051,1052,1057 glass beads; 1022 iron pin;1023 brooch;	4.8g femur
0140	954.3	mature female	+	6		1035 glass bead; 1036,1037,1039, 1069 sheet fragments; 1038 comb; 1063 burnt ivory ring	3.8g + 1.6g femur
0143	779.6	adult female, juvenile/sub-adult	+	5		1040 bucket binding?	5.5g lower limb
0144	1907.8	adult ?male	+++	5	includes 0145	-	3.7g femur
0151	524.7	mature female	+	4	split into 2 halves	1041,1042,1054, 1072 comb; 1070 bead?	4.2g femur
0153	193.9	adult, young/juvenile	+	5		1068 burnt ivory ring	1.4g long bone
0158	541.7	mature adult	++	5		-	3.4g femur
0159	941.0	juvenile/sub-adult, young adult, male and ?female	+	5		1047,1048,1049, 1055,1058 beads; 1062 glass uncertain; 1067 burnt ivory ring	3.6g lower limb
0160	434.3	sub-adult c.18, juvenile?	+	5		-	2.9g long bone
0161-2	864.0	adult female		-	recovered as two contexts together, but appears to be one individual and mostly one pot	-	3.5g lower limb
0163	628.8	mature female	+	4		-	4.4g femur
0164	867.1	young male, infant/juvenile	+	3	includes 0148	1050 antler bead; 1059 iron rivets	5.0g femur

Table 5 Summary of the urned burials

A number of large groups are present, although none reaches the full amount expected for an adult burial, probably due to plough truncation. The preservation of the urned burials is better than that of the scattered burials, as would be expected. Some groups in the urned assemblage contained more than one individual, but most appear to have been single burials.

The Small Finds

A total of 77 items were recorded as small finds from the 2016 excavation. In 2015 an incomplete copper-alloy small long brooch was found in one of the pots (0015). Most of the 2016 finds were recovered from the soil samples associated with surface scatters and from the cremation pots; just thirteen items were recorded during the excavation, most of them within the surface finds scatters. The circumstances of their original deposition, combined with damage in the ploughsoil, means that most of the pieces are small and often fragmentary. The material has been rapidly identified, with assistance from small finds specialists Ian Riddler and Rose Broadley, and a preliminary catalogue prepared (see Appendix 2).

All the iron and copper-alloy objects have been X-rayed.

Two objects are of Roman date: a copper-alloy coin (1075) identifiable as a nummus of Magnentius (351-353) and a biconical lead weight (1076) of the type commonly used on Roman steelyards. Both were metal detected finds from the ploughsoil. There are also three very small chips of clear glass (1056) found within cremation pot 0112 which may be Roman or later in date. Most of the remaining objects are early Anglo-Saxon, although some of the small fragments of copper-alloy sheet (1002, 1010 – 1013, 1045) found in the ploughsoil remain unidentifiable and so undatable.

Material	Number of finds
Copper alloy	19
Iron	6
Lead	1
Glass	34
Antler/bone	10
Ivory	8

Table 6 Small finds by material

The range of materials shown in Table 6 includes a high proportion of glass, mostly beads but also some vessel fragments, and is not as heavily biased towards metal objects as is normal when metal detecting forms an integrated part of the finds recovery process. This is mainly due to the nature of the evidence and retrieval techniques, with numerous glass bead, ivory and antler fragments retrieved from the controlled excavation and sieving of the twelve in situ semi-complete pots.

The worked bone or antler is mainly antler as all are fragments of combs; the pieces of probable elephant ivory are all fragments of rings, probably from purses.

Functional group	Object type	Number of finds
Dress Accessories	Bead	24
	Pin	2
	Brooch	1
Personal possessions	Comb	12
	Purse	8
	Tweezer	1
	Razor?	1
Household items	Vessel	12
Unidentifiable	Uncertain	14
Coins, tokens, jettons	Coin (Roman)	1
Weights and measures	Weight (Roman)	1

Table 7 Small finds types and function grouping

The range of objects has been provisionally catalogued and shows a strong presence for dress accessories, particularly beads, and for personal possessions with comb and purse ring fragments predominant. The glass beads include examples of the multi-coloured 'traffic light' type (1028, 1029, 1034), date to the second half of the 5th to early 6th century (Rose Broadley, pers.comm.). Other very fragmentary objects may derive from a brooch (1023) and iron pins (1014, 1022), the latter possibly not dress accessories. Comb types include triangular and double-sided composite forms, dating to the 5th and early 6th centuries (Ian Riddler, pers. comm.). The miniature iron tweezers (1003) are a fairly common early Anglo-Saxon cremation item (for example 47 were found at Spong, Hills and Lucy 2013, 64).

The household items are all containers of various types, such as fragments from at least one and perhaps several glass beakers (1004, 1005, 1006, 1007, 1019, 1020), attachments from wooden vessels (1001) and copper-alloy sheet fragments. Preliminary assessment suggests that the glass vessel fragments are from cone or claw beakers, and probably also date to the second half of the 5th to early 6th century (Rose Broadley, pers.comm.).

The association of objects with the individual urned cremations is shown in Table 5. Eight of the urns contained groups of objects, mostly small groups of beads, comb fragments and ivory purse rings associated with probable or possible female remains, except cremation 0164 where a young male was associated with an antler bead and iron rivets from a comb.

The remaining 36 contexts, mainly surface scatters, shown in Table 1 produced fewer associated small finds. Of the twelve contexts that did contain finds some were probably single disturbed burials, or perhaps double burials of an adult and a juvenile, - for example contexts 0119, 0125, 0155 - and some were very mixed with multiple individuals and pots, such as contexts 0126, 0134, 0135, 0137.

Cremated animal bone by Julie M Bond

Cremated human and animal bone from 12 urned burials and 36 discrete scatters of bone of Early Anglo-Saxon date and previously assessed for human osteological significance by S Anderson, was scanned and assessed for the significance of the animal bone evidence. The material had been collected as bulk samples and flotation sieved. Eleven of the urned burials had been excavated in spits and the material from each spit separately bagged. The material had been sieved into >10mm, >4mm, >2mm and <2mm fractions and the fragment groups weighed.

For this assessment, the largest assemblages in weight terms were quickly scanned and three of the largest (0144, 0158 and 0152, a bone scatter) were selected for more detailed analysis. In addition the 19 contexts with less than 200g of bone were scanned for potential identifiable animal bone. Bone was examined under good light and where possible, bone element and taxa was recorded, along with information on colour, preservation, fragmentation and any evidence of pathology, butchery or fusion. Where it was not possible to identify to taxa and element, bone was recorded by element type (e.g. 'long bone', 'vertebral fragment', 'rib fragment') and by size class (e.g. 'large mammal', 'medium mammal').

Results

Most of the material below 4mm and all of the material below 2mm was not identifiable to element or taxa and beyond briefly scanning this material for any possible identifiable elements no further work would be recommended on these size fractions.

In general the bone was in very good condition and although fragmented it was not nearly as fragmentary as some other Anglo Saxon assemblages (e.g. Lakenheath, Tranmer House) nor was there evidence of chemical erosion or abrasion on the surface of the bones, meaning that potentially

surface features such as knife marks should be preserved. The results of analysis of the three large cremations are given below and an assessment of the potential of the assemblage as a whole in Ch 4.

Cremation group 0144 (total 1907.8g) Identified by Anderson as the cremation of an adult male human with animal remains:
The only animal definitely identified from this cremation was a horse; fragments of cranium, maxilla, mandible, distal humerus, proximal metacarpal and another metapodial, second phalange and third phalanges were identified. Given the spread of bone elements this suggests an entire horse was originally present on the pyre. Fragments of large mammal long bone, which could not be further identified, are likely to also belong to this animal.

Cremation group 0158 (total weight 541.7g) Identified by Anderson as the cremation of a mature adult human with animal remains:
Large mammal long bone, rib and and vertebral fragments, sheep-sized (i.e. medium mammal) rib fragments. With more work some of the 'large mammal' class might be further identifiable to taxon.

Cremation group 0152 (bone scatter; total weight 958.1g). Identified by Anderson as unidentified human with animal remains:
Fragments of cow mandible (juvenile), scapula, tibia, rib articulation and phalanges. Further fragments of long bone and cranium from a large mammal may also be from this animal, as there are no definite indications they are from a horse. There is also a pig scapula fragment.

The presence of cow in an Anglo Saxon cremation is highly unusual; their presence in the Tranmer House cremations was suggested to be indicative of high status burials (Bond and Mustchin 2015, Fern 2015). The presence of pig, also quite rare and also found at Tranmer House, suggests that this is an unusual bone group.

Plant macrofossils by Anna West

Introduction and Methods
A total of thirty-nine contexts were excavated and retained as bulk samples during the field work. Three were directly associated with in situ urns, the other thirty-six were concentrated spreads of early Anglo Saxon pottery and cremated bone recovered from the plough soil. The volumes recovered were generally 10 litres or less, however four of the contexts produced 20–30 litres. All samples were processed.

Fourteen near complete urns were also recovered, two of which 0161 and 0162 were so fragmented it was difficult to distinguish between them on site and they were lifted together, the fills of these pots were mixed and therefore treated as one bulk sample for the purposes of this report. (Subsequent assessment of the pottery and the contents suggests that 0161 and 0162 are parts of a single pottery vessel). The remaining urns were excavated in 20 mm spits, where possible, following the recommendations of McKinley (2013). Due to the fragmented nature of the pots and the fact that cremated bone had frequently been disturbed by the action of ploughing on site, the loose soil recovered along with the urn during lifting was also floated, mainly to recover any cremated bone that may have been present. In Appendix 3 this material has been distinguished from fills removed from within the urns during the post-excavation process.

Both the bulk samples and the spits removed from the urns, were processed using manual water flotation/washover and the flots were collected in a 300 micron mesh sieve. The dried flots were scanned using a binocular microscope at x10 magnification and the presence of any plant remains or artefacts are noted on Appendix 3. Identification of plant remains is with reference to *New Flora of the British Isles,* (Stace, 1997).

All the samples contained fibrous rootlet fragments in medium to large quantities, these are modern contaminants and are considered intrusive within the archaeological deposits. When feasible, the larger rootlets were removed prior to the remaining flot material being scanned, the volume of flot recorded in Appendix 3 exclude these larger root fragments but still include the smaller fragments that could not be removed.

The primary objective of work on the surface scatters was to recover cremated bone and artefactual evidence related to the presence of disturbed burials within the ploughsoil. Although a range of material was identified, the modern ploughsoil context means that material such as plant macrofossils are unlikely to be reliably associated with the burials. The contents of the urns were found immediately below the ploughsoil and the rootlet evidence confirms that there is also potential contamination in these. Only the full data from the excavated urns has been included here (Appendix 3), data from the ploughsoil samples is discussed below and the full list is held in the archive. Other material (cremated bone, small finds) recovered from the surface samples is listed in Table 4 above and the finds recovered from the urns in Table 5 above.

The non-floating residues were collected in a 1 mm mesh and sorted when dry. All artefacts/ecofacts were retained for inclusion in the finds total. The cremated bone was sieved into 4 mm, 2 mm and <2 mm fractions prior to sorting.

Quantification

For the purpose of this assessment, items such as seeds, cereal grains and small animal bones have been scanned and recorded qualitatively according to the following categories

= 1-10, ## = 11-50, ### = 51+ specimens

Items that cannot be easily quantified such as charcoal and fragmented bone have been scored for abundance

x = rare, xx = moderate, xxx = abundant

Results

Plant macrofossils

Preservation of the plant macrofossils present is through charring and is generally poor. Wood charcoal fragments are present in many of the samples, in others however charcoal fragments were absent. Commonly, the charcoal is highly comminuted and none of the fragments recovered from either the urns or the surface deposits were considered suitable for species identification or radiocarbon dating.

Charred cereal grains are observed within ten of the bulk samples and Spit 2 from urn 0112. However, grains were present in very small numbers and the counts recorded within Appendix 3 include fragments as well as whole caryopses. All caryopses present were puffed, fragmented and/or abraded making identification to species difficult or impossible. A small number of grains could be identified as being Wheat (*Triticum* sp.) the remaining fragments have been recorded as indeterminate. A small number of what appear to be charred Grape (*Vitis* sp.) pips were also recovered from five of the bulk samples.

Charred weed seeds were sparse, with only a small number of grass (Poaceae) seeds being observed within two of the bulk samples.

Uncharred weed seeds were more common but still only present, generally, in small numbers. Goosefoot family (Chenopodiaceae) seeds were most common, along with foxtail grass (*Setaria* sp.) and nettles (*Urtica* sp.), these were recovered from both the bulk samples and the urn fills. Knotgrass family (Polygonaceae), daisy family (Asteraceae), campions (*Silene* sp.), knotweeds (*Persicaia* sp.) and Brambles (*Rubus* sp.) were all present within the bulk samples, but often as less

than ten specimens at a time. Scrubby species such as elder (*Sambucus* sp.) pips and a single hawthorn (*Crataegus* sp.) endocarp fragment were also observed.

Many of the species present are common weeds of both cultivated or rough, open ground, however, as none of them were either charred or mineralized it is likely that they are modern contaminants, part of the background soil seed bank, and that they are intrusive within the archaeological contexts sampled.

Other materials

Insect remains were observed in small numbers within eleven samples and consisted generally of beetle elytra (wing cases), head and thorax fragments. No further attempt has been made to identify any of the small insect fragments. It would not be expected for beetles to be preserved in archaeological contexts unless subject to chance waterlogging, it is therefore likely that these species are modern and intrusive within the contexts sampled.

Terrestrial snails were particularly rare, only Spit 3 from urn 0144 contained snail shells, but less than ten specimens. No further attempt has been made to identify this material for the purposes of this report.

Discussion

The material recovered from the twelve excavated urns was very sparse. The charcoal was highly comminuted, no fragments were recovered that were considered suitable for radiocarbon dating. The sparse nature of the charcoal, or potential pyre material, recovered is consistent with the urns excavated at Spong Hill, Norfolk, where it was concluded that the cremated bone had been carefully sorted from the ashes for deposition within the urn, leaving the majority of the wood charcoal behind (Murphy, 1994).

The small number of charred cereal grains and charred grape pips recorded might represent grave-goods, offerings of food placed on the pyre along with the deceased. However, within the urns charred grains were only recorded within one excavated spit and fewer than five fragments were present. The majority of the cereal grains and pips identified were recovered from ten contexts collected from plough soil. It is therefore more than possible that these remains represent modern material in this plough soil, rather than macrofossils contemporary with the cremations. The practice of stubble burning or manuring may have led to such material becoming incorporated within the plough soil.

Radiocarbon Dating and Chronological Modelling by Peter Marshall, Irka Hajdas and Sanne Palstra

A total of 14 radiocarbon measurements were obtained on samples of calcined human bone (Table 8). All are conventional radiocarbon ages (Stuiver and Polach, 1977).

At ETH Zurich, samples were pretreated according to methods described in Lanting *et al*. (2001). All samples were combusted in an elemental analyser and graphitised using the fully automated system described by Wacker *et al*. (2010a). Graphite targets were dated using a 200kV, MICADAS AMS as described by Wacker *et a*l. (2010b), with data reduction undertaken using BATS Wacker *et al*. (2010c).

At the University of Groningen, samples were also pretreated according to methods described in Lanting *et al*. (2001). After conversion to CO_2 the samples were reduced with H_2 in the presence of Fe and graphtised (Aerts-Bijma *et al*. 1997; 2001) and dated using a dated using a 200kV, MICADAS AMS (Wacker *et a*l. 2010b), with data reduction undertaken using BATS (Wacker *et al*. 2010c)

Table 8: Lackford cremation cemetery radiocarbon results. Replicate measurements have been tested for statistical consistency and combined by taking a weighted mean before calibration as described by Ward and Wilson (1978).

Laboratory number	Sample reference	Material & context	$\delta^{13}C$ (‰) -AMS	Radiocarbon Age (BP)
ETH-85999.1.1	0112.a	Calcined bone, adult female femur (S Anderson) from the basal spit (spit 4) within a pot (total 701.7g calcined bone).	−20.0	1590±24
GrM-14680	0112.b	Replicate of ETH-85999.1.1, calcined bone, adult female femur (S Anderson) from the 3rd of four spits within the pot.	-	1582±15
	0112	T'=0.1; T'(5%)=3.8; ν=1 (Ward and Wilson 1978)		1584±13
GrM-14682	0140.a	Calcined bone, mature adult female femur (S Anderson), from the lowest spit (spit 6) within a pot (total 954.3g calcined bone).	-	1546±15
ETH-86000.1.1	0140.a	Replicate of GrM-14682	−27.2	1593±25
	0140	T'=2.6; T'(5%)=3.8; ν=1 (Ward and Wilson 1978)		1559±23
ETH-86001.1.1	0143	Calcined bone, lower limb (S Anderson), from the 3rd spit of five within a pot (total 779.6g calcined bone). Identified human bone: adult female and a juvenile/sub-adult.	−23.0	1564±23
ETH-86002.1.1	0151	Calcined bone, mature adult female femur (S Anderson), from the lowest spit (spit 4a) within a pot (total 524.7g calcined bone).	−28.2	1567±23
ETH-86003.1.1	0158	Calcined bone, mature adult femur (S Anderson), from the 4th of five spits within a pot (total 541.7g calcined bone).	−25.5	1546±24
ETH-86004.1.1	0160	Calcined bone, long bone (S Anderson), from the lowest spits within a pot (total 434.3g calcined bone). Identified human bone: sub-adult (c. 18 years) and a ?juvenile.	−23.2	1551±26
ETH-86005.1.1	0163	Calcined bone, mature adult female femur (S Anderson), from the lowest spit (spit 4) within a pot (total 628.8g calcined bone).	−19.9	1552±25
GrM-14681	0123	Calcined bone, femur (S Anderson), from the lowest spit (spit 5) with a pot (total 1096.5g calcined bone). Identified human bone: older male and ?younger female.	-	1589±15
GrM-14688	0164	Calcined bone, femur (S Anderson), from the lowest spit with a pot (total 867.1g calcined bone). Identified human bone: younger male and infant/juvenile.	-	1602±15
GrM-14683	0144	Calcined bone, adult ?male femur (S Anderson), from the lowest spit (spit 5) with a pot (total 1907.8g calcined bone).	-	1619±15
GrM-14685	0153	Calcined bone, long bone (S Anderson), from the 4th of five spits within a pot (total 193.9g calcined bone). Identified human bone: adult and juvenile.	-	1595±15
GrM-14686	0159	Calcined bone, lower limb (S Anderson), from the lowest spit (spit 4) within a pot (total 941g calcined bone). Identified human bone: juvenile, young adult male and ?female.	-	1579±15
GrM-14687	0161	Calcined bone, adult female, lower limb (S Anderson), from the single fill of a very damaged pot (total 864g calcined bone)	-	1585±15

Two groups of replicate measurements are available on samples of calcined bone that were divided and submitted for dating to both laboratories. In both cases the results are statistically consistent at 95% confidence (Table 8; Ward and Wilson 1978) and a weighted mean has been taken as providing the best estimate for the ages of the cremation events.

Bayesian chronological modelling

Chronological modelling has been undertaken using OxCal 4.3 (Bronk Ramsey 1995; 2009a; 2009b; 2017), and the internationally agreed calibration curve of the northern hemisphere (IntCal13; Reimer *et al*. 2013). The model is defined by the OxCal CQL2 keywords and by the brackets on the left-hand side of Fig 4. In the diagram, calibrated radiocarbon dates are shown in outline and the posterior density estimates produced by the chronological modelling are shown in solid black. The Highest Posterior Density intervals which describe the posterior distributions are given in italics.

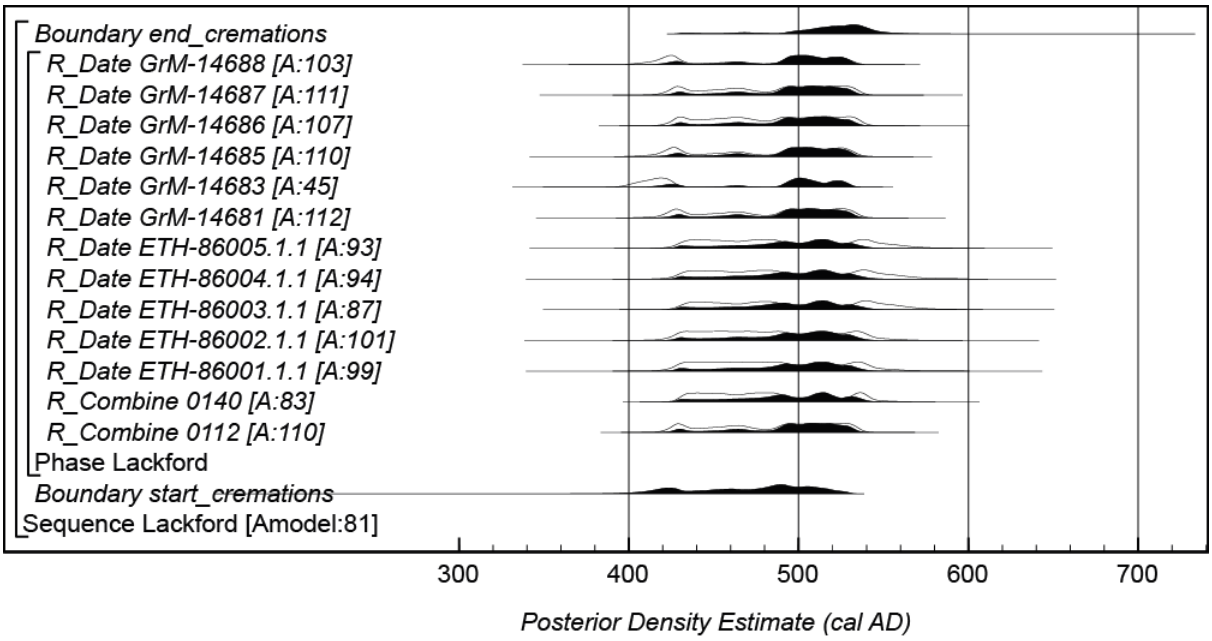

Fig 4: Probability distributions of dates from Lackford cremation cemetery. Each distribution represents the relative probability that an event occurs at a particular time. For each of the dates two distributions have been plotted: one in outline, which is the result of simple radiocarbon calibration, and a solid one, based on the chronological model used. Other distributions correspond to aspects of the model. For example, the distribution 'start_cremations' is the estimated date when the first dated cremation took place. The large square brackets down the left-hand side of the diagram, along with the OxCal keywords, define the overall model exactly (http://c14.arch.ox.ac.uk/)

The model

The chronological model for the Lackford cremation cemetery is defined in Fig 4, and the Highest Posterior Density intervals for key parameters are given in Table 9. The model is based on the assumption that the dated cremations derive from a fairly constant phase of burial activity (Buck *et al*. 1992). The model has good overall agreement (Amodel: 81; Fig 4) and provides an estimate for the start of the dated[1] cremation activity of *cal AD 405–530* (*95% probability*; *start_cremations*; Fig 4) probably *cal AD 415–430* (*10% probability*) or *cal AD 450–520* (*58% probability*). The end of the dated cremation activity is estimated to have taken place in *cal AD 430–445* (*2% probability*;

[1] The dated samples only represent a very small sample of the overall cremation cemetery.

end_cremations; Fig 4) or *cal AD 455–565* (*93% probability) and* probably *cal AD 505–545* (*68% probability*). Dated cremation activity took place over a period of *1–105 years* (*95% probability*; *lackford_cremations*; Fig 5) probably *1–50 years* (*68% probability).* This is probably an over-estimate given that the radiocarbon measurements on all 12 dated cremations are statistically consistent T'=18.2; T'(5%)=21.0; ν=12 (Ward and Wilson 1978), meaning they could all be of the same actual age or more likely representative of a very short period of cremation activity.

Parameter name	***Parameter description (OxCal v4.3 commands are cited in*** `Courier` ***font)***	***Posterior Density Estimate (95% probability unless otherwise stated) cal AD***	***Posterior Density Estimate (68% probability unless otherwise stated) cal AD***
start_cremations	`Boundary` parameter estimating the start of the dated activity	*405–530*	*415–430 (10%) or 450–520 (58%)*
end_cremations	`Boundary` parameter estimating the end of the dated activity	*430–445 (2%) or 455–565 (93%)*	*505–545*

Table 9. Key parameters for cremation activity at Lackford

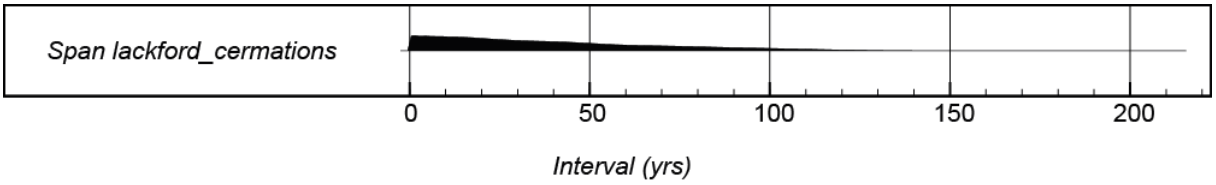

Fig 5: Probability distribution for the number of years that dated cremation activity occurred, derived from the model shown in Fig 3

4 Research potential

The excavated features of significance found in both 2015 and 2016 are the early Anglo-Saxon cremation burials; although the presence of at least one earlier feature in the 2015 area is of interest no material was recovered to add any further information about this. The published account of the 1947 excavation does not include any pre-Anglo-Saxon features except for the rather enigmatic Roman tile structures and a suggestion that cropmark and earthwork enclosures might also be Roman (Lethbridge 1951 and discussed in Minter & Plouviez 2018).

The cremation cemetery is one of a relatively small number of large cremation cemeteries of early Anglo-Saxon date in East Anglia. The only one to be excavated on a large scale to modern standards is Spong Hill in Norfolk, and this must provide the best comparisons for the Lackford material. The 2015 and 2016 material provides a small but useful sample of 15 partially *in situ* urned burials, from a cemetery known to contain over 500 burials, and potentially comparable to the 2,200 at Spong Hill. Other, less well excavated, large groups include over 300 from Caistor by Norwich (Myres and Green 1973) and around 200 from Illington (Davison et al 1993).

There are important questions to be answered about the cemetery:

Chronology: recent work on Spong Hill (Hills & Lucy 2015) has shown that the earliest Anglo-Saxon phase there is within the first half of the 5th century. At present the Lackford evidence is not quite so early: both the finds and the radiocarbon data from the 2016 excavation favour dates between the mid-5th and early 6th century while not ruling out an earlier element. Both Lackford and the nearby settlement at West Stow need re-appraising in light of the Spong Hill data and other new information about the late Roman to early Anglo-Saxon transition in eastern England (such as Mucking, Lucy and Evans 2016).

Duration: Lethbridge suggested that the cemetery continued in use into the 7th century but this also needs re-examining. There is certainly 6th century material, and some questions about the dating of the 'Illington-Lackford' pottery style to the late 6th century need appraising (Riddler 2015, 112).

Population: although the 1951 report makes some comments about the human bone the material was not retained. All the 2015-6 excavated material contributes substantially to knowledge of the sex, age etc of those buried at Lackford. Similarly animals are mentioned as present in the 1951 report but minimally identified or quantified, while the new evidence shows that they are quite frequent, potentially present in 50% of the burials, and often identifiable to species.

Grave goods: like the pottery the associated finds were very selectively included in the 1951 account – for example more beads have been found in the current work than are illustrated by Lethbridge in 1951, although 27 contexts are listed as containing glass beads at CUMAA. The excavated finds provide a good illustration of the total contents of individual urns, and a representative range of materials and types, which can be associated with the more reliably identified population data.

Statement of potential of the pottery (SA)

More than 500 pottery vessels were recovered from the Lackford Anglo-Saxon cremation cemetery in the 19th and mid 20th centuries. Of these, less than half have been illustrated and published in any detail (Lethbridge 1951; Myres 1977). The c.530 vessels held by Cambridge University Museum of Archaeology and Anthropology (CUMAA) were recorded in terms of their fabric by the author in 2002, and these data have been added to the CUMAA museum catalogue for individual vessels, but the information not yet been analysed with regard to the form and decoration of the pots. The 2015 and 2016 excavations have resulted in a much more detailed recording of the vessels recovered, but this material needs to be placed in context with the earlier excavated material, a task which would be made easier if a comprehensive catalogue of the latter could be compiled.

The 2015–16 pottery assemblage as a whole is in good condition, although there is some abrasion of displaced sherds. Most sherds were collected from *in situ* burials or scatters, with only a small proportion unstratified. Although no intact vessels are present, there is enough surviving from many of the vessels to reconstruct the forms and decorative schemes present in this part of the cemetery.

There is potential for this assemblage to contribute to the chronological study of cremation cemeteries in East Anglia, by comparison with the recent study of Spong Hill (Hills and Lucy 2013), and using radiocarbon dates from the cremated remains.

Distribution of the pottery from individual vessels is of interest in showing the destruction of shallow sites of this type by the plough, and a study of the movement of the sherds through the soil may be of value for predicting where upper sherds of in situ bases may be located.

This pottery assemblage is one of several large groups to have been recovered from both settlement and cemetery sites in recent years, a number of which have been studied by the current author. This makes potential for comparison very high, as there is less chance of inter-observer error in terms of fabric and form descriptions.

In the immediate vicinity, medium to large Early Anglo-Saxon pottery assemblages have recently been studied from Eriswell cemeteries and settlement (Anderson 2009), Kentford (Anderson 2016) and West Stow (Anderson 2013). Elsewhere in the county, there are assemblages from Eye (Anderson 2008), Flixton cemetery and settlement (Anderson 2005a and 2012), Carlton Colville (Tipper 2009), Bromeswell (Anderson 2015b), Rendlesham (Anderson 2015c) and Handford Road, Ipswich (Anderson 2005b). Although some of these sites have only reached assessment level, nevertheless basic catalogues of fabrics and forms are available for comparison, which will help to place the site in context with regard to regional pottery studies for the period. In addition to these, previously published cremation cemetery sites such as Spong Hill (Hills and Lucy 2013) and Caistor St Edmund (Myres and Green 1973) will also help to place the Lackford assemblage in context.

Potential of the non-ceramic finds

The grave goods within cremation burials are important for understanding both the chronology and the social practices in the cemetery.

Objects of bone or antler and ivory, and associated iron fittings from the antler combs have been examined by Ian Riddler following their retrieval from the excavation and seiving of the urn contents and further examination of the cremated bone. The material can be compared to the large assemblage from Spong Hill (Hills & Lucy 2013), where the comb evidence is a key element within the dating of the cemetery phases, and also with contemporary settlement evidence particularly from nearby at West Stow (West 1985).

The glass assemblage includes six vessel fragments and around 25 beads (19 definite and 7 possible), the latter recovered from the sieving of the surface scatter samples and the urn contents; all have been examined by Rose Broadley. There is no Roman window glass, unburnt fragments of which do occur in Early Anglo-Saxon cremations (for example at Cleatham, Leahy 2007, 221, and from recent evaluation work at Rendlesham, Caruth et al 2014, 61). The fragments from glass vessels are a useful addition to the evidence from contemporary cremation cemeteries, especially as two of the fragments seem to be unburnt. As elsewhere, the beads are burnt and occur in small numbers, perhaps indicating poor recovery from the pyre, but further analysis may provide more detail and perhaps closer dating information.

To date there has been no systematic study of the artefacts excavated in 1947 since the clearly selective material published in 1951, but it seems many survive in the Cambridge University Museum of Archaeology and Anthropology with context information relating the objects to the pots. A survey of the information in the online catalogue suggests that there are around 300 objects (92 are published in Lethbridge 1951). Many, particularly antler combs and glass beads, would provide good chronological information if fully recorded by type. This assemblage should provide sufficient data for some comparison with other large cemetery groups such as Spong Hill.

5 Recommendations for future work

Site records

Site records will need updating in the light of the finds analyses.

An account of the excavation should be prepared for publication, with appropriate illustration of the plans of the site in relation to previous excavations and finds (see Minter & Plouviez 2018).

The publication report should draw together the information from the full analyses proposed below, in order to fully characterise the individual burials, and should discuss the results in the regional context of comparable sites in eastern England. This should include comparisons of the associations of pyre (burnt) goods and other (unburnt) grave goods which may reflect social or age-related distinctions.

Pottery (S.A)

A full quantification by fabric, context and feature has already been completed, and a catalogue of this data will be prepared for the archive.

The following tasks will be carried out during the analysis stage:

- A database of fabrics of the surviving Lackford pottery held at CUMAA by the present author will be linked to illustrated vessels in Myres' (1977) corpus, and those published by Lethbridge (1951). Smaller groups held by local museums (West 1998, 72) and elsewhere will also be considered, and a complete catalogue of all pots recovered from the site will be compiled. This work will enable a re-assessment of the evidence for the 'Illington/Lackford' potter and the dating of these vessels and others at the site will be compared with the recent chronological analysis of Spong Hill (Hills and Lucy 2013).
- Further work is required to determine whether more cross-links can be identified. This will aid in the interpretation of the cremated remains, and may also be of value for a taphonomic study of the cemetery, relating to plough damage and movement of sherds within the topsoil.
- Re-unite sherds from individual vessels and select material for illustration.
- Refine dating of vessels and contexts where possible, based on forms and fabrics, and search for parallels.
- The 2016 group, together with the 2015 excavated group, needs to be placed in context with the larger Lackford cemetery, in terms of fabrics, forms and spatial distribution. Comparisons with other East Anglian sites will also be required.
- A more detailed report on fabrics, forms and decoration will be prepared for archive and/or publication, incorporating the 2015 and 2016 data.

Work by other specialists:

- One of the most complete pots (0144) has been identified as in urgent need of consolidation as it is deteriorating (Appendix 4). Other pots have potential for reconstruction if required for illustration or display.
- Approximately 60 vessels are worthy of illustration. These will require more detailed fabric and form description for the published catalogue.
- Diana Briscoe has been invited to add stamps to the Archive of Anglo-Saxon Pottery Stamps.
- Lipid analysis to establish whether there is evidence for prior domestic use of the pots used as cremation containers.

Cremated bone: human (S.A)

The burials have been fully recorded for archive, but the results have not yet been analysed in detail

and further work is required to produce a report suitable for archive and/or publication. At the time of writing, the animal bone has not been assessed, and quantities and weights may require updating once this material has been extracted.

This is one of the largest groups of cremation burials of this period to have been excavated in Suffolk in recent years. The cremated remains should be discussed in terms of their context, and in comparison with other Early Anglo-Saxon cremation cemeteries in East Anglia.

Based on the movement of pottery sherds and cross-links identified in the pottery assessment, it is likely that some of the individuals in the scattered groups could be part of some of those in the urned assemblage. Some of these have already been identified and recorded together, but more work is needed to determine if other links exist.

As a number of the burials were excavated in spits, it will be possible to compare bone fragmentation, collection techniques and rates of identification within and between burials. The group also has the potential to offer an insight into cremation techniques and burial preferences in this period in Suffolk.

Tasks for analysis

- compare scatter groups with related urned groups and nearby scatters to determine the minimum number of individuals
- update spreadsheet catalogue
- produce written catalogue for the archive report
- analyse data from urns excavated in spits to determine whether patterns of collection exist
- analyse data relating to size and preservation
- produce archive and/or publication reports, incorporating the previously excavated burials from Lackford where possible, with comparisons of contemporary cemetery groups in the region.

Cremated bone: animal (J.B)

The unusual presence of cow in the assemblage parallels the high status cemetery at Tranmer House. This may be a function of the quite limited data set we actually have for animal remains from Anglo-Saxon cremations. Although there may seem to have been much work on this material, a recent survey has shown that the data set is swamped by the large cemeteries of Spong Hill and Sancton and the full range of practices is not yet known (Rainsford 2017, 282; McKinley 1994, Timby 1993). This initial assessment and the human bone assessment by Anderson suggest there may be animal bone in at least 50% of the groups, which is quite high; estimates of proportions in other cemeteries range from 1-60% (Rainsford 2017). Analysis of this material would add to the surprisingly small corpus of well-studied and published animal bone from Anglo Saxon cemeteries.

As suggested above, the fractions below 4mm would be briefly scanned for any identifiable fragments but work would concentrate on the material above 4mm in size. The assessment suggests this material is in good condition compared to many cremated animal bone assemblages and there is potential for closer identification and the recognition of butchery and other marks, if present.

It is proposed to record in full the material from all the cremation groups, scanning the material below 4mm and identifying as far as possible the material above 4mm. Bone fragments will be recorded as closely as possible to element, with non-element groups (e.g. 'long bone fragment') used where necessary. Fragments will be identified to taxa where possible and to non-taxonomic groups (e.g. 'large mammal' 'medium mammal') when not. Each taxonomic and non-taxonomic group will be weighed to 0.1g to maintain compatibility with the human bone report and allow comparisons. Bone fragment colour, preservation (i.e. abraded, eroded), staining, bone element, side (if possible) and zone, (using a modified version of Dobney and Reilly 1988, to allow for the greater fragmentation of cremated material) will allow a better estimate of number of individuals and give information on possible pyre placements. Any butchery (showing the preparation of food

joints or the sacrificial means e.g. the decapitated horse from Sancton; Bond 1993) or evidence of pathology (indicating that less than perfect animals may sometimes have been chosen, as at Spong Hill) will be recorded. Photographs of significant bones or features will be taken. Compatibility with the human bone report will be maintained so that comparison and integration of the data sets will add to the value of the report.

An archive report, publication report and data for archive will be prepared, following recognised Historic England guidelines (Baker and Worley 2014) and incorporating comparison with other cemeteries in East Anglia such as Spong Hill, Tranmer House and Sutton Hoo (Bond 1994, McKinley 1994, Bond and Mustchin 2015, Bond 2005).

The work will be carried out in the School of Archaeological and Forensic Sciences, University of Bradford, where there is a suitable reference collection and available photographic and other facilities.

Small finds (R.B, F.M, J.P, I.R)

The small finds need a full catalogue for archive, including specialist contributions on the metal objects, combs, beads, ivory objects and glass vessels. The associated groups should be presented (with illustrations, both drawings and photographs will be required), and links suggested by the pottery should be checked against the other finds.

This material should be compared with the full range of objects from 1947 that survive in the Cambridge University Museum of Archaeology and Anthropology. These should be examined, catalogued and selectively photographed.

The full assemblage from Lackford should be analysed, discussed and compared with other large cremation cemetery assemblages in eastern England, particularly Spong Hill and Caistor by Norwich, but also recent finds of small groups such as Tranmer House, Sutton and Rendlesham, and with nearby contemporary settlement material at West Stow.

Plant macrofossils (A.W)

In general, the samples were poor in terms of identifiable material. Charred cereal grains and grape pips were present in small numbers in ploughsoil contexts, but extremely little plant material was present in the cremation pots and charcoal fragments were sparse and extremely small. None of the samples examined during this assessment contain sufficient density of material (*c*.+100 specimens) to allow for quantification.

The degree of contamination is such that it seems unlikely that any of the material can be securely related to the cemetery deposits.

It is not recommended that any further work should be carried out on the flots, they should however, be retained as part of the site archive.

Radiocarbon Dating and Chronological Modelling (P.M)

The samples of animal bone from cremations 0145 and 0158 are not fully calcined and therefore not suitable for radiocarbon dating.

Given where the dated activity falls on the current radiocarbon calibration curve (see Fig 6) submission of further samples from the dated cremations is not going to resolve the chronology of the activity any further. The radiocarbon calibration curve is, however, in the midst of a major recompilation based on annually dated tree-ring samples, as opposed to the deadal blocks that comprise much of IntCal13. Future calibration curves derived from measurements on single tree-rings are likely to reveal much greater structure in the calibration curve, eg the apparent plateau between *c.* AD 430–530 (see Fig 6) might be more complex in reality. The chronology of cremation activity at Lackford may therefore be revised at some point in the not too distant future.

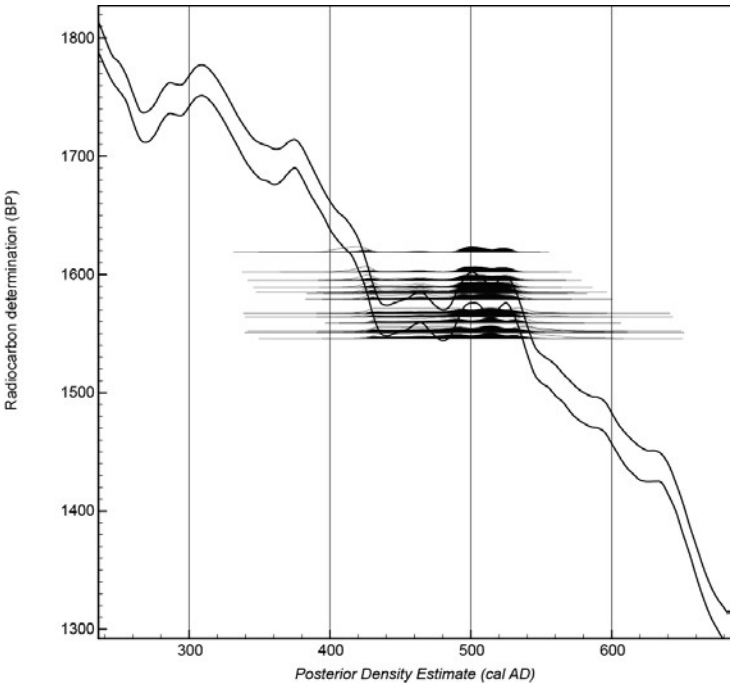

Fig 6: Probability distributions of dates from Lackford cremation cemetery plotted on the IntCal13 Radiocarbon calibration curve (Reimer *et al*. 2013)

Publication

A re-assessment of previous work on the cemetery combined with the analysis detailed above of the 2015-16 excavations would form an appropriate volume for the East Anglian Archaeology series, where many of the other early Anglo-Saxon cremation cemeteries (Spong, Illington, Tranmer House Sutton) have been catalogued. If this approach is agreed a synopsis will be submitted to a meeting of the EAA Editorial board. This volume would present the key results, with reference to the fuller digital reports available online, focusing on the regional significance of Lackford in the late Roman and early Anglo-Saxon periods, the range of material found that was collected after being cremated on the pyre, the types of other objects included as grave goods, the associations (where these survive) with specific sex and age groups and extensive comparisons with other cremation cemeteries, particularly those of comparable size, in the east of England.

Alternatively, a summary report on the 2015-6 excavations with full discussion of the results and reference to the archive report and archived records could be prepared for the Proceedings of the Suffolk Institute of Archaeology. An indication of content and length will be sent to the editor if this option is selected.

Either option would require funding for publication costs.

References

Aerts-Bijma, A T, Meijer, H A J, and van der Plicht, J, 1997, 'AMS sample handling in Groningen', *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, 123, 221–5

Aerts-Bijma, A T, van der Plicht, J, and Meijer, H A J, 2001, 'Automatic AMS sample combustion and CO_2 collection', *Radiocarbon*, 43, 293–8

Anderson, S., 2005a, *Flixton Quarry (FLN 056-064) Assessment: Post-Roman pottery, CBM, fired clay, worked stone, glass, burnt flint and cremated bone*. Assessment report for SCCAS.

Anderson, S., 2005b, *Handford Road, Ipswich (IPS 280): pottery*. Archive report for SCCAS.

Anderson, S., 2008, *Post-Roman pottery from Eye (EYE 083): assessment*. Archive report for SCCAS.

Anderson, S., 2009, *Eriswell Cemetery Sites (ERL 046, 104, 114, 161): Saxon pottery*. Archive report for SCCAS.

Anderson, S., 2012, 'Pottery' and 'Pottery vessels', in Boulter, S. and Walton Rogers, P., *Circles and Cemeteries: Excavations at Flixton Volume I*. E. Anglian Archaeol. 147, 138–142, 187–8 and contributions to the inventory.

Anderson, S., 2013, *New Museum Store, West Stow Country Park (WSW 076): post-Roman pottery*. Archive report for SCCAS.

Anderson, S., 2015a, *Lackford Anglo-Saxon cemetery (LKD 001): the pottery*. Archive report for SCCAS.

Anderson, S., 2015b, 'Pottery', in Fern, C., *Before Sutton Hoo: the Prehistoric Remains and Early Anglo-Saxon Cemetery at Tranmer House, Bromeswell, Suffolk*, E. Anglian Archaeol. 155, 130–33.

Anderson, S., 2015c, *Park Field and Sand Walk, Rendlesham (RML 054–055): post-Roman pottery*. Archive report for SCCAS.

Anderson, S., 2015d, *Lackford Anglo-Saxon cemetery (LKD 001): cremated bone*. Archive report for SCCAS

Anderson, S., 2016, *Kentford Lodge, Kentford (KTD 019): Saxon and later pottery assessment*. Archive report for SACIC.

Baker P and Worley F, 2014, *Animal bones and archaeology: guidelines for best practice.* English Heritage/Historic England.

Bond, J. 1993, 'Cremated animal bone', In Timby, J.,1993, 300-308.

Bond, J. 1994,'The cremated animal bone', In McKinley, J.1994, 121-135.

Bond, J. 1996, 'Burnt offerings: animal bone in Anglo-Saxon cremations', *World Archaeology* 28: 76-88.

Bond, J. 2005, 'The cremated animal bone', In Carver, M. *Sutton Hoo, a seventh century princely burial ground and its context.* London: British Museum Press, 275-280.

Bond, J. & Mustchin, A. 2015, 'Cremated animal bone', In Fern, C. 2015, 155-157.

Bond, J. & Worley, F. 2006, 'Companions in death: the roles of animals in Anglo-Saxon and Viking cremation rituals in Britain', in Gowland, R & Knusel, C. (eds.) *Social Archaeology of Funerary Remains*. Oxford: Oxbow, 89-98

Bronk Ramsey, C, 1995. 'Radiocarbon calibration and analysis of stratigraphy the OxCal program', *Radiocarbon*, 37, 425–30

Bronk Ramsey, C, 2009. 'Bayesian analysis of radiocarbon dates', *Radiocarbon*, 51, 337–60

Bronk Ramsey, C, 2009. 'Dealing with outliers and offsets in radiocarbon dating', *Radiocarbon*, 51, 1023–45

Bronk Ramey, C, 2017. Methods for summarizing radiocarbon datasets. Radiocarbon, 59, 1809–33.

Brown, A., 2015 *Anglo-Saxon cremations from Lackford Anglo-Saxon cemetery (LKD 001) A report on the archaeological excavation 2015.* Archive report, Suffolk County Council

Buck, C E, Litton, C D and Smith, A F M, 1992, 'Calibration of radiocarbon results pertaining to related archaeological events', *Journal of Archaeological Science*, 19, 497–512

Cappers R.T.J, Bekker R.M and Jans J.E.A, 2006, *Digital Seed Atlas of the Netherlands* Groningen Archaeological Studies 4, Barkhuis Publishing, Eelde, The Netherlands

Davison A, Green, B and Milligan, B, 1993, *Illington: A Study of a Breckland Parish and its Anglo-Saxon Cemetery,* E Anglian Archaeol 63

Dobney K and Reilly K 1988, 'A method for recording archaeological animal bones; the use of diagnostic zones', *Circaea* 5, 79-96.

Fern, C. 2015*, Before Sutton Hoo: the Prehistoric Remains and Early Anglo-Saxon Cemetery at Tranmer House, Bromeswell, Suffolk*. East Anglian Archaeology 155

Hamerow, H., 1993, *Excavations at Mucking Volume 2: The Anglo-Saxon Settlement.* English Heritage/British Museum Press, London.

Hills, C. and Lucy, S., 2013, *Spong Hill Part IX: chronology and synthesis.* McDonald Institute Monographs, Cambridge.

Jacomet S. *et al*. 2006. *Identification of cereal remains from archaeological sites*. Second Edition. Archaeobotany Lab IPAS, Basel University

Lanting, J N, Aerts-Bijma, A T and van der Plicht, J, 2001, 'Dating of cremated bone', *Radiocarbon*, 43, 249–54

Lethbridge, T.C., 1951, *A Cemetery at Lackford, Suffolk. Report of the Excavation of a Cemetery of the Pagan Anglo-Saxon Period in 1947*. Cambridge Antiq. Soc. Quarto Publications, New Series, No. VI.

Lucy, S. and Evans, C., 2016 *Romano-British Settlement and Cemeteries at Mucking: Excavations by Margaret and Tom Jones, 1965–1978* Oxbow books

McKinley, J.I., 1994, *The Anglo-Saxon Cemetery at Spong Hill, North Elmham Part VIII: the cremations*. E. Anglian Archaeol. 69. Norfolk Museums Service.

McKinley, J.I., 2004, 'Compiling a skeletal inventory: cremated human bone', in Brickley, M. and McKinley, J.I. (eds), *Guidelines to the Standards for Recording Human Remains*. IFA Paper No.7. BABAO and IFA.

Minter, F and Plouviez, J, 2018, *An assessment of the archaeological context of the early Anglo-Saxon cremation cemetery at Lackford (LKD 001), Suffolk,* unpublished report for Historic England, Suffolk County Council Archaeological Service

Murphy, P. 1994. 'The carbonised plant remains from cremations' Appendix II *in* McKinley, J. 1994. *The Anglo-Saxon Cemetery at Spong Hill, North Elmham Part VIII: The Cremations.* East Anglian Archaeology, Report No. 69. Field Archaeology Division Norfolk Museum Service

Myres, J., 1977, *A Corpus of Anglo-Saxon Pottery of the Pagan Period*. Cambridge University Press.

Myres, J.N.L. and Green, E.B., 1973, *The Anglo-Saxon Cemeteries of Caistor-by-Norwich and Markshall, Norfolk*, Report of the Research Committee of the Society of Antiquaries 30 (London, Society of Antiquaries)

Reimer, P J, Bard, E, Bayliss, A, Beck, J W, Blackwell, P G, Bronk Ramsey, C, Buck, C E, Cheng, H, Edwards, R L, Friedrich, M, Grootes, P M, Guilderson, T P, Haflidason, H, Hajdas, I, Hatté, C, Heaton, T J, Hoffmann, D L, Hogg, A G, Hughen, K A, Kaiser, K F, Kromer, B, Manning, S W, Niu, M, Reimer, R W, Richards, D A, Scott, E M, Southon, J R, Staff, R A, Turney, C S M and van der Plicht, J, 2013, 'IntCal13 and Marine13 radiocarbon age calibration curves 0–50,000 years cal BP', *Radiocarbon*, 55, 1869–87

Riddler, I., 2015, 'The Small Finds: Saxon', in David Gill, Richenda Goffin and Jo Caruth, *New Museum Building, West Stow Anglo-Saxon Village,* Suffolk Archaeology CIC Report No. 2015/083 (unpublished)

Stace, C. 1997, *New Flora of the British Isles*. 2nd edition, Cambridge University Press

Stuiver, M and Polach, H A. 1977, 'Reporting of 14C data'. Radiocarbon, 19, 355–63

Timby, J., 1993, 'Sancton I Anglo-Saxon cemetery: excavations carried out between 1976 and 1980', *Archaeological Journal* 150,

Tipper, J., 2009, 'Pottery', in Lucy, S., Tipper, J. and Dickens, A., *The Anglo-Saxon Settlement and Cemetery at Bloodmoor Hill, Carlton Colville, Suffolk*. E. Anglian Archaeol. 131, 202–43.

Wacker, L, Bonani, G, Friedrich, M, Hajdas, I, Kromer, B, Němec, M, Ruff, M, Suter, M, Synal, H A and Vockenhuber, C. 2010, 'MICADAS: Routine and High-Precision Radiocarbon Dating', *Radiocarbon*, 52, 252–62

Wacker, L, Christl, M and Synal, H A. 2010, 'Bats: A new tool for AMS data reduction', *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, 268, 976–79

Wacker, L, Němec, M & Bourquin, J. 2010, ' A revolutionary graphitisation system: Fully automated, compact and simple'. *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, 268, 931–934

Ward, G K and Wilson, S R, 1978, 'Procedures for comparing and combining radiocarbon age determinations: a critique', *Archaeometry*, 20, 19–32.

WEA, 1980, 'Recommendations for age and sex diagnoses of skeletons', *J. Human Evolution* 9, 517-49.

West, S, 1985, *West Stow The Anglo-Saxon Village* E Anglian Archaeol 24, Suffolk

West, S., 1998, *A Corpus of Anglo-Saxon Material from Suffolk,* East Anglian Archaeol. 84, Suffolk County Council.

Appendix 1 Context List 2015 and 2016

Context Number	Feature ID	Feature Type	Description
0001		Layer	Ploughsoil as recorded in 2015 excavation, up to 0.34m deep. Separately numbered in individual cremation areas. Dark brown sandy soil.
0002		Layer	Subsoil: sandy mid red/ brown layer below ploughsoil 0001 in 2015 excavation.
0003	0003	Ditch Cut	Small linear feature orientated north-south below cremation 1 (0015). Identified in cleaning subsoil after removal of cremation pot, and the 1m square area extended to define the full width. Plan and section recorded. Fill of the single excavated section is 0004.
0004	0003	Fill	Fill of a section across small linear feature 0003. Light - mid brown sand. Cut into natural yellow sandy gravel.
0005		cremation pit Cut	Small pit containing ?cremation urn fragments, found in cleaning natural gravel after the removal of cremation 2 (0017); located to the south-west of 0017. Not excavated. Fill 0006.
0006	0005	Fill	Fill of small pit 0005, Very dark brown sandy. Contained hand made pottery. Not excavated.
0007		Layer	Subsoil as 0002 (but with more gravel) in the area of cremation 2 (0017)
0008		Layer	Ploughsoil as 0001 in the area of cremation 2 (0017)
0009		Layer	Ploughsoil 0001 in the area of cremations 3 and 5
0010			Subsoil (as 0002) in the area of cremations 3 and 5. More than 0.06m deep.
0011	0011	Pit	Probable small pit identified in an area 0.8m x 0.8m cutting into subsoil below and to the west of cremation 4. The pit narrowed towards the west (possibly plough/subsoiler damage). The east half was excavated, fill 0012.
0012	0011	Fill	Fill of small pit 0011. Dark brown / black sand with occasional charcoal
0013		Layer	Ploughsoil as 0001 in cremation 4 area
0014		Layer	Subsoil as 0002 in cremation 4 area. More than 0.16m deep
0015	0015	cremation pot Other	Cremation pot (cremation 1) : base of the pot cutting layer 0002 subsoil (in a plough furrow). No cremation pit identified during lifting of the pot. Note an incomplete copper-alloy small long brooch found in this.
0016	0015	Fill	Fill of cremation pot 1 (0015) which included a small long brooch
0017	0017	cremation pot Other	Cremation 2, base of a pot cut into the subsoil (0007) in a plough furrow c. 5m to the west of cremation 1 (0015)
0018	0017		Fill of cremation pot 0017 excavated after lifting inJune 2017
0019		surface scatter Other	Cremation3 - a surface area of cremated bone and pottery within ploughsoil 0009 (0001). Possibly related to cremation 5, also a surface group found nearby.

Appendix 1 Context List 2015 and 2016

Context Number	Feature ID	Feature Type	Description
0020	0020	surface scatter Other	Cremation 4, a surface scatter of burnt bone and potsherds found in ploughsoil 0013 (0001)
0021		surface scatter Other	Cremation 5, a surface scatter of burnt bone and pottery sherds found in ploughsoil 0009 (0001). Possibly related to nearby scatter cremation 3 (0019)
0101		Ploughsoil Layer	Topsoil: recently ploughed horizon on the surface of which various recently disturbed groups of pottery and/or burnt bone were visible (which were collected with individual context numbers). Mid brown/grey, very loose compavction, sand with inclusions of natural flint, less than 5%. Lower (unploughed) horizon sharply defined.
0102		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in the top 11cm of ploughsoil 0101 (area excavated to 19cm with no finds below 11cm). Plain pottery sherds, dispersed. Dimensions as surface plan.
0103		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group: material found in excavating to the base of ploughsoil (0101) at c32cm and a further cremation feature (0111) found below this and 50cm to the south. Dimensions as on surface plan
0104		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group, within 0101 ploughsoil. Near to but separated from 0103 scatter. Pottery sherds included decorated. Excavated to c 24cms below surface, finds to c. 19cm below surface.
0105		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in 0101 ploughsoil. Finds mainly within 20cm of the surface, but pottery sherds found deeper (to c 30cms below surafce) in a plough furrow also containing rotting vegetation on the south edge of the scatter. Pottery included rim sherds and decoration (lines and dots).
0106		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in 0101 ploughsoil. Excavated to c20cms, finds to c15cms
0107		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in 0101 ploughsoil. Maximum depth 23cm. Included one decorated pottery sherd and two metal small finds
0108		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in 0101plouoghsoil. Excavated to c 15cm, shallow concentration of finds.
0109		Surface scatter Other	Surface scatter of pottery only, potential cremation group in 0101 ploughsoil. Upper part of an urn. Excavated to c.10cm but almost entirely on the surface and on the exposed face of the adjacent open furrow. Possibly relates to the in-situ urn at the base of the open furrow (0145), which is 0.40m to the west.
0110		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in 0101 ploughsoil. Small area, excavated to 8cm below surface but no finds below 5cm and mainly surface. Possibly part of the same group as 0114 which lies 0.40m to the south-east?
0111		Grave Cut	Small pit containing cremation and pot (0112) below ploughsoil (0101). The feature was visible with pot 0112 in situ, but became very indistinct after removal of the contents.
0112	0111	Cremation pot Fill	Pot and contents in cremation burial pit 0111 beneath ploughsoil scatter 0103. Includes decorated pottery sherds. The top of the pot was 40cm below the surface and it was 60cm deep. Lifted with contents.

Appendix 1 Context List 2015 and 2016

Context Number	Feature ID	Feature Type	Description
0113		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in 0101 ploughsoil. No decorated pottery seen. Immediately adjacent to and south of 0107 (0.40m apart on surface plan). Excavated to 29cm below surface, finds to 18cm below surface
0114		Surface scatter Other	Surface scatter of mainly pottery and with very little cremated bone, potential cremation group in 0101 ploughsoil. Pottery included rim and decorated sherds. Excavated to 15cm below surface, finds to a maximum of 10cm below surface.
0115		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in 0101 ploughsoil. No context sheet but on context register. Shown on plan as pottery sherds and close to 0114 and 0116 to the north.
0116		Surface scatter Other	Surface scatter of some pottery and mainly cremated bone, potential cremation group in 0101 ploughsoil. Pottery not decorated, found to 32cm below surface, but at 42 cm below the surafce further cremated bone excavated. This group may relate to 0143, an in situ urn base, about 0.30m north-west of the recorded surface scatter.
0117		Surface scatter Other	Surface scatter of pottery and a few cremated bone fragments, potential cremation group. Pottery not decorated. Excavated to 18cm below surface, no finds below c 10cm below surface
0118		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in 0101 ploughsoil. Pottery included decorated sherds. Excavated to 22cm below surface, no finds below 12cm below surface
0119		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in 0101 ploughsoil. Excavated to 10cm below surface, no finds below 5cm below surface. Lay on the north edge of the open plough furrow at the south edge of the site, close to burnt bone in the subsoil (0154)
0120		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in 0101 ploughsoil. Pottery not decorated. Sherds to c20cm below surface, then uncovered a discrete area of burnt bone with glass fragments in the centre (SFs 1004-1007, between c22 and 25cm below surface). Probably related to 0140, in situ urn base below this, and slightly to the west of the surface finds..
0121		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in 0101 ploughsoil. Pottery not decorated. Found to 5cm below surface, excavated to 15 cm below surface. Some burnt and worked flint also recovered
0122		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in 0101 ploughsoil. Excavated to 20cm below surface, finds restricted to the top 5cms. Undecorated pottery.
0123	0123	Cremation pot Fill	Cremation urn, identified as a scatter of pottery in the base of the open plough furrow at the south edge of the site. No cut definable in the subsoil. 35cm below surface. 0124 probably also derives from this burial.
0124	0123	Scatter Other	Scatter of pottery and cremated bone, potential cremation group in 0101 ploughsoil, exposed in the north side of the open plough furrow at the south edge of the site. . Some decorated pottery. 40cm below surface. Probably from 0123 in situ urn base, which lay 25cms to the south-west of 0124.
0125		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in 0101ploughsoil. Excavated to 44cm below surface (subsoil visible), no find below 34cm below surface.
0126		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in 0101 ploughsoil. Decorated pottery, and a basal sherd at c20cm below surface. Excavated to 31cm below surface, no finds below 21cm below surface. SF 1003 found in same area on surface.

Appendix 1 Context List 2015 and 2016

Context Number	Feature ID	Feature Type	Description
0127		Surface scatter Other	Surface scatter of pottery and very little cremated bone, potential cremation group. Decorated pottery sherds. Excavated to c25cm below surface, no finds below c15cm below surface.
0128		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in 0101 ploughsoil. Undecorated pottery. Excavated to 27cm below surface, no finds below c15cm below surface.
0129		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in 0101 ploughsoil. Pottery not decorated. Excavated to 20cm below surface, no pottery below c10cm below surface
0130		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in 0101 ploughsoil. Burnt flint and charcoal also noted, decorated pottery. Excavated to 28cm below surface, no finds below 25cm below surface.
0131		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in 0101 ploughsoil. Some decorated pottery. Excavated to c39cm below surface, no finds below c30cm below surface
0132		Scatter Other	Scatter of pottery and cremated bone, potential cremation group in 0101 ploughsoil; not visible on surface but uncovered at c2cm below surface while clearing around surface scatter 0116. Decorated pottery. Excavated to 26cm below surface, no finds below c16cm below surface. Possibly related to 0143 in situ urn base?
0133		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in 0101 ploughsoil. Excavated to c48cm below surface, where urn 0151 found in situ on the west side of the original scatter.
0134		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in 0101 ploughsoil. Included decorated pottery sherds. Excavated to 34cm below surface, no finds below 25cm below surface.
0135		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in 0101 ploughsoil. Included decorated pottery and SF 1012 fragments of copper-alloy. Excavated to 27cm below surface, no finds below 25cm below surface.
0136		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in 0101 ploughsoil. Excavated to 33cm below surface, no finds below 30cm below surface.
0137		Surface scatter Other	Surface scatter of pottery and much cremated bone, potential cremation group. Decorated pottery. Excavated to 33cm below surface, no finds below 30cm below surface
0138		Grave Cut	Gently sloping sides and curved base of a shallow grave pit, filled with 0139 and urn 0140.
0139	0138	Fill Fill	Pale brown/grey loose sand, no inclusions, sharp clarity, single fill of grave pit 0138
0140	0138	Cremation pot Fill	Base of a cremation urn in a small grave pit (0138), containing cremated bone and undecorated pottery fragments. Damaged and crumbling. Probably related to 0120 in the ploughsoil above?
0141		Grave Cut	Shallow gently curved base of a grave pit containing the remains of a cremation urn, 0143 and basal soil 0142.
0142	0141	Fill Fill	Pale brown/grey sandy, no inclusions, good clarity, filling the base of grave pit 0141

Appendix 1 Context List 2015 and 2016

Context Number	Feature ID	Feature Type	Description
0143	0141	Cremation pot Fill	Cremation urn, base only surviving in small grave pit 0141, contained cremated bone. Possibly related to 0116 and 0132 above and nearby to south-east and north-east respectively.
0144	0146	Cremation pot Fill	Cremation urn in situ with stamped and bossed decoration containing burnt bone and some loose pottery sherds, very friable surface. Surviving top c25cm below the surface
0145	0146	Fill Fill	Brown sandy loose fill with no inclusions but including a mass of burnt bone and very burnt residues beneath urn 0144 and filling the basal 5-6cm of the grave pit 0146 at 50cm below surface
0146	0146	Grave Cut	Small pit containing cremation urn 0144 and underlying cremated bone in fill 0145, edges not easily distinguished and just extending into the southern edge of the open furrow at the south edge of the site; edge visible close to pot 0144 on the western side.
0147		Surface scatter Other	Surface scatter of pottery, potential cremation group in 0101 ploughsoil. Decorated pottery sherds, no burnt bone. Excavated to 10cm below surface
0148		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in 0101 ploughsoil. Decorated pottery sherds. Excavated to 57cm below surface (?including urn 0164). Overlies urn 0164 which was 50cm to the south-east of the recorded surface finds.
0149	0149	Grave Cut	Gently sloping rounded base pit containing urn 0151 and urn 0153
0150	0149	Fill Fill	Dark brown-grey sand fill, no inclusions, loose compaction, in pit 0149 - shallow, no section recorded - below urn 0151
0151	0149	Cremation pot Fill	Cremation urn containing burnt bone and loose potsherds in pit 0149, over fill layer 0150 and a second cremation group, 0153
0152		Surface scatter Other	Surface scatter of pottery and cremated bone, potential cremation group in ploughsoil 0101, extending from the north face into the bottom of the open plough furrow at the south edge of the site. Excavated to 23cm. Over urn group 0158-63
0153	0149	Cremation pot Fill	Cremation urn lying directly beneath urn 0151 and fill layer 0150 in grave pit 0149, perhaps slightly to the north-east of the upper cremation group. ?one or two burials
0154	0156	Scatter Other	Small spread of cremated bone and pottery in in brown-grey sandy soil in the base of the open plough furrow at the southern edge of the site. Close to (c.0.25m south-west of) surface and furrow side scatter 0119.
0155		Surface scatter Other	Concentrated patch of cremated bone (?and pottery) within the more general deposit 0133 in ploughsoil 0101. Probably the same as 0133?
0156		Grave Cut	Small round-based pit, cutting 10cm into subsoil at base of plough furrow on south edge of site, filled with 0154 cremated bone
0157	0149	Fill Fill	Basal 11cm of pit 0149, dark grey/black soil containing much charcoal associated with urn 0153. Some ambiguity in the records as to whether this deposit was above or below the lower cremation group 0153, if the urns 0151 and 0153 prove to be a single vessel this may be part of the urn fill (and it appears that soil/finds were included with 0153).
0158		Cremation pot Other	Cremation urn, one of a group found beneath scatter 0152. No pit or pits containing this group could be identified. Numbered from west to east, sketch plan of the layout on context sheet 0158.

Appendix 1 Context List 2015 and 2016

Context Number	Feature ID	Feature Type	Description
0159		Cremation pot Other	Cremation urn, one of a group found beneath scatter 0152. No pit or pits containing this group could be identified. Numbered from west to east, sketch plan of the layout on context sheet 0158.
0160		Cremation pot Other	Cremation urn, one of a group found beneath scatter 0152. No pit or pits containing this group could be identified. Numbered from west to east, sketch plan of the layout on context sheet 0158.
0161		Cremation pot Other	Cremation urn, one of a group found beneath scatter 0152. No pit or pits containing this group could be identified. Numbered from west to east, sketch plan of the layout on context sheet 0158. Probably the same vessel as 0162 but dragged sideways, lifted with 0162.
0162		Cremation pot Other	Cremation urn, one of a group found beneath scatter 0152. No pit or pits containing this group could be identified. Numbered from west to east, sketch plan of the layout on context sheet 0158. Probably the same vessel as 0161 and lifted together
0163		Cremation pot Other	Cremation urn, one of a group found beneath scatter 0152. No pit or pits containing this group could be identified. Numbered from west to east, sketch plan of the layout on context sheet 0158.
0164		Cremation pot Other	Cremation urn base in situ, not photographed before lifting. Below surface scatter 0148. No visible grave pit recorded.
0165		Surface finds	Pottery, hand collected from plough soil by metal detectorist over a period of time and various locations.

Appendix 2. Small finds list

Small Find Number	Context Number	Feature Type	Object type	Material	Frag-ment Count	Weight (g)	Description	Period	Date From	Date To
1001	0107	Surface scatter	Vessel mount	Copper alloy	1	1.35	Clip from rim of wooden vessel, iron rivet through it	Anglo-Saxon		
1002	0107	Surface scatter	Sheet	Copper alloy	1	0.88	Unidentifiable copper alloy sheet fragment	Anglo-Saxon		
1003	0126	Surface scatter	Tweez ers	Iron	1	3.47	Iron tweezers upper fragment, miniature	Anglo-Saxon		
1004	0120	Surface scatter	Vessel	Glass	1	2.09	Beaker? Possible single vessel with 1005	Anglo-Saxon		
1005	0120	Surface scatter	Vessel	Glass	1	15.31	Possible beaker? Large rim?	Anglo-Saxon		
1006	0120	Surface scatter	Vessel	Glass	1	2.34	Possible beaker, same vessel as above and below?	Anglo-Saxon		
1007	0120	Surface scatter	Vessel	Glass	1	9.71	Claw beaker, top of claw on it same as vessel as above?	Anglo-Saxon		
1008	0125	Surface scatter	Vessel mount	Copper alloy	1	1.87	With antler fragment on reverse, rivet hole visible, possible casket	Anglo-Saxon		
1009	0137	Surface scatter	Sheet	Copper alloy	5	2.42	Unidentifiable copper alloy sheet fragments	Anglo-Saxon		
1010	0101	Ploughsoil	Sheet	Copper alloy	2	0.74	Unidentifiable copper alloy sheet fragments	Anglo-Saxon		
1011	0101	Ploughsoil	Sheet	Copper alloy	1	0.57	Unidentifiable copper alloy sheet fragment	Anglo-Saxon		
1012	0135	Surface scatter	Sheet	Copper alloy	2	2.51	Unidentifiable copper alloy sheet fragments	Anglo-Saxon		
1013	0125	Surface scatter	Sheet	Copper alloy	1	0.29	Unidentifiable copper alloy sheet fragment	Anglo-Saxon		
1014	0107	Surface scatter	Pin	Iron	2	0.52	Two frags of Fe pin	Anglo-Saxon		
1015	0112	Cremation pot	Comb	Antler	3	2.8	Anglo-Saxon comb frag double-sided composite comb. Spit 4, Urn 0112 end with two detached teeth, considerable wear.	Anglo-Saxon		

Small Find Number	Context Number	Feature Type	Object type	Material	Frag-ment Count	Weight (g)	Description	Period	Date From	Date To
1016	0112	Cremation pot	Comb	Antler	1	0.54	Fragment of end segment of a double sided composite comb, mid 5th- early 6th. Spit 4, Urn 0112	Anglo-Saxon	Mid 5thC	Early 6th C
1017	0119	Surface scatter	Bead	Glass	4	0.83	Molten blue translucent glass bead.	Anglo-Saxon		
1018	0119	Surface scatter	Bead	Glass	1	0.52	Blue translucent annular glass bead.	Anglo-Saxon		
1019	0119	Surface scatter	Vessel	Glass	1	1.61	Body sherd of Anglo-Saxon beaker	Anglo-Saxon	l.5th C	6th C
1020	0120	Surface scatter	Vessel	Glass	1	1.94	Molten vessel glass possibly Anglo-Saxon			
1021	0123	Cremation pot	Bead	Glass	1	1.86	Annular bead, translucent blue, Spit 4, Urn 0123.	Anglo-Saxon		
1022	0123	Cremation pot	Pin	Iron	1	0.84	Possible pin head from Spit 4, Urn 0123.	Anglo-Saxon		
1023	0123	Cremation pot	Brooch?	Copper alloy	1	2.21	Copper alloy possible brooch fragment Spit 3, Urn 0123. Or toilet implement suspension loop?	Anglo-Saxon?		
1024	0123	Cremation pot	Bead	Glass	1	0.9	Glass bead, monochrome very melted bead. Spit 1, Urn 0123.	Anglo-Saxon		
1025	0123	Cremation pot	Bead	Glass	1	0.96	Blue glass melted bead. Spit 2, Urn 0123.	Anglo-Saxon		
1026	0126	Surface scatter	Sheet	Copper alloy	1	0.04	Copper alloy sheet fragment.	Anglo-Saxon		
1027	0134	Surface scatter	Sheet	Copper alloy	18	1.41	Copper alloy fragments, riveted sheet might turn into an object	Anglo-Saxon		
1028	0134	Surface scatter	Bead	Glass	3	4.36	Anglo-Saxon Norfolk traffic light bead red and yellow glass bead.	Anglo-Saxon	Mid 5thC	Early 6th C
1029	0134	Surface scatter	Vessel ?	Copper alloy	1	2	Fragment of copper alloy sheet, probably vessel body sherd	Anglo-Saxon		
1030	0134	Surface scatter	Bead	Glass	1	3.24	Molten Norfolk traffic light red and yellow glass bead, c450-480 AD.	Anglo-Saxon	Mid 5thC	Early 6th C
1031	0134	Surface scatter	Bead	Glass	1	3.84	Large globular naturally coloured glass bead, an imitation melton bead, c. first half 6th century.	Anglo-Saxon		
1032	0134	Surface scatter	Bead	Glass	1	0.25	Burnt glass bead, annular originally translucent blue, 5th century type.	Anglo-Saxon	5thC	5th C
1033	0134	Surface scatter	Bead	Glass	1	0.05	Glass bead fragment blue transulcent annular type	Anglo-Saxon		
1034	0134	Surface scatter	Bead	Glass	2	0.06	Norfolk traffic light bead fragment.	Anglo-Saxon	Mid 5thC	Early 6th C

Small Find Number	Context Number	Feature Type	Object type	Material	Frag-ment Count	Weight (g)	Description	Period	Date From	Date To
1035	0140	Cremation pot	Bead	Glass	2	0.39	Gold and glass double segmented bead, 5th-first half 6th century. Spit 2, Urn 0140.	Anglo-Saxon	5th C	First half 6th C
1036	0140	Cremation pot	Sheet	Copper alloy	4	2.61	Fragments of copper alloy sheet, seems to be a disc.	Anglo-Saxon		
1037	0140	Cremation pot	Sheet	Copper alloy	1	0.2	Copper alloy sheet fragments. Spit 4, Urn 0140.	Anglo-Saxon		
1038	0140	Cremation pot	Comb	Antler	3	0.61	Comb fragment, end segment of a triangular comb, 5th century. Spit 5, Urn 0140.	Anglo-Saxon	5th	5th
1039	0140	Cremation pot	Sheet	Copper alloy	3	0.14	Copper alloy sheet. Spit 5, Urn 0140.	Anglo-Saxon		
1040	0143	Cremation pot	Mount	Copper alloy	3	7.11	Copper-alloy bucket binding? Spit 3, Urn 0143.	Anglo-Saxon		
1041	0151	Cremation pot	Comb	Antler	1	0.25	Comb fragment, small fragment from a double side composite comb with ringa dn dot decoration, late 5th-early 6th century in date. Spit 1a, Urn 0151.	Anglo-Saxon	Late 5th C	Early 6th C
1042	0151	Cremation pot	Comb	Antler	18	1.56	Fragments of comb, plus Fe rivet, double sided composite comb, ring and dot decoration, first half 6th century. Urn 0151.	Anglo-Saxon	500	550
1043	0155	Surface scatter	Comb	Antler	18	3.27	Fragments of comb, triangular comb, edge riveted so second half 5th century, some with linear decoration.	Anglo-Saxon	450	500
1044	0155	Surface scatter	Comb	Antler	3	1.85	Comb fragments, parts of a triangular comb, two edge rivets, therefore second half 5th century some with linear decoration.	Anglo-Saxon	450	500
1045	0155	Surface scatter	Sheet	Copper alloy	1	0.05	Possible copper alloy sheet fragment.			
1046	0155	Surface scatter	Bead	Glass	2	1.08	Molten red glass, either monochrome or possibly traffic light bead, probably the former bead.	Anglo-Saxon		
1047	0159	Cremation pot	Bead	Glass	1	0.94	Red monochrome annular glass melted bead. Spit 3, Urn 0159.	Anglo-Saxon	5th C	5th C
1048	0159	Cremation pot	Bead	Glass	1	0.21	Molten glass bead monochrome globular, 6th century Spit 4, Urn 0159.	Anglo-Saxon	6th C	6th C
1049	0159	Cremation pot	Bead	Glass	1	4.06	At least two translucent blue beads stuck together, Spit 4, Urn 0159.	Anglo-Saxon		
1050	0164	Cremation pot	Comb	Antler	1	0.26	Square bead fragment, decorated with ring and dot on front face, 5th century date	Anglo-Saxon	5th C	5th C
1051	0124	Scatter	Bead	Glass	1	0.87	Red monochrome, probably annular melted bead.	Anglo-Saxon		

Small Find Number	Context Number	Feature Type	Object type	Material	Frag-ment Count	Weight (g)	Description	Period	Date From	Date To
1052	0124	Scatter	Bead	Glass	1	1.34	Polychrome globlular blue and white melted bead.	Anglo-Saxon		
1053	0126	Surface scatter	Razor?	Iron	1	2.2	Iron object, possible minature razor or less likely blade tang fragment	Anglo-Saxon		
1054	0151	Cremation pot	Comb	Iron	2	1.04	Iron two rivets from a comb Spit 2a, Urn 0151.	Anglo-Saxon		
1055	0159	Cremation pot	Bead	Glass	1	1.67	Translucent red melted bead, perforation from middle has been lost by burning.	Anglo-Saxon		
1056	0112 spit 3	Cremation pot	Vessel	Glass	3	0.05	vessel glass chips, roman or later	Roman +	Roman	Anglo-Saxon
1057	0123 spit 3		Bead	Glass	1	0.28	blue and white polychrome bead, 5th early 6th	Anglo-Saxon	5th C	Early 6th C
1058	0159 spit 3	Cremation pot	Bead	Glass	1	0.58	translucent blue bead	Anglo-Saxon		
1059	0164 spit 3		Comb	Iron	2	0.2	two iron rivets from an antler comb	Anglo-Saxon		
1060	0112	Cremation pot	Purse	Ivory	53	9.03	elephant ivory burnt, purse ring 5th century onwards	Anglo-Saxon	5th C	7th C
1061	0154		Uniden -tified object	glass?	2	0.44	not a bead unidentified	Anglo-Saxon		
1062	0159, spit 5	Cremation pot	Bead	Glass	1	0.73	blue glass bead	Anglo-Saxon		
1063	0140, spit 2 and 3	Cremation pot	Purse	Ivory	73	3.15	elephant ivory burnt purse ring	Anglo-Saxon	5th	7th
1064	0125		Purse	Ivory	154	5	elephant ivory purse ring	Anglo-Saxon	5th C	7th C
1065	0114		Purse	Ivory	14	1.48	elephant ivory purse ring	Anglo-Saxon	5th C	7th C
1066	0155	Surface scatter	Purse	Ivory	24	0.6	elephant ivory purse ring	Anglo-Saxon	5th C	7th C
1067	0159	Cremation pot	Purse	Ivory	2	0.47	elephant ivory purse ring	Anglo-Saxon	5th C	7th C
1068	0153		Purse	Ivory	2	0.38	elephant ivory probable fragment of a purse ring	Anglo-Saxon	5th C	7th C
1069	0140, spit 3	Cremation pot	Vessel ?	Copper alloy	1	0.35	sheet fragment, probable vessel fragment	Anglo-Saxon		
1070	0151	Cremation pot	Bead	Glass	1	0.3	possible bead fragment	Anglo-Saxon		

Small Find Number	Context Number	Feature Type	Object type	Material	Frag-ment Count	Weight (g)	Description	Period	Date From	Date To
1071	0112	Cremation pot	Comb	Antler	2	0.03	Fragments of teeth from an antler comb	Anglo-Saxon		
1072	0151	Cremation pot	Comb	Antler	1	0.17	prob double sided composite comb, very fine teeth mid 5th-early 6th	Anglo-Saxon	450	550
1073	0112	Cremation pot	uniden tified object		3	0.58	uncertain molten frags	Anglo-Saxon		
1074	0126 ?same as0125		purse	Ivory	9	0.4	elephant ivory purse ring	Anglo-Saxon	5th C	7th C
1075			Coin	Copper alloy	1	2.09	Nummus Magnentuis, rev two victories with shield Reece 18	Roman	351	353
1076			Weight	Lead			biconcical lead weight probable Roman steelyard weight, iron loops now missing	Roman		
1077	0131		Bead?	Glass	1	0.03	probably bead too tiny	Anglo-Saxon		

Appendix 3 Plant Macro Data from Cremation Pots

Urn No.	**0112**	**0112**	**0112**	**0112**	**0112**	**0123**	**0123**	**0123**	**0123**	**0123**	**0140**	**0140**	**0140**	**0140**	**0140**	**0140**	**0140**	**0143**	**0143**	**0143**
Spit No.	**1**	**2**	**3**	**4**	**Loose**	**1**	**2**	**3**	**4**	**Loose**	**1**	**2**	**3**	**4**	**5**	**6**	**Loose**	**1**	**2**	**3**
Cereals and other food plants																				
Cereal indent. (grains)		#																		
Weeds/other un-charred																				
Chenopodium sp.								#	#	#										
Setaria sp.																		#		
Urtica sp.								#												
Other plant macrofossils																				
Charcoal 0-5mm	x	x	x	x	x					x			x	x	x	x	x		x	x
Fibrous roots	xx	xxx	xx	xx	xxx	x	x	x	xx	xx	xxx	xx	xx	x	xx	x	x	xx	x	x
Other remains																				
Insect remains										#										
Calcine Bone	#		#			#	#	x	x	#			x						x	x
Snail shells																				
Volume of flot (ml)	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**10%**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**
Flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
C14 suitable	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Further work	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**

Urn No.	**0143**	**0143**	**0143**	**0144**	**0144**	**0144**	**0144**	**0144**	**0144**	**0151**	**0151**	**0151**	**0151**	**0151**	**0153**	**0153**	**0153**	**0153**	**0153**	**0158**	**0158**	**0158**
Spit No.	**4**	**5**	**Loose**	**1**	**2**	**3**	**4**	**5**	**Loose**	**1**	**2**	**3**	**4**	**Loose**	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**
Cereals and other food plants																						
Cereal indent. (grains)																						
Weeds/other un-charred																						
Chenopodium sp.																						
Setaria sp.			#																			
Urtica sp.																						
Other plant macrofossils																						
Charcoal 0-5mm	x	x	x	x	x	x	x	x		x		x	x	x	xxx	xx	xx	x	x	x	x	x
Fibrous roots	x	x	xx	x	xx	xx	xx	xx	x	xx	xx	xx	xx	xx	x	xx	xxx	xxx	xxx		x	x
Other remains																						
Insect remains																						
Calcine Bone				x			x					x				x	#	x				x
Snail shells						#																
Volume of flot (ml)	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**5**	**<5**	**15**	**5**	**<5**	**10**	**<5**	**10**	**15**	**10**	**10**	**10**	**10**	**<5**	**<5**	**5**
Flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
C14 suitable	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Further work	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**

Urn No.	**0158**	**0158**	**0159**	**0159**	**0159**	**0159**	**0159**	**0159**	**0160**	**0160**	**0160**	**0160**	**0160**	**0160**	**0163**	**0163**	**0163**	**0163**	**0163**	**0164**	**0164**	**0164**	**0164**
Spit No.	**4**	**Loose**	**1**	**2**	**3**	**4**	**5**	**Loose**	**1**	**2**	**3**	**4**	**5**	**Loose**	**1**	**2**	**3**	**4**	**Loose**	**1**	**2**	**3**	**Loose**
Cereals and other food plants																							
Cereal indent. (grains)																							
Weeds/other un-charred																							
Chenopodium sp.		#			#																		
Setaria sp.																							
Urtica sp.					#			x															
Other plant macrofossils																							
Charcoal 0-5mm	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Fibrous roots	x	xx	xx	xx	x	x	x	xx	x	x	x			x	x	xx	xx	xx	xx	xx	xx	xx	xx
Other remains																							
Insect remains																							
Calcine Bone	x	x	x		x	x	x	x		x		x		x	x	x	x	xx			x		
Snail shells																							
Volume of flot (ml)	**<5**	**10**	**<5**	**<5**	**5**	**<5**	**<5**	**5**	**<5**	**<5**	**<5**	**<5**	**<5**	**5**	**5**	**10**	**10**	**20**	**5**	**5**	**5**	**5**	**10**
Flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
C14 suitable	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Further work	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**

CONSERVATION & DESIGN SERVICES

Client – SCCAA **Dated – 13/05/2019**

Estimate for – Conservation assessment for Lackford Cemetery LKD 001 small finds Δ **Project number – I2019.16.1**

Conservators - Debbie Harris ACR &

Jonathan Clark ACR

Request

To assess finds and cremations recovered from rescue excavated from the Anglo-Saxon cemetery at Lackford, Suffolk which were damaged during farming by mistake (SCCAS project, funded by Historic England).

The aim of this conservation assessment is to provide the following information.

- A summary of the type, quantity and condition of the finds recovered
- A statement of their potential to address the aims and objectives of the project and, the investigative conservation methodology to achieve this (including costs)
- The work required (including costs) to make the assemblage suitable for deposition

“The project aims to improve knowledge and understanding of the early Anglo-Saxon cemetery at Lackford (and to minimise future destruction of the site):

- To provide an accessible account of the recent finds from the Lackford cemetery, in the context of earlier discoveries, and produce a stable, ordered, accessible physical and digital archive.” (Minter, 2018).
-

Material

Copper alloy	19	Iron	6	Glass	33
Lead	1	Antler/bone	10	Ivory	8
Pottery	6564 sherds				

Norfolk Museums Service

Description and condition

The assemblage has already been deposited into the SCC collection. The material was viewed by two accredited archaeological conservators on 9.5.2019. The small find material was received adequately packed and labelled according to the Suffolk County Council deposition guidelines (Kennard & Minter, 2019).

The small finds were split between two boxes, organic and inorganic and were contained in polypropylene (PP) boxes. The copper alloy and ironwork box containing adequate silica gel to prevent post excavation corrosion. The small finds were individually packed with in small polyethylene (PE) aerated grip-lock bags with closed cell polyethylene foam as a means of support and to prevent abrasion.

The ironwork, copper alloy and bone comb fragments have been x-radiographed, please refer to NX7270 and NX7271.

The pottery sherds were sorted and packed as per individual vessel, in grip-lock bags stored in labelled archival boxes. Each sherd has been individually marked as per deposition guidelines.

Copper alloy (19) The copper alloy is reasonably preserved but mainly fragmentary. The dark green patina is smooth with no visible signs of post excavation corrosion. SF 1022 Δ reveals it is possible that a dissimilar metal is present.

Iron (6) The radiographs demonstrate that there is no metal core remains, the objects exist as a corrosion product. No post excavation corrosion is present.

Lead (1) The lead weight SF 1076 Δ appears is a relatively stable condition. It has a discoloured protective surface formed during burial, however some areas are abraded.

Glass (33) The glass beads are distorted as a result of the cremation process. The glass appears dull with no deterioration or lamination present.

Antler/bone (10) The skeletal material present as bone/antler finds are very fragmentary, but stable.

Ivory (8) The ivory is grey in colour and very fragmentary as a result of the cremation process. Purse ring fragments are detectable. The material is stable.

Cremation urns

A broad sample of sherds were assessed. The pottery is in a robust condition but being earthenware, it is vulnerable to abrasion and breakage. A few sherds were found to be delaminating, which is typical of this sort of material as it dries out. All the pottery, except context 0144, has been washed.

13 vessels, (contexts 0112, 0123, 0133, 0138, 0141, 0142, 0143, 0144, 0146, 0152, 0158 - 0160, 0161, 0163) are reasonable candidates for reconstruction or partial reconstruction as they were found 'semi-complete'. These vessels were found with the top portion damaged or lost due to ground disturbance. Reconstruction would only be necessary if required for an accurate profile to be obtained or if the material is destined for display as a facet of the project.

Context 0144 is the most complete vessel. This vessel retains a complete base and sides. The upper portion exists as separately bagged sherds. The vessel has not been washed and the internal surface retains residue of soil, vegetable matter and cremated remains. The vessel is in a vulnerable condition with significant cracks running throughout and delamination of the friable broken edges. It has been packed in a polypropylene box, cushioned with bubble wrap. Due to the fragility of the vessel it would not be possible to access/handle as it is likely to collapse. To fulfil the project aims, to make the material accessible for researchers, illustration etc, it is recommended that the vessel undergoes conservation.

As context 0144 has not been subject to post excavation cleaning, internal handling and was packed in a sealed container, it may represent the best opportunity for further investigation such as organic residue analysis (Historic England, 2017).

Methodology and Treatment proposal

Copper alloy- No further work required.

Iron- No further work required.

Lead- No further work required.

Glass- No further work required.

Antler/bone- No further work required.

Ivory- No further work required.

Pottery – Recommendations; interleave bagged pottery with sheets of closed cell polyethylene foam (Jiffy foam) to limit risk of abrasion and breakage. Several vessels present opportunities for reconstruction, should the aims of the project require this. Context 0144 requires conservation, including consolidation, structural gap fills and possible reconstruction to fulfil the aims of the project.

Cost to conserve and reconstruct vessels (from the 13 identified best candidates) **£700 + VAT per vessel**

Cost to conserve context 0144

£600 + VAT

Detailed estimates, including treatment proposals, for the conservation of context 0144 and the 13 identified best candidates for reconstruction can be provided on request.

References

Kennard, J. & Minter, F. (2019). Guidelines for preparation & deposition. Suffolk County Council Archaeological Archive

Minter, F. et al (2018). Assessment report on excavations of the early Anglo Saxon cremation cemetery 2015-2016 and Updated Project Design

Historic England (2017). Organic Residue Analysis and Archaeology, Guidance for Good Practice

Services are offered by Conservation & Design Services are part of Norfolk County Council's Norfolk Museums Service: Shirehall, Market Avenue, Norwich, NR1 3JQ, 01603 223387