EAST ANGLIAN ARCHAEOLOGY

Frontispiece: a reconstruction of the cremation 8 funeral pyre, by Kate Morton

The pyre was built predominantly of local oak and birch wood, and had four post uprights. The structure might have been prepared with fabrics and even cushions, and the body placed on a bier or similar. The dead person was probably female, and most likely dressed in a peplos costume with shoulder brooches and a festoon of beads (that included rare amethysts). She might also have worn a cloak fastened by a single large brooch, befitting her high status. Other remains suggest possibly a bucket and at least one bronze bowl, vessels which could have contained drink and food. There were multiple animal offerings, some probably sacrificed at the pyre side. The meat from the stock animals might have been used for a funeral feast, the slaughter debris being heaped onto the pyre, but the horse and dog were probably killed as 'companions' for the afterlife. Afterwards the cremated remains were collected in a hanging bowl and pot, and buried in a pit dug through the cremation site.

For Charlotte and Rose, daughters born during the odyssey of Tranmer House

Before Sutton Hoo: the Prehistoric Remains and Early Anglo-Saxon Cemetery at Tranmer House, Bromeswell, Suffolk

by Christopher J.R. Fern

with contributions by
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Shield board mount from Grave 21. *Copyright Trustees of the British Museum. All rights reserved*

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List of Abbreviations

AMS	accelerator mass spectrometry
cal	calibrated (radiocarbon date)
Crem.	cremation
D.	depth
Diam.	diameter
EDX	energy-dispersive X-ray spectrometry
EH	English Heritage
FAS	Field Archaeology Specialists
ha	hectare(s)
HER	Historic Environment Record
HE	*Historia Ecclesiastica* (Bede)
Ht	height
Inhum.	inhumation
L.	length
OD	Ordnance Datum
OE	Old English
OP	observable phenomena
P-h	post-hole
PSIAH	Proceedings of the Suffolk Institute of Archaeology and History
SCCAS	Suffolk County Council Archaeological Service
Sect.	section
SEM	scanning electron microscopy
sf	small find
[square brackets]	cut number
R-d	ring-ditch
(round brackets)	fill/deposit number
Th.	thickness
W.	width
XRF	X-ray **fluorescence** spectrometry

Summary

In 2000, a second Anglo-Saxon cemetery was found at Sutton Hoo in Suffolk, 500m north of the famous East Anglian 'burial-ground of kings' (Carver 1998; 2005). The discovery was made during excavations ahead of the development of the National Trust visitor centre, on the site of the Edwardian Tranmer House complex (originally Sutton Hoo House). Research presented here shows the new burial-ground was not another of elite status, but was in use earlier as a 'folk' cemetery with both the rites of cremation and inhumation practiced. Nevertheless, the findings suggest a relatively wealthy local population in the period just prior to the founding of the mound cemetery at Sutton Hoo. Evidence for prehistoric occupation was also found. Most significant were the remains of a small Bronze Age barrow and an enclosure system. The enclosure is relatable to the known Iron Age occupation recorded to the south at the mound cemetery (Hummler 2005, 391–458). The prehistoric earthworks very probably survived to the time of the Anglo-Saxon cemetery, and appear to have influenced its location and layout.

Just over thirty early Anglo-Saxon graves were recorded, with few juveniles and infants, and an unequal proportion of males and females. This most likely represents only a small sample from a larger cemetery, with finds to the north-west suggesting the continuation of burials. Grave-goods from the inhumation burials and a programme of radiocarbon dating for the cremation burials indicate that the majority date to the second half of the 6th century. For the inhumation rite, thirteen weapon-burials were recorded (probably all male graves), including two or three with swords, and one with an animal-art ornamented shield (see *Endpiece*). By comparison, just four inhumation burials contained individuals in female costume. Skeletal remains survived very poorly in these graves. The calcined bone from the cremations was better preserved with analysis suggesting, potentially, a female majority. Certain aspects of the cremation rite show parallels with the cremations of elite Sutton Hoo (see *Frontispiece*), including conspicuous animal offerings, one case of a cremation in a bronze bowl, and the employment of burial monuments (albeit on a smaller scale). This relationship is strengthened, moreover, by the scientific dating that shows these customs ended at Tranmer House at the close of the 6th century, just as the earliest cremations began at Sutton Hoo mound cemetery. Ultimately, this raises the possibility of a real connection between the buried populations of the two cemeteries. Thus, the findings present a key new episode for our understanding of the origins of Sutton Hoo, its dynasty and the kingdom of East Anglia.

Résumé

En 2000, un deuxième cimetière de la première période anglo-saxonne a été découvert à Sutton Hoo dans le Suffolk, à 500 m au nord de la célèbre « sépulture des rois » de l'East Anglian (Carver 1998; 2005). Cette découverte a été faite pendant les fouilles antérieures à la construction du centre d'accueil des visiteurs du National Trust, sur le site du complexe édouardien de Tranmer House qui, à l'origine s'appelait Sutton Hoo House. Toutefois, ce nouveau cimetière n'était pas un lieu réservé à l'élite. Dans un premier temps, il était en effet destiné au

« peuple ». On y pratiquait à la fois des rites de crémation et d'inhumation. Les découvertes effectuées suggèrent la présence d'une riche population locale au cours de la période qui a juste précédé l'établissement du tertre funéraire à Sutton Hoo. Des preuves d'une occupation préhistorique ont également été trouvées. Les vestiges d'un petit tumulus de l'âge du bronze et d'un système d'enceintes constituent les découvertes les plus remarquables. L'enceinte peut être rattachée à l'occupation connue de l'âge du fer qui a été mise à jour au sud du tertre funéraire (Hummler 2005, 391–458). Les ouvrages de terre préhistoriques ont très probablement survécu à l'époque du cimetière anglo-saxon et ils semblent avoir exercé une influence sur son emplacement et sa disposition.

On a dénombré un peu plus de trente tombes de la première période anglo-saxonne, avec quelques enfants en bas âge et quelques jeunes gens, la proportion entre les sexes étant inégale. Il ne s'agit très probablement que d'une petite partie d'un cimetière plus grand car des découvertes effectuées au nord-ouest suggèrent l'existence d'autres tombes. Des objets funéraires provenant des tombes d'inhumation et un programme de datation au radiocarbone s'appliquant aux tombes à crémation ont permis de conclure que la majorité d'entre elles date de la seconde moitié du 6ème siècle. En ce qui concerne le rite d'inhumation, on dénombre treize tombes avec armes (probablement uniquement des hommes). Deux ou trois d'entre elles contenaient des épées et une autre renfermait un bouclier orné d'un animal représenté avec art (voir la *fin du volume*). Par comparaison, on n'a trouvé que quatre tombes d'inhumation individuelles contenant des tenues féminines. Les restes de squelette contenus dans ces tombes ont très mal survécu. Les ossements calcinés provenant des crémations étaient mieux préservés et les analyse pratiquées suggèrent la présence possible d'une majorité de femmes. Certains aspects du rite de crémation permettent d'établir des parallèles avec les crémations de Sutton Hoo (voir le *frontispice*). On trouve ainsi d'impressionnantes offrandes d'animaux, un cas de crémation dans un bol en bronze et l'utilisation de monuments funéraires (toutefois à une plus petite échelle). Ce lien est également renforcé par la datation scientifique qui montre que ces pratiques se sont terminées à Tranmer House à la fin du 6ème siècle, juste au moment où les toutes premières crémations ont débuté à Sutton Hoo. En fin de compte, on peut émettre l'hypothèse d'une véritable relation entre les populations inhumées dans les deux cimetières. Ainsi, les découvertes effectuées constituent une étape importante qui nous permet de mieux comprendre les origines et la dynastie de Sutton Hoo ainsi que le royaume de l'East Anglia.

(Traduction: Didier Don)

Zusammenfassung

Im Jahr 2000 wurde ein zweites frühangelsächsisches Gräberfeld bei Sutton Hoo in Suffolk, entdeckt, etwa 500 Meter nördlich des berühmten »Königgrabs« von East Anglia (Carver 1998; 2005). Es wurde bei Ausgrabungen im Vorfeld der Errichtung eines National-Trust-Besucherzentrums auf dem Gelände der edwardianischen Anlage von Tranmer House (vormals Sutton Hoo House) ausgemacht. Allerdings war das neu entdeckte, ältere Gräberfeld nicht hochgestellten Persönlichkeiten vorbehalten, sondern diente als Begräbnisstätte für die Anwohner, die sowohl Brand- als auch Erdbestattungen vornahmen. Die Funde lassen auf betuchte Anwohner in der Zeit unmittelbar vor Errichtung des Grabhügels von Sutton Hoo schließen. Darüber hinaus fanden sich Belege für eine prähistorische Besiedlung – die wichtigsten waren Reste eines kleinen Grabhügels und einer Befestigung aus der Bronzezeit. Die Befestigung kann der weiter südlich unweit des Hügelgrabs dokumentierten eisenzeitlichen Siedlung (Hummler 2005, 391–458) zugeordnet werden. Das prähistorische Erdwerk bestand sehr wahrscheinlich noch zur Zeit des angelsächsischen Gräberfelds und scheint sich auf dessen Lage und Gestalt ausgewirkt zu haben.

Es wurden gut dreißig frühangelsächsische Gräber ausgemacht, in denen nur wenige Kinder und Jugendliche sowie eine ungleiche Zahl von Männern und Frauen begraben waren. Höchstwahrscheinlich handelt es sich nur um einen kleinen Teil eines größeren Gräberfelds, da Funde in nordwestlicher Richtung auf weitere Grabstätten hindeuten. Die in den Körpergräbern gefundenen Beigaben lassen ebenso wie mehrere Radiokarbondatierungen zu den Brandgräbern darauf schließen, dass die meisten Gräber aus der zweiten Hälfte des 6. Jahrhunderts stammen. Im Bereich der Erdbestattungen wurden dreizehn Waffengräber verzeichnet (vermutlich allesamt Männergräber); zwei oder drei davon enthielten Schwerter und eins einen mit Tierfiguren verzierten Schild (siehe hintere *Einbandinnenseite*). Demgegenüber wurden nur in vier dieser Gräber Frauenkleider gefunden. Während sich in den Körpergräbern fast keinerlei Skelettreste fanden, waren die kalzinierten Knochen in den Brandgräbern in einem besseren Erhaltungszustand. Ihre Analyse zeigt einen potenziell höheren Frauenanteil. Bestimmte Elemente der Brandbestattungen weisen Parallelen zu den Brandgräbern von Sutton Hoo auf (siehe vordere *Einbandinnenseite*), etwa die auffälligen Tierbeigaben, der Fund eines Leichenbrands in einer Bronzeschale und die Verwendung von Grabmalen (wenn auch in geringerem Ausmaß). Diese Verbindung wird auch durch die wissenschaftliche Datierung untermauert, die belegt, dass die bei Tranmer House vorgefundenen Gepflogenheiten mit dem Ausgang des 6. Jahrhunderts endeten, gerade als die ersten Brandbestattungen von Sutton Hoo begannen. Dies führt letztlich zu der Annahme, dass tatsächlich ein Zusammenhang zwischen den Bestatteten in beiden Gräberfeldern besteht. Die Befunde sind somit ein wichtiges neues Kapitel für unser Verständnis der Ursprünge von Sutton Hoo, seiner Dynastie und des Königreichs East Anglia.

(Übersetzung: Gerlinde Krug)

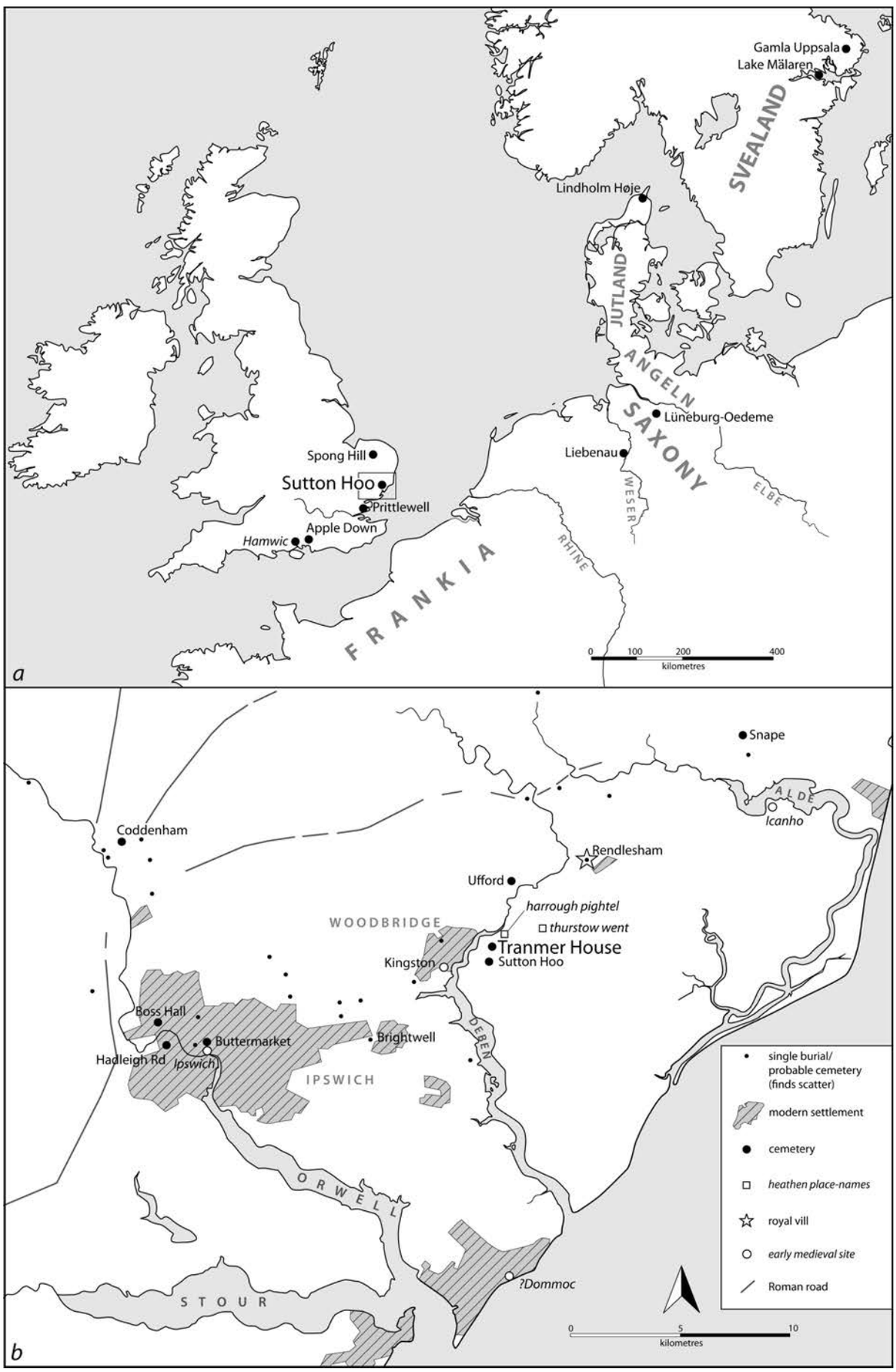


Figure 1.1 The location of Sutton Hoo and Tranmer House:
a) in early-medieval northern Europe; b) in south-east Suffolk. By CF

Chapter 1. Introduction and Background

I. Introduction

In the late spring of 2000, a second Anglo-Saxon cemetery was discovered at Sutton Hoo, a short distance north of the famous mound cemetery, beneath the rose garden of the Tranmer House estate. Excited speculation ensued, with one popular magazine proclaiming the unearthing of the 'parents and grandparents of the East Anglian kings' (Anon. 2000; see also Ashbee 2000; Hills 2000). For Sutton Hoo is one of England's greatest archaeological finds, celebrated above all for its magnificent ship-burial in mound 1, that was possibly the tomb of King Rædwald (Bruce-Mitford 1975; 1978; 1983; Evans 1994; Carver 1998; 2005). However, the cemetery is not another of 'royal' status. The research presented in this volume indicates instead the graves of a prosperous local 'folk', with dating showing use of the burial-ground prior to the elite mound cemetery.

Prehistoric activity was recorded also, including the remains of a small Bronze Age barrow, and a field-system probably of Iron Age date. These findings demonstrate the continued attraction through time of the promontory ground overlooking the River Deben.

II. Project overview

The archaeological excavation at Tranmer House in 2000 (HER: BML018), and the evaluation that preceded it in 1997, took place ahead of the development of a visitor centre for Sutton Hoo by the National Trust. Both interventions were undertaken by Suffolk County Council Archaeology Service (SCCAS). Funding was provided by the developer, as then directed by Planning Policy Guidance note 16 (PPG16). After the excavation, the British Museum undertook the conservation (with analytical investigation) of the cemetery finds *pro bono* in exchange for the collection (Bullock 2004; Turner 2006; Wainwright 2006; Webster 2006a–b). The site is referred to throughout this publication as 'Tranmer House'.

Initial assessment of the pottery, bone and environmental samples was completed by summer 2001 (Anderson 2000; Fryer 2001; McKinley 2001), however, after this time the project slowed, due in part to the departure of several key SCCAS staff members. The finds assessment of the Anglo-Saxon grave-goods was completed in 2006 (Evans 2007), following which the author was appointed to progress the project to full analysis and publication (Fern 2007a). The end product is the work of numerous individuals, starting from the records of the SCCAS excavators, to the post-excavation conservation and analysis undertaken by multiple specialists (see *List of Contributors* and *Acknowledgements*). In addition, the Sutton Hoo Society paid for a programme of radiocarbon dating to help establish the chronology of the Anglo-Saxon cemetery.

III. Location

The site is located approximately 500m north of the Sutton Hoo mound cemetery (HER: SUT004), in Suffolk, at grid reference TM 2900 4935 (Figs 1.1–1.2). This is just inside the limits of Bromeswell parish. The Anglo-Saxon cemeteries at Sutton Hoo and Tranmer House occupied separate spur promontories, east of the River Deben, both at around 33m Ordnance Datum (OD). Much later, in the Edwardian period, Sutton Hoo House (later renamed for the Tranmer family) was built on the spur that lies between them. The burial sites would have been to an extent intervisible across the flattish terrain, though vegetation and buildings largely obscure this relationship today, with a clear line-of-sight only from the top of the reconstructed mound 2 (Pl. I). Opposite them, on the other side of the river, is the town of Woodbridge.

Bromeswell parish is within the 'Sandlings' coastal strip of south-east Suffolk, a region characterised by fluvioglacial light sand and gravel (Williamson 2008, 29–33). The river valleys were favoured for settlement in the early Anglo-Saxon period, though the ground of the higher terrain is acidic and infertile (Newman 1992, 31–4). Hence, except for sporadic clearances, heathland vegetation would have dominated at Sutton Hoo and Tranmer House for much of the past, accompanied mainly by sheep grazing (Williamson 2008, 53–9).

Appropriately, therefore, the late Anglo-Saxon manor place-name of *Brumesuelle* (Bromeswell) records the prevailing broom (OE *brōm*) vegetation of the estate (Clark Hall 1960, 58). The locality's main economic focus might then have been the manor to the south, *Suttuna* (Sutton), the 'south farm', which was perhaps part of a larger estate focused on Rendlesham to the north-east (Skeat 1913, 107, 112–13; Warner 1985). The Woodbridge place-name is of considerable interest too. Recorded as *Udebrygge* and *Wudebrgge* in the 11th century, it is possible the wood- prefix derives from the god 'Woden', as has been suggested for other sites (Davidson and Webster 1967, 6–8). But no evidence has been found for a bridge across the river in this or earlier periods. Possibly 'brygge' (OE *brycg*) had a broader range of meaning in the past (Skeat 1913, 11), as it still does in modern Norwegian, where it translates as wharf or jetty (Anon. 1988). In which case, an alternative interpretation of the place-name could be 'Woden's ferry' (see also *Chap. 9; Sect. III*).

The Deben is one of three Suffolk waterways with the Orwell and Stour that are of undoubted significance to the political and economic development of south-east England in the period (Fig. 1.1b). The communities alongside these river routes were well placed for access to the Thames estuary, and beyond to the powerful kingdom of Kent and Frankish Europe (Fig. 1.1a; Bruce-Mitford 1975, 1). An important early trade centre is known to have existed at Ipswich (*Gipeswic*) from the 7th century, at the head of the Orwell, 8 miles (13 kilometres) west of Tranmer House/Sutton Hoo (Scull 2009, 313–16).

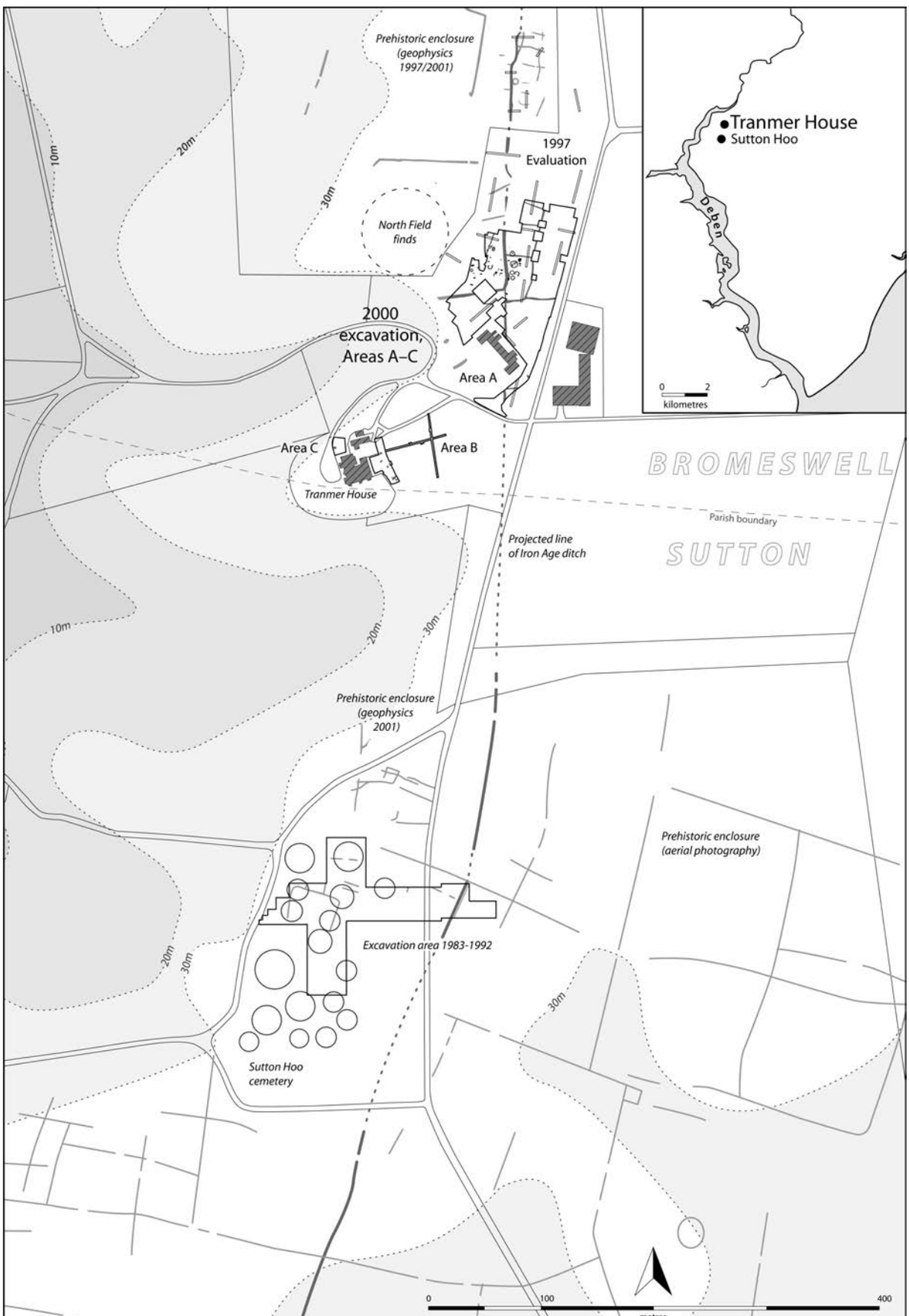


Figure 1.2 The Tranmer House excavations in context (scales 1/5000, 1/125000). By CF.
Based on Ordnance Survey mapping data. © Crown Copyright. All rights reserved. Suffolk County Council Licence No. 100023395 2013

Plate I View of Tranmer House and its Coach House, looking north from the top of the reconstructed mound 2 at Sutton Hoo. The excavated Anglo-Saxon graves were just beyond the Coach House. By CF

IV. Discoveries, 1984–1987

Attention was first drawn to the area north of Sutton Hoo in 1984 when fieldwalking discovered Anglo-Saxon pottery in the enclosure known as North Field (Fig. 1.2; HER: BML009/10; Newman 1992; 2005, 483–86). Two years afterwards, a rare Mediterranean brass pail of the 6th century, the so-called 'Bromeswell bucket', was found in the same field along with a gold coin-pendant and fragments of Anglo-Saxon artefacts (Mundell Mango *et al*. 1989). As the site is directly adjacent to Tranmer House and is of undoubted relevance to the 1997/2000 discoveries, the finds from it are catalogued and discussed in *Chapter 6*.

V. Fieldwork methodology

For the evaluation and excavation, 360-degree machine-excavators were used to strip the topsoil to the level of the surviving archaeology. In 2000, these were operated by SCCAS personnel. All archaeological features were then hand-cleaned, sampled and recorded, with all graves completely excavated. A metal-detector was used to aid the recovery of small finds.

The standard SCCAS system for recording archaeological 'Observable Phenomena' (OP) was used. Unique and continuous OP numbers were allocated to the 'cut' and 'fill(s)' of each discrete feature, as well as to other phenomena: layers, burial urns, human remains and body/coffin stains. In all, over 1000 OP contexts were recorded: 1997 evaluation, nos 1–45; 2000 excavation nos 100–1077. In this report, 'cut' numbers are referenced in *[square brackets]*, and *(round brackets)* denote a fill/layer/find. The original OP numbers have been retained for all non-funerary features. However, graves have been renumbered for ease of reference in the publication (cremations 1–13 and 33; inhumations 14–32), though the original OP information is also provided to enable cross-referencing with the archive.

Sherds of pottery and worked flint were usually assigned on site to the OP context in which they were found (e.g. fill/layer). Whole vessels (and sometimes sherds/finds deemed significant) were given a separate OP number. Glass and metal small finds were recorded with a different numbering system, prefixed 'sf', though a small number identified later during post-excavation were instead recorded by their OP context. Larger and more fragile finds, chiefly the swords and hanging bowl, were block-lifted for laboratory excavation at the British Museum.

All archaeological features were planned on *permatrace* at 1/50 scale, with sections drawn at 1/20, in addition to which, all the inhumation burials and one cremation (grave 8) were recorded at 1/10 scale. Features were further recorded with colour-slide photography (see Pl. II–V). Where possible, graves were excavated and documented within a day, to limit any effects from weathering.

VI. Evaluation 1997–1999

The 99.5ha Sutton Hoo estate was left to the National Trust in 1997 by The Annie Tranmer Trust. A Heritage Lottery Fund bid and planning application were quickly submitted, for a permanent visitor centre with car park based on the existing Tranmer House complex. In response, the Conservation Team at SCCAS, advising the local authority, requested a comprehensive evaluation of the site at the pre-determination planning stage, to comprise non-invasive investigation followed by trial-trench excavation (Fig. 1.3).

On behalf of SCCAS, Field Archaeology Specialists Ltd. (FAS) carried out a series of topographic, magnetometry and soil-resistance surveys in January 1997 (Copp *et al*. 1997). The geophysics was initially

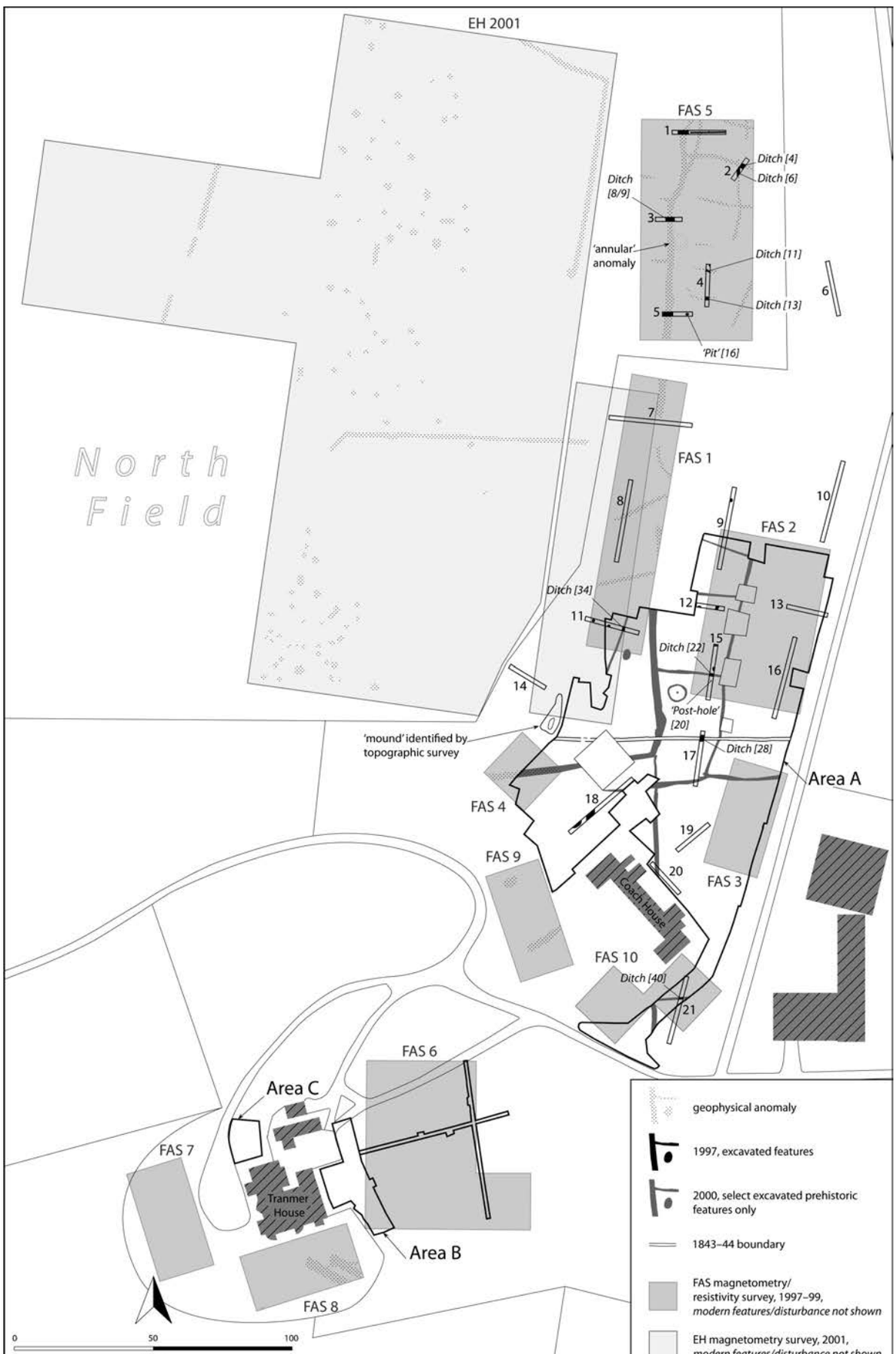


Figure 1.3 Surveys and excavations at Tranmer House, 1997–2001. Trenches 1–21 relate to the 1997 evaluation; Areas A–C relate to the 2000 excavation (scale 1/2000). By CF. Based on Ordnance Survey mapping data. © Crown Copyright. All rights reserved. Suffolk County Council Licence No. 100023395 2013

A3 FOLDOUT

Figure 1.4 Features in Areas A–C (scales 1/500). For location of areas see Fig. 1.3. By CF

Phase	*Period*	*Feature type*	*97 Eval.*	*2000: Area A*	*2000: Area B*	*2000: Area C*	*TOTAL*
1	Early Neolithic	pit		*[821]*	*[1042]*		**2**
		small pit/post-hole			*[1036]*		**1**
2	Late Neolithic/Early Bronze Age	ditch	*[34]*	*[34/508]*			**1**
		pit		*[551], [693]*	*[874], [870]*	*[1028]*	**5**
		small pit/post-hole		*[618], [679]*			**2**
3	Bronze Age	cremation		grave 33			**1**
		ring-ditch		*[351]*			**1**
		small pit/post-hole		*?[946]*	*[1044]*		**1 (?2)**
4i	Iron Age	ditch	*[8/9]*	*[513], [715/776], [767/1008], [778], [784], [787], [790], [1020]*			**9**
		small pit/post-hole		*[792]*	*[1040]*		**2**
4ii	Iron Age (or later)	ditches	*[4],[6],[11], [13],[22],[40],*	*[101], [335], [22/494], [595], [669], [40/780], [1010]*			**11**
		pit	?*[16]*				**(?1)**
4iii	Roman/Early Anglo-Saxon	hearth		*[550]*			**1**
		pit			*[1066]*		**1**
Possible prehistoric features (see *Chap. 2*)		pit/post-hole		*[601], [624], [1023]*	*[797], [851], [881]*		**6**
		spread			*(891–93)*		**1**
5	Early Anglo-Saxon	cremation		graves 1–13 (incl. 'cremation' 12)			**12 (?13)**
		inhumation		graves 14–32, ?*[949]*			**19 (?20)**
		ring-ditch		*[342], [344], [404], [425], [437], [597], [606], [665], [698], [932]*			**10**
		pit		?*[476]*			**(?1)**
		small pit/post-hole	*[20]*	*[469], [488], [500], [505], [557], [583],*			**7**

Table 1.1 Summary of features of Phases 1–5 (1997 evaluation and 2000 excavation)

undertaken across five areas (Fig. 1.3: FAS 1–5), totalling 0.88ha. However, the results were mainly disappointing, due to interference from modern above- and below-ground features (especially in areas FAS 2 and 3). Only area FAS 5, on the set-aside terrain of North Field, produced notable results in the form of a suspected prehistoric field-system. The topographic survey identified a low, elongated earthwork (HER: BML015, site 16351), though this later proved non-archaeological (Newman pers. comm.). In February 1999, five additional areas (FAS 6–10) were surveyed with geophysics around the Edwardian house and south of the Coach House, an additional 0.6ha (Simpson 1999). A few possible pits and ditches were suggested in areas FAS 8 and 9 (areas not subsequently excavated).

A desktop assessment produced by SCCAS immediately after the first surveys anticipated the prehistoric archaeology later found, and identified the pattern of post-medieval enclosure, including a late 19th-century sheepfold at the site (Fig. 1.7), but at the time considered early-medieval remains unlikely (Abbott and Breen 1997). This was supplemented later, in March 1999, by a monument survey of the estate, undertaken by The Royal Commission on Historical Monuments (Pattison 2000).

Twenty-one trial trenches were excavated by SCCAS in February 1997 across the proposed development area (Fig. 1.3; Abbott 1997, 8). These totalled *c*. 640m², amounting to a 3% sample. In them, natural sand and gravel was recorded at 0.50m depth, beneath the topsoil and a buried relic soil. The trenching did not encounter the anticipated sheepfold, but confirmed the prehistoric landscape (see *Chap. 2*). Just two sherds of possible Anglo-Saxon pottery were found, one in post-hole *[20]*, Trench 15 (Fig. 1.3; Abbott 1997, app. IV). The evaluation trenches that were within the later excavation area unfortunately skirted the Anglo-Saxon archaeology. Likewise, Trench 14 was devoid of evidence, even though it is likely the discovered cemetery extends into its locale. However, in a number of cases linear features were recorded that corresponded with the 2000 findings.

Based on the full results of the evaluation, the methodology of a controlled topsoil strip was proposed with investigation of all potential archaeology, in advance of the development (Newman 2000). The Field Projects Team at SCCAS was awarded the contract. The Project Officer for the 2000 excavation was Chris Topham-Smith, with John Newman the Field Team Manager and Sue Anderson in charge of finds. The curatorial advisor for Suffolk County Council was Bob Carr, with Angus Wainwright the Regional Archaeologist for the National Trust.

VII. Excavation, 2000

The following narrative draws on the published and unpublished accounts of the supervising Project Officer, which were written shortly after the completion of the main excavation (Topham-Smith 2000). Three separate areas were excavated, referred to in this publication as Areas A to C (Fig. 1.3). A plan of the archaeological features is shown in Figure 1.4. In addition, the principal archaeology of Area A is presented relative to the current visitor centre buildings in Figure 1.5.

Excavation began in April 2000 north of the Coach House (Area A). The discoveries of the first six weeks mainly comprised modern and late post-medieval pits, tree-throws and garden features, though some of these contained residual prehistoric pottery and worked flint. A zig-zag slit trench *[109]* lined with chicken-wire and containing an empty bullet casing was recorded in the north-east of the site, a remnant of war-time training at the site. In addition, sheep-burials and a dog-burial in the east of Area A (features *[133]*, *[141]*, *[173], [202]* and *[291]*) were all the evidence found for the 19th-century sheepfold shown on historic maps (Fig. 1.7).

Initial machining across the site left a buried subsoil in place (as was encountered in the evaluation). It yielded prehistoric finds, context *(100)*, and more recent features were cut into it, but older archaeological remains could not be accurately identified in the bioturbated soil and so it was removed. Below it, the natural sand stood at 31.72–33.06m OD, overall a depth of 0.60–0.70m from the ground surface. Due to concerns expressed at the time over this depth of soil removal, English Heritage's Regional Science Advisor was invited to produce an independent survey. It was concluded, the methodology was 'entirely justified in terms of feature detection'. The following stratigraphic sequence was recorded (Murphy 2000):

0–0.23m Ap [topsoil]. Greyish-brown slightly silty sand; structureless; slightly stony, with rounded to sub-angular flints and some cinder fragments; very abundant fine fibrous roots; moderately sharp boundary.

0.23–0.70m Red-brown sand; slightly firm with some induration; slightly stony, with rounded to sub-angular flints; some fine fibrous roots; well-defined animal burrows (probably rabbit); grey-brown sand-infilled root channels; (horizontal exposures of this surface in vicinity showed plough-marks); merging boundary.

0.70m+ Yellow-brown sand [natural]; slightly stony, with rounded to sub-angular flints.

On 12 May, the first Anglo-Saxon remains were unexpectedly encountered. The Project Officer wrote shortly after the excavation that, although indistinct, the features appeared cut from slightly above the interface of the natural sand and buried soil (Topham-Smith 2000, 1). This stratigraphic relationship was confirmed in only one case, however (see *Chap. 3; Sect. II; Ring-ditch [698]*; soil *(739)*). The shallower cremation burials had been most affected by past site processes, such as ploughing, as well as by pervasive tree and plant-root action.

Further to the main Area A excavation, two smaller areas were opened immediately east and north-west of Tranmer House (Areas B–C): prehistoric features were found, but no more Anglo-Saxon graves or other remains. Buried-soil horizons were again recorded, layers *(917)* and *(918)*, associated with prehistoric pottery and worked flint (see *Chap. 2*). Excavation in Areas A–C was completed by July.

Monitoring during the construction phase took place in the second half of the year. Shallow ground-works (0.05m depth) for a new footpath to the Scheduled Ancient Monument of Sutton Hoo were overseen without discovery. A pipeline was also observed, from the north-west limit of Area A to the River Deben. Where it passed Little Haugh House, a large collection of Late Medieval and Transitional Ware pottery was found, including wasters, indicating a production site (Anderson

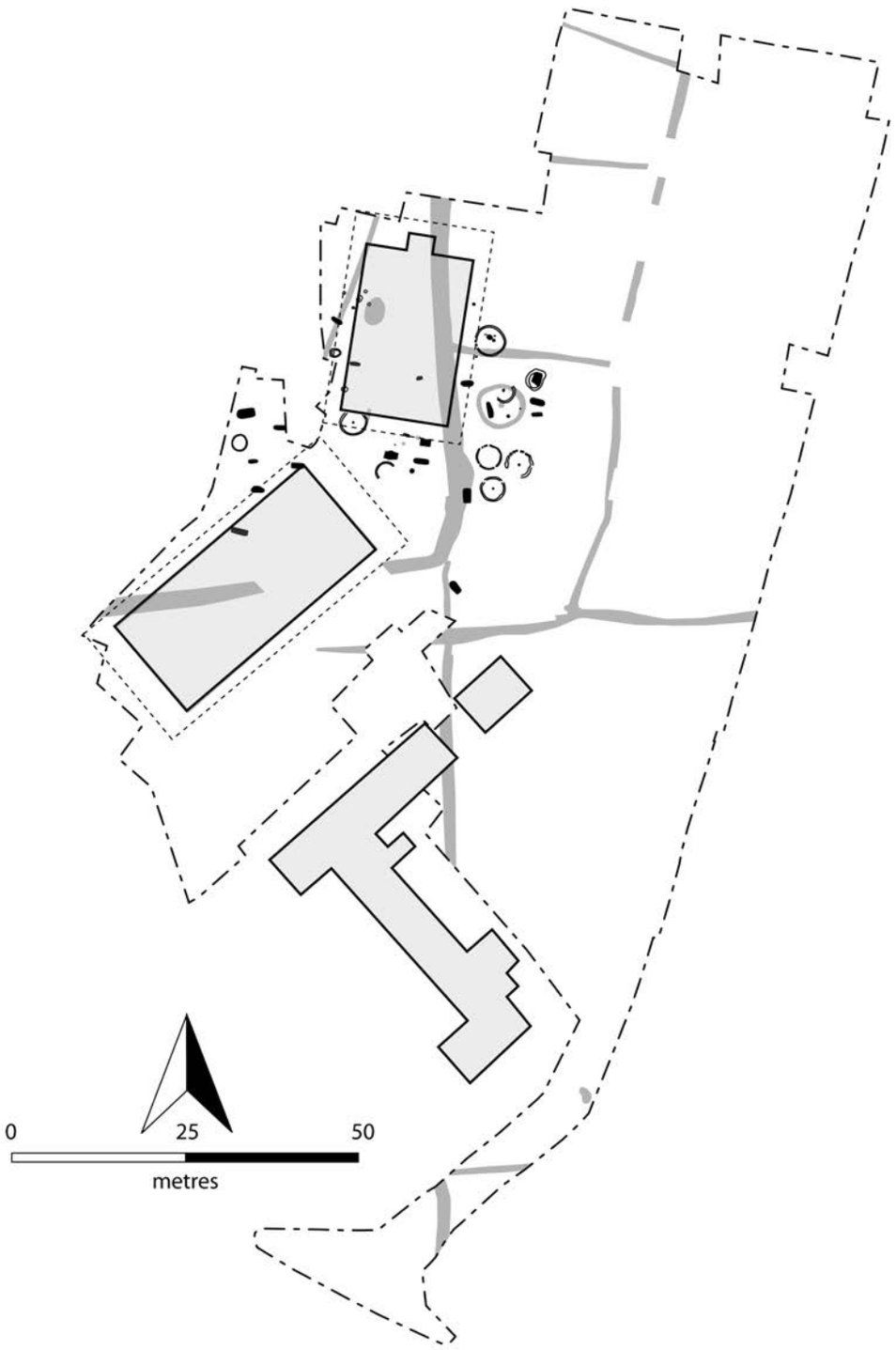


Figure 1.5 Area A and its principal features in relation to the National Trust visitor centre (scale 1/2000). By CF. Based on Ordnance Survey mapping data. © Crown Copyright. All rights reserved. Suffolk County Council Licence No. 100023395 2013

2001; HER: SUT036). Later, in 2001, an Anglo-Saxon sword fragment was recovered by workmen following the removal of a building that had remained within the Area A footprint (see *Chap. 3; Sect. IV*).

VIII. Surveys, 2000–2001

In the summer of 2000, the National Trust commissioned SCCAS to undertake a new metal-detector survey in the North Field enclosure (see *Chap. 6*). This was done because of the potential threat to the site from 'night-hawking' (illicit metal-detecting), following media coverage of the excavation discoveries. A small amount of material was recovered, adding to that already known.[1]

In December 2001, two new magnetometry surveys were undertaken by English Heritage, commissioned independently by Professor Martin Carver, University of York. One was located along the eastern side of North Field and the other to the north of the Sutton Hoo cemetery (Figs 1.2–1.3). Both identified ditch-like features consistent with the prehistoric enclosure of the area, as well as numerous 'pit-like' anomalies in North Field. The surveyor suggested these could 'represent further burials or sunken-featured buildings' (Linford 2002, 8). However, whilst their southern distribution partly overlaps the area of ploughed-up material from North Field (see *Chap. 6*; Figs 1.3, 6.5), burial features *per se* are notoriously difficult to detect using geophysics, and neither are the responses characteristic of so-called *Grubenhäuser* as identified using geophysics elsewhere (i.e. in the Vale of Pickering; J. Tipper pers. comm.). Instead, their haphazard spread and amorphous character is more likely to reflect natural phenomena, including perhaps tree-throws.

IX. Site phases and report structure

Figure 1.6 summarises the key stratigraphic relationships between features in Area A. These were limited, however, so the site phasing is instead largely based on the material-culture evidence in combination with scientific dating (see *Chap. 7; Sect. II*). On this basis, *Phase 5* is further divided into three sub-phases (*AS Phases A–C*), to which the graves of the early Anglo-Saxon cemetery have been allocated.

Phase 1: early Neolithic
Phase 2: late Neolithic/early Bronze Age
Phase 3: Bronze Age
Phase 4i: Iron Age
Phase 4ii: Iron Age (or ?later)
Phase 4iii: Roman to early Anglo-Saxon
Phase 5: early Anglo-Saxon
AS Phase A (*c*. 510/20–550/70)
AS Phase B (*c*. 550–580/600)
AS Phase C (*c*. 580–610/?650)
Phase 6: late medieval to post-medieval

Phases 1–4 relate mainly to remains of prehistoric date and are detailed in *Chapter 2*. The bulk of this report concerns the early Anglo-Saxon cemetery of *Phase 5*: a grave catalogue, finds analysis, and studies of the burial rites and chronology form *Chapters 3–4* and *7–8*. The significance of the discovery for the interpretation of Sutton Hoo is argued in *Chapter 9*. The findings of the late-medieval period and after (*Phase 6*) are summarised below.

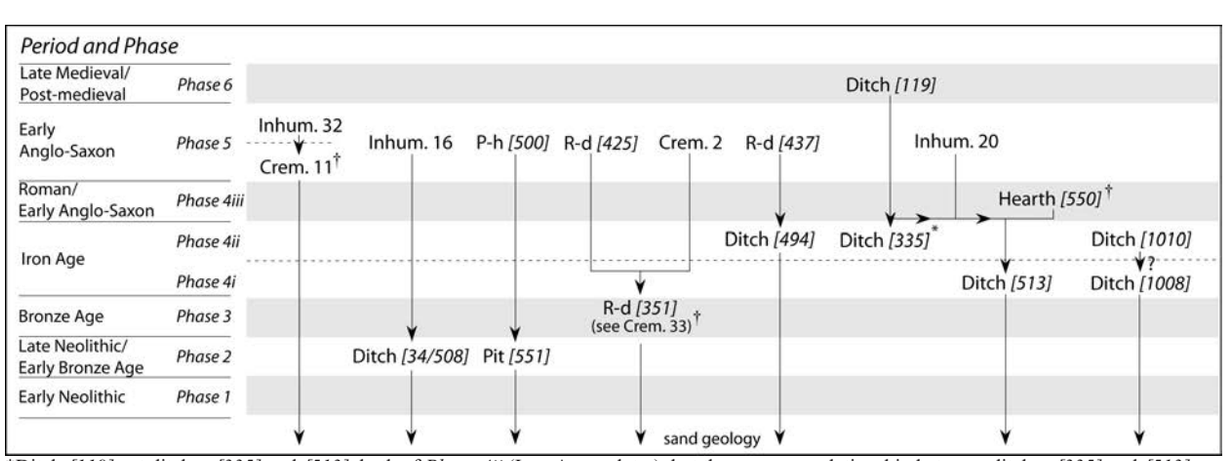
Table 1.1 provides a summary of the features in *Phases 1–5*.

X. *Phase 6*: late medieval and post-medieval

The archaeology of *Phase 6* was very limited, but nevertheless contributes something to the historical account of the earliest farm estates of the late medieval period and after (see Carver 2005, 459–75).

No features of the late-medieval or post-medieval periods were recorded and only ten red earthenware sherds were found to indicate activity (Anderson 2000). The material from North Field conveys a similar impression, with only a small amount of pottery and few late-medieval/post-medieval metal finds (see *Chap. 6*). This absence fits with the fact that the earliest significant holding of the period locally, How Farm (now Little Sutton Hoo), is not documented until the 16th century; it lay to the west of the site and was probably occupied by the Mathers family (Abbott and Breen 1997; Carver 2005, 469). The first ploughing of the mounds at Sutton Hoo most likely occurred around the same time (Carver 2005, 461, 466). Prior to this, in the post-Norman period, use of the terrain was probably restricted to warrening and grazing (Williamson 2008, 44–5, 56–8).

The archaeological and finds evidence, then, is consistent with a horizon of first cultivation at both Sutton Hoo and North Field/Tranmer House concurrent with the first late-medieval farm estates. Nonetheless, the evidence does not indicate intensive agriculture, but more likely infrequent episodes, in keeping with the heathland management of the time (Williamson 2008, 58). Some of the site's many tree-throws might have resulted from such land-clearance events, and so too could a small number of pits (*[517]*, *[519]* and *[707]*) that contained shell fragments and boulder clay, calcareous materials



*Ditch *[119]* cut ditches *[335]* and *[513]*, both of *Phase 4ii* (Iron Age or later), but there was no relationship between ditches *[335]* and *[513]*.
† For radiocarbon date see *Chapter 7 (Sect. II)*.

Figure 1.6 Simplified matrix of key stratigraphic relationships in Area A. By CF

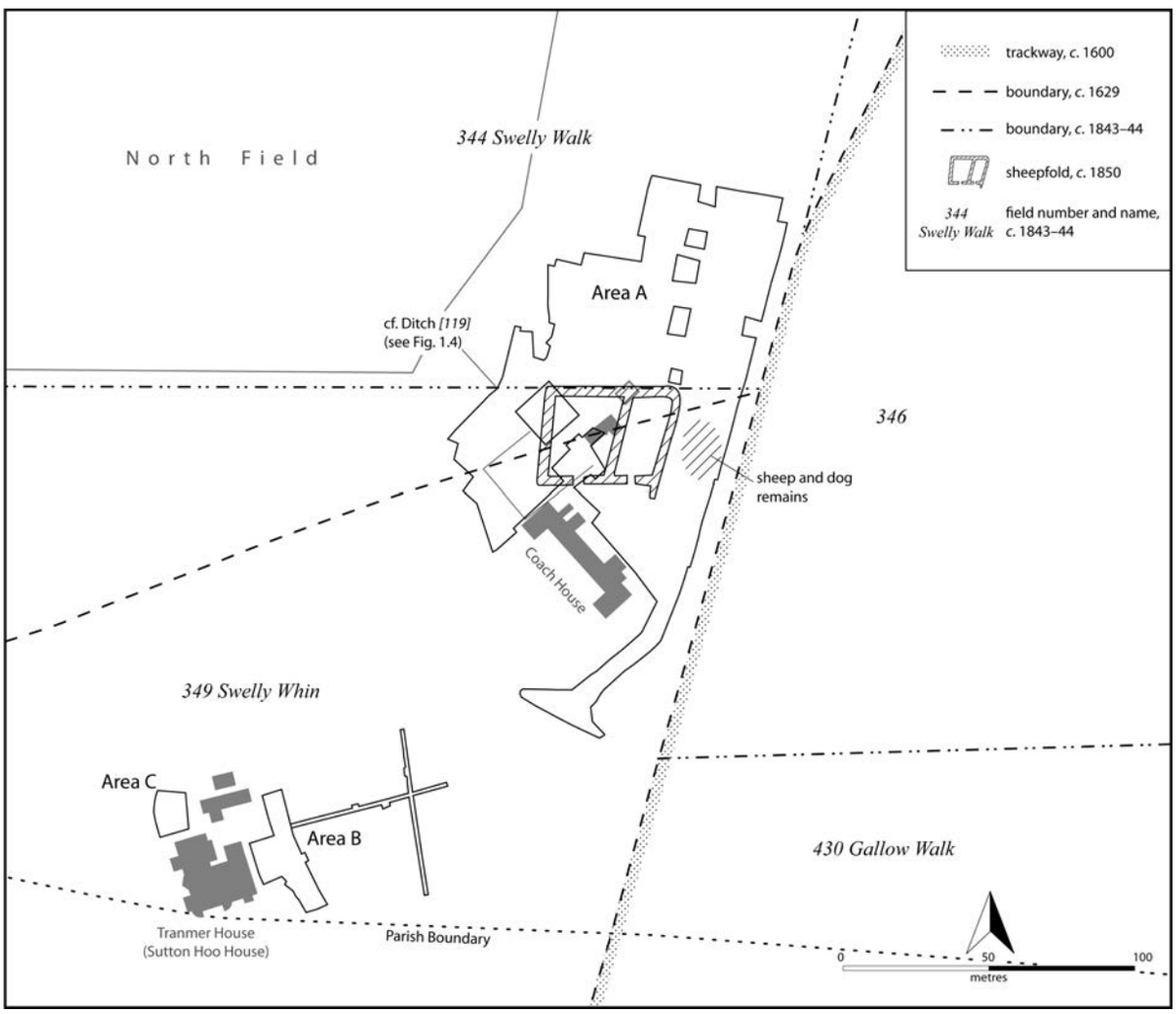


Figure 1.7 Post-medieval boundaries and other features. By CF (after Abbott and Breen 1997)

imported to treat the acidity of the Sandlings soil (Williamson 2008, 61).

Sheep farming was the predominant husbandry locally in the post-medieval period, and probably before. This is evidenced by 'Sheepwalk' field names on the 1843–44 tithe map that surround Sutton Hoo, and by the sheepfold that had occupied the Tranmer House site in the 19th century (Fig. 1.7; Abbott and Breen 1997; Martin and Satchell 2008, 24, 136). The absence of significant remains of the sheepfold in Area A suggests that, whilst it must have comprised a structure sufficient to be recorded by the 1880s Ordnance Survey, it was without deep foundations; probably it was eradicated by the landscaping that preceded the establishment of the Edwardian Sutton Hoo estate by the Lomax family (Carver 2005, 469).

The main feature of the post-medieval period is ditch *[119]*, a boundary that crossed Area A from west to east (Figs 1.4, 1.7). It was 1.10m wide by 0.25m deep (at the level of the natural sand) and may be identified with the 1843–44 boundary. It was probably backfilled at the creation of the Lomax estate. No evidence was found, however, for the earlier 17th-century boundary shown on Haiward's 1629 map (Fig. 1.7).

XI. Figures

Throughout this publication, non-funerary features are typically at 1/40 scale, cremations are mostly 1/10 and inhumations 1/25. For the graphic conventions used for the grave plans see Figure 1.8. The prehistoric pottery and flint illustrations in *Chapter 2* are 1/2 scale and stone 1/4 scale. In *Chapters 3* and *6* the normal scales are: pot 1/3; pot stamp 1/1; iron 1/2, 1/3 (large spearhead) or 1/4 (sword); copper-alloy/silver/gold 1/1; punch decoration 2/1. For the location of the recorded sections of the prehistoric features discussed and illustrated in *Chapter 2* see Figure 1.4 (see Figs 2.7–2.8, 2.11–2.13).

XII. Archive

The Tranmer House archive (HER: BML018) is held at the British Museum. This includes the 1997 evaluation and 2000 excavation material, as well as most of the metal-detected finds from North Field, 1984–2000 (HER: BML009/10). The exception is the 'Bromeswell bucket', which is owned by the Annie Tranmer Trust and displayed at Sutton Hoo.

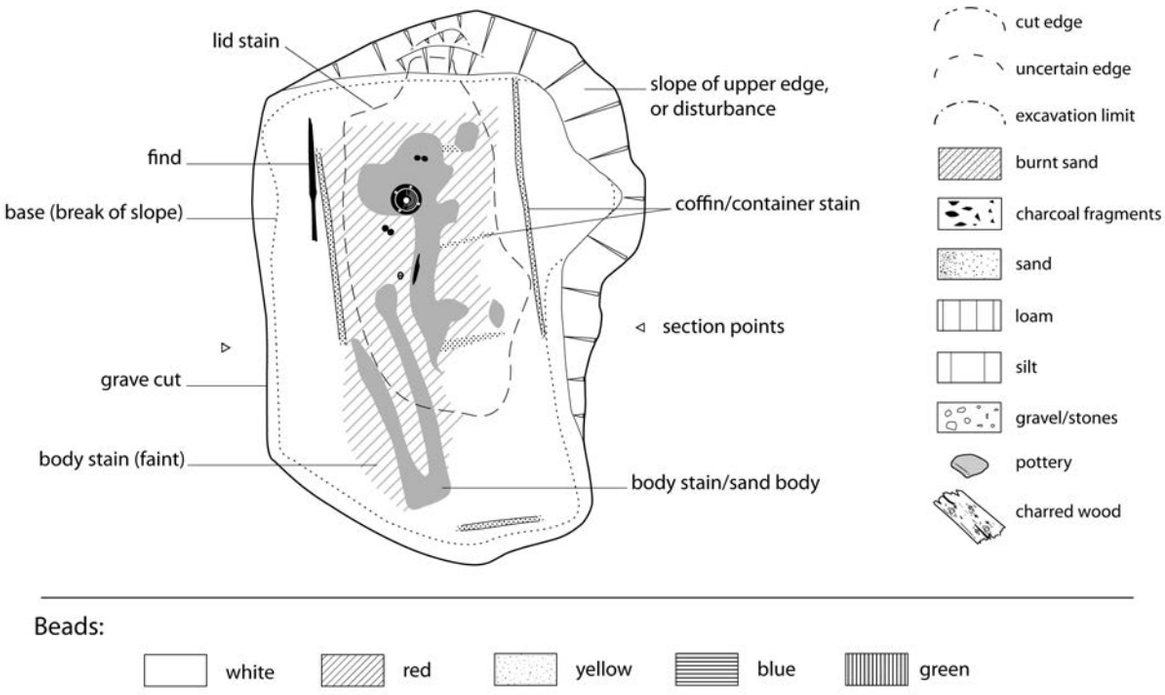


Figure 1.8 Conventions for grave plans, sections and beads

Endnote

1 In summer 2012, a further metal-detector survey was completed in the enclosure (see *Chap 6,* note 2).

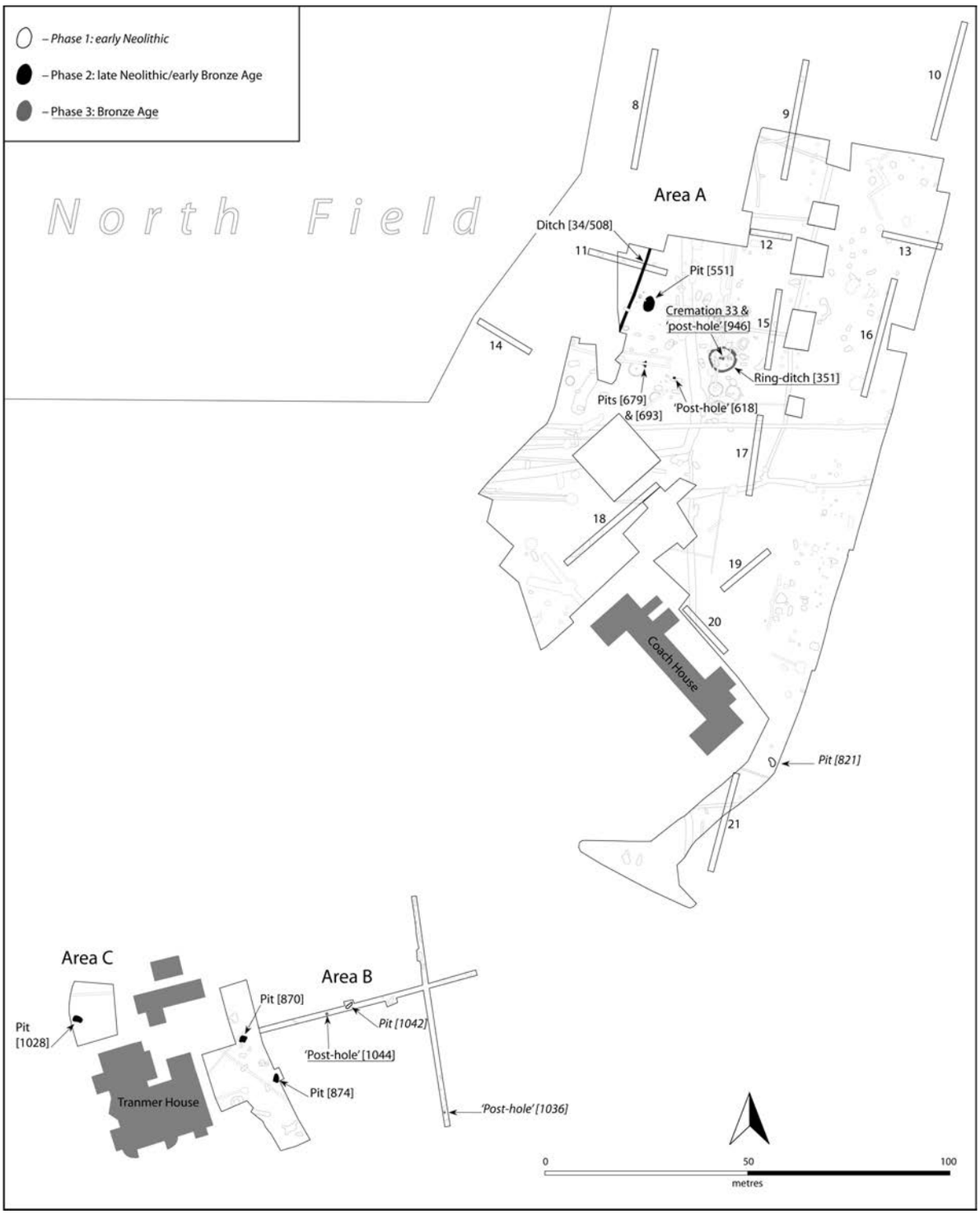


Figure 2.1 *Phases 1–3*: early Neolithic, late Neolithic/early Bronze Age, and Bronze Age features (scale 1/1500). By CF

Chapter 2. Prehistoric Remains

by M.R. Hummler, C.J.R. Fern, S. Percival and S. Bates

I. Introduction

The excavations at Tranmer House offered the opportunity to explore the wider context of the prehistoric remains encountered at the Sutton Hoo mound cemetery in 1983–92 (Carver 2005; Hummler 2005), and test elements of the prehistoric landscape found in the 1997 evaluation of the site (Abbott 1997). However, of the 300-plus features excavated in 1997 and 2000, only a small number (around 10%) can be ascribed to prehistoric episodes (Fig. 1.4; Table 1.1). This is doubtless due in part to disturbance from past land-clearance, enclosure and ploughing, active from the late-medieval period, as well as to the subsequent building and gardening activities of the Edwardian and modern estate. But in other aspects the legibility of the archaeological record is a product of the vagaries of deposition and post-deposition observed at the site. Intercutting between datable features was rare (Fig. 1.6), and even where stratigraphic relationships existed these did not necessarily allow features to be clearly assigned to a particular period. In addition, the quantity of diagnostic material recovered — pottery and flint — was relatively small. Some was found in features that are probably of natural origin, with typically irregular profiles and indistinct fills, possibly tree-throws. In such instances most material was probably accidentally incorporated, although the potential for the deliberate inclusion of finds in natural features is now recognised (Evans *et al.* 1999; Thomas 2012, 3).

The result is a prehistoric sequence with highlights in the early Neolithic, late Neolithic/early Bronze Age, middle Bronze Age and very probably the Iron Age (and later). Overall, activity was long-lived, but with long gaps in the occupation record. For the Bronze Age and the later prehistoric field-system some conscious continuity with an earlier 'ancestral' landscape may be argued. Organised use seems to have ceased by the Roman period, although continuity at this time is suggested at Sutton Hoo to the south (Hummler 2005, 456–57). Two key features have been radiocarbon dated: a middle Bronze Age cremation burial, grave 33, and a hearth *[550]* that was cut into the fill of a late prehistoric ditch, feature *[513]*.

In this chapter, the prehistoric remains are described by period, in four phases: *Phase 1*: early Neolithic; *Phase 2*: late Neolithic/early Bronze Age; *Phase 3*: Bronze Age; *Phase 4(i–iii)*: Iron Age and later. Discussion of the pottery and flint from the 1997 evaluation is based on the archive (Abbott 1997). For the 2000 excavation, the pottery was mainly analysed by Sarah Percival (2008a) and the flint by Sarah Bates (2009) (for summaries see Tables 2.1–2.4 at the end of this chapter). The feature catalogues for each phase are summarised from the work of numerous individuals, including the primary site records produced by SCCAS excavators and the subsequent analytical reports of specialists (see *Acknowledgements* and *List of Contributors*). The number of features and their types by phase are shown in Table 1.1.

II. *Phase 1*: early Neolithic (*c.* 4000–2400 BC)

Two small pits, both with single homogeneous fills, and a 'post-hole' are possibly of this phase, though the latter contained only a single sherd and one of the pits may be a tree-throw (Fig. 2.1). Pit *[821]* in Area A was rich in potsherds, however. In addition, residual pottery and flint was found across the site (Fig. 2.2). Combined, this suggests low-density occupation, that was perhaps slightly more marked in Areas B and C (the latter produced a small but significant assemblage of flint and pottery from a buried soil). No features or finds of this date were found in the 1997 evaluation.

Pit *[821]*
(Figs 1.4, 2.1, 2.3)
L. 1.48m; W. 0.72m; D. 0.45m
Fill: *(822)* mid orange-brown silty sand.
Description: located in the south-east of Area A.
Oval to kidney-shaped in plan, with an uneven, rounded base.
FINDS: (822) thirty-two potsherds (possibly one vessel), a flint flake and spall.

'Post-hole' *[1036]*
(Figs 1.4, 2.1)
Diam. 0.22m; D. 0.18m
Fill: *(1037)* mid grey-brown sand, mottled with red-brown and dark grey-brown.
Description: located in the south-east of Area B.
Roughly circular, post-hole-sized feature with a u-shaped profile. No evidence for a post.
FINDS: *(1037)* one potsherd.

Pit [1042]
(Figs 1.4, 2.1)
L. 1.95m; W. 0.70m; D. 0.20m
Fill: *(1043)* mid yellow-brown sand.
Description: located in Area B.
Irregular, long oblong in plan with a shallow v-shaped profile. It was aligned NE-SW on its long axis. Its amorphous form could indicate a natural origin, perhaps as a tree-throw.
FINDS: *(1043)* four sherds, one of Mildenhall Ware.

Residual and unstratified material

(Fig. 2.2; Table 2.3)
A small amount of early Neolithic material was found in later features and unstratified. This was concentrated in Area C, where pottery and flint was collected from a buried soil during machine excavation *(918)*; the sherds include three of Mildenhall Ware, and could possibly represent a few dispersed vessels in the remnants of an ancient soil. The layer is probably related to the buried-soil layers in Areas A and B, contexts *(100)* and *(917)*. However, only in one instance was a stratigraphic relationship between one of these layers and a cutting feature recorded (in Area A: *Phase 5*), so the buried soil's formation and date at the site remains uncertain (see *Chap. 3; Sect. II; Ring-ditch [698]*). Ancient buried-soil horizons containing prehistoric finds were also demonstrated at Sutton Hoo, as was material residual in later features (Hummler 2005, 401).

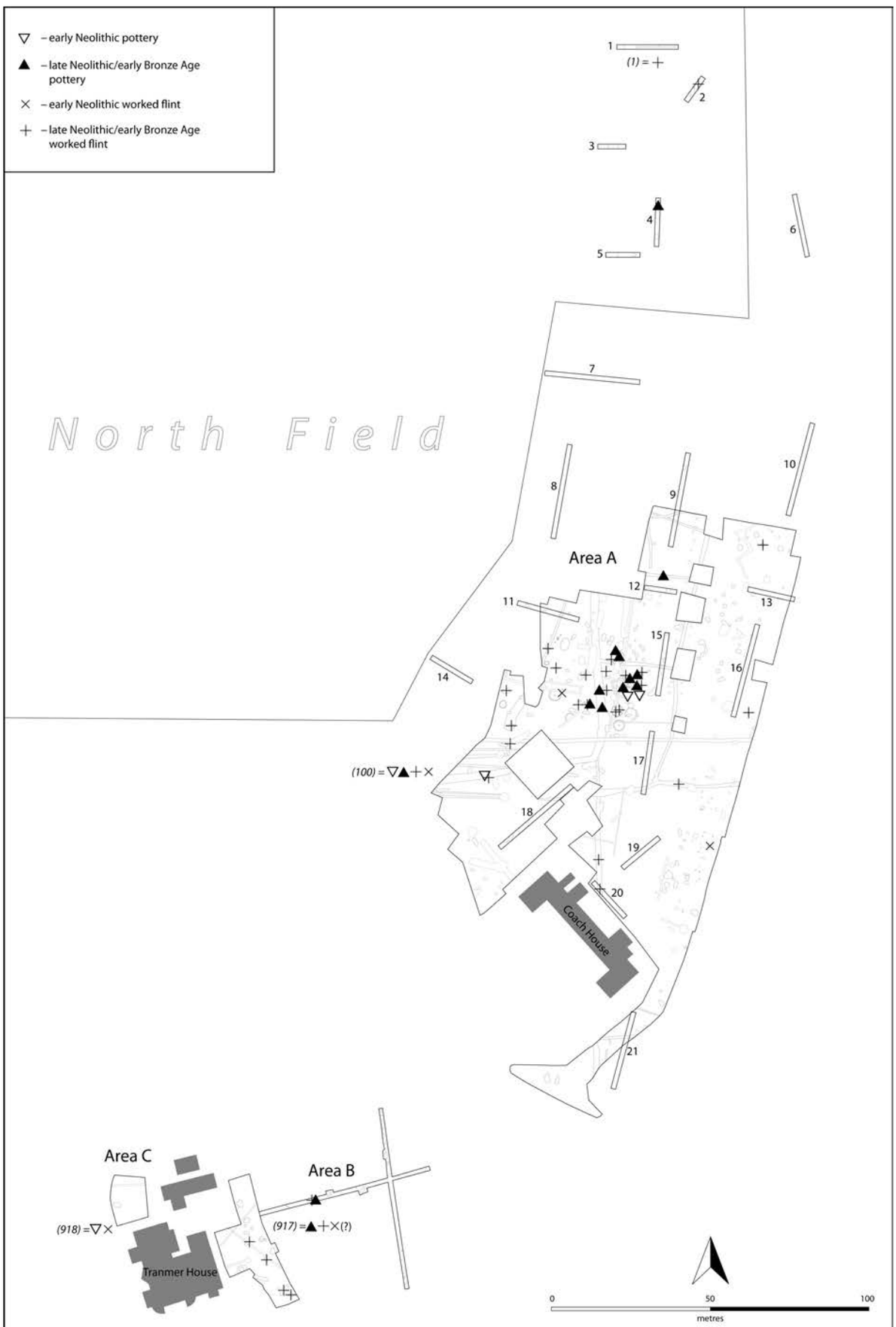


Figure 2.2 Early Neolithic and late Neolithic/early Bronze Age residual finds in later contexts (scale 1/1750). By CF

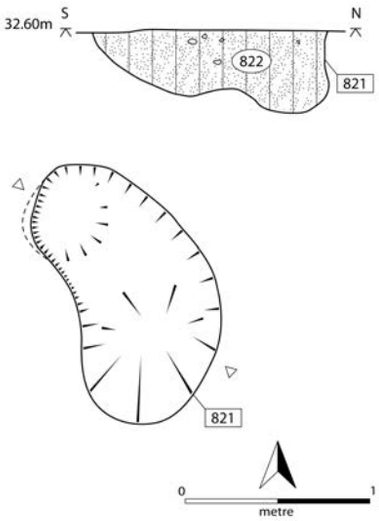


Figure 2.3 Plan and section of pit *[821]* (scale 1/40). By CF

Pottery

by S. Percival

(Tables 2.2–2.3)

Fifty-five sherds (281g) of early Neolithic pottery were found in Areas A–C (no examples were found in the 1997 evaluation: Abbott 1997, app. IV). Thirty-two of these came from pit *[821]*. A further five were recovered in two features that could be of this period: four sherds in pit *[1042]* and one in 'post-hole' *[1036]*. The remainder are from unstratified or residual contexts: ten were recovered from the buried soil in Area C *(918)*; three were recovered from later features in Area A (*Phase 3*: ring-ditch *[351]*; *Phase 4i*: ditch *[715]*; *Phase 5*: grave 22); and a further five were collected during machine stripping in Area A *(100)*. The sherds are generally small with a mean weight of 5g. Most of the pottery comprises Plain Bowls of bag-shaped form (Whittle *et al*. 2011, 759), though four sherds are from vessels with impressed decoration of the Mildenhall Ware tradition.

Methodology

The assemblage from Areas A–C (for all periods) was analysed in accordance with the guidelines for analysis and publication laid down by the Prehistoric Ceramic Research Group (PCRG 2010). The total assemblage was studied and a full catalogue was prepared (Percival 2008a). The sherds were examined using a binocular microscope (x10 magnification) and were divided into fabric groups defined on the basis of inclusion types present (Table 2.2). Fabric codes are prefixed by a letter representing the main inclusion: *F* – flint; *G* –grog; *Q* – quartz. Vessel form was recorded: *R* – rim sherd; *B* – base sherd; *D* – decorated sherd; *U* – undecorated body sherd. The sherds were counted and weighed to the nearest whole gram. Abrasion was also noted (*=abraded/**= very abraded).

Fabric

(Table 2.2)

Three fabrics were identified for the early Neolithic, in two fabric groups, one comprising sherds tempered with crushed, burnt flint (fabrics F1 and F2), and a second with sand (fabric Q1). No shell-tempered or corky fabrics were present. The flint inclusions represent an added ingredient, whereas at least some of the quartz sand is probably naturally occurring within the clay source. The proportion of sandy fabrics is high, 176g of the total 281g, but this is due to the possibility of a single vessel being represented by the sherds from pit *[821]*. This contradicts the pattern for most contemporary assemblages, in which flinty fabrics dominate, as seen locally, at Hurst Fen, Mildenhall (Clark 1960; Longworth 1960, 228), as well as nationally (Cleal and MacSween 1999, fig. 16.2).

Form and decoration

The assemblage is mostly composed of undecorated body sherds. An exception, from context *(100)*, is an externally thickened, everted rim, with a row of pierced holes running around what would have been the neck of the vessel, pushed through the clay before firing (Fig. 2.4, no. 1). Similar pierced pots have been found at Hurst Fen (Longworth 1960, fig. 21, P23–26) and at Kilverstone, Norfolk (Garrow *et al*. 2006, fig. 2.16, P102). The small sherd size prohibits exact identification of vessel forms, but no sharply-angled or carinated sherds are present, perhaps suggesting the undecorated fragments are from globular or bag-shaped vessels.

Four sherds (three from *(918)*, one from *(1043)*; not illustrated) are decorated with impressed dots and incised lines, characteristic of Mildenhall Ware (Smith 1954). These are also paralleled at Hurst Fen (Longworth 1960, figs 25 and 26) and Kilverstone (Garrow *et al*. 2006, fig. 2.19, P78), as well as at Spong Hill, Norfolk (Healy 1988, fig. 70), and Sutton Hoo (Hummler 2005, figs 163 and 166–67).

Discussion of the pottery

Mildenhall Ware is an early Neolithic decorated-bowl form characteristic of East Anglia (Gibson 2002, 73). The large assemblage from Hurst Fen, 76km west of Woodbridge, contains a number of vessels with dot-and-line ornament, similar to those at Tranmer House, alongside plain bag-shaped vessels with rim piercing (Longworth 1960). It is likely that the site pottery is contemporary and of the same tradition. In terms of dating, the large, recently excavated Mildenhall Ware collection from Kilverstone produced associated radiocarbon ages centred on 3650–3400 cal. BC (Garrow *et al*. 2006, 72).

Early Neolithic pottery from Suffolk, Norfolk and Cambridgeshire is most often found in pits, although it also occurs in subsoils and tree-throw features (Clark 1960; Garrow *et al*. 2006, 53). Likewise, at Sutton Hoo ceramic of this period was identified in pit groups, as well as in a buried soil beneath mound 6 (Hummler 2005, 397, 401). Hence, the Tranmer House assemblage follows the general pattern of deposition seen elsewhere (Garrow 2006, 113). In character it seems typical, too, with vessels incomplete, each pot represented by only a small number of abraded sherds, and found in a mixed soil with other debris (Healy 1995, 74; Thomas 1999, 64; Garrow 2006, 52; Fenton-Thomas 2009, 89). This may be the result of pre-depositional processes, in which broken pottery was not placed immediately into a pit, but in a 'pre-pit deposit' (perhaps a surface midden) before its eventual and partial deposition (Garrow 2006, 51). In some cases such surface assemblages probably remained unburied, which is perhaps the origin of the residual material at the site.

Flint

by S. Bates

(Table 2.4)

Two neat blades and a fragment of a third may be of early date, possibly Mesolithic or early Neolithic (not illustrated). The two complete examples were recovered unstratified *(100)*; the fragment was from a probable tree-throw, pit *[172]*. One has an abraded platform, characteristic of pieces struck from prepared cores, datable to these periods (Butler 2005, 84, 121).

A further blade (Fig. 2.5, no. 5) with retouch along one side and part of the opposite side may also be early Neolithic (cf. Wainwright 1972, figs 41; 47, 44; 93), which would make it residual in the *Phase 2* context in which it was found, pit *[679]*. However, if alternatively the piece represents a lightly retouched knife, it could be contemporary with the pit. No distinctive types such as

serrated pieces, leaf-shaped arrowheads or long end-scrapers are present, whereas they were found at Sutton Hoo (they have been described by Hummler (2005, 401) as 'Middle-Late Neolithic facies', but they are types more usually attributed to the earlier Neolithic: cf. Healy 1988, 46; Butler 2005, 122–30, Beadsmoore 2006, 60–65).

In Area C, a flake and a broad thick flake were collected from buried-soil layer *(918)*. The latter is from a possible hammerstone with a heavily battered platform. Pit *[821]* produced a flake and a spall. Finally, of note is a tiny flake or spall from modern tree-throw *[291]*, which may be a microlith; it is not retouched, but has very slight traces of use or wear at its tip.

Discussion

The location of the site, on light soils and close to water, is in keeping with the distribution of most early Neolithic pit sites in the region (Garrow 2006, 149). At Tranmer House the sparse and widely-spaced features (Fig. 2.1), and the small amount of residual finds may represent occasional visits. The pottery broadly suggests the period 3600–3000 BC for this activity (Garrow *et al*. 2006, 72; Gibson 2002, 72; Healy 1996, table 13). A slight preference for the promontory ground above the 30m contour (Areas B and C) might be postulated, as at Sutton Hoo, where pits occurred in discrete clusters alongside dispersed occupation material (Hummler 2005, 396–406).

Although the evidence is limited, it seems reasonable to conclude that the deposits at Tranmer House represent 'domestic' activity. The broken pottery and discarded flints might have accumulated first as midden waste, prior to the deposition of some material in pits (i.e. *[821]*). Nevertheless, the evidence is meagre compared to pottery-rich sites elsewhere in Suffolk, such as that excavated recently at RAF Bentwaters, Mendlesham, some 25km north-west of Sutton Hoo (Percival 2010), and the multi-pit sites at Kilverstone and Spong Hill (Healy 1988; Garrow *et al*. 2006).

The notion that early Neolithic settlement in England was not fixed and permanent has become current in the literature (e.g. Thomas 1991, 181; 1999, 86, 223; Bradley 2007, 43). In particular, in the region, activity of this period is characterised by episodes of pit digging. At least 546 such sites are recorded from Norfolk, 266 from Cambridgeshire, and 165 from Suffolk (Garrow 2012, table 15.1). However, pit density varies greatly between sites (Garrow 2006, 149). Their number may be linked to the intensity and extent of successive episodes of occupation, with pit-rich locations indicating repeated, though probably discontinuous activity, whilst sites with few pits (i.e. Tranmer House) might have been rarely visited (Ashwin 2001, 29; Garrow 2006, 26, 58; Garrow *et al*. 2006, 75–81; Healy 2013). Fenton-Thomas has interpreted this as indicating 'temporalities of occupation', which could vary in intensity even across a single site (2008, 32; 2009). For example, at Sewerby Cottage Farm on the East Yorkshire coast, a low density of pits in one area was suggested as indicating short-lived activity, whilst stratified deposits in hollows, buildings and pits in another area implied more long-lived, if

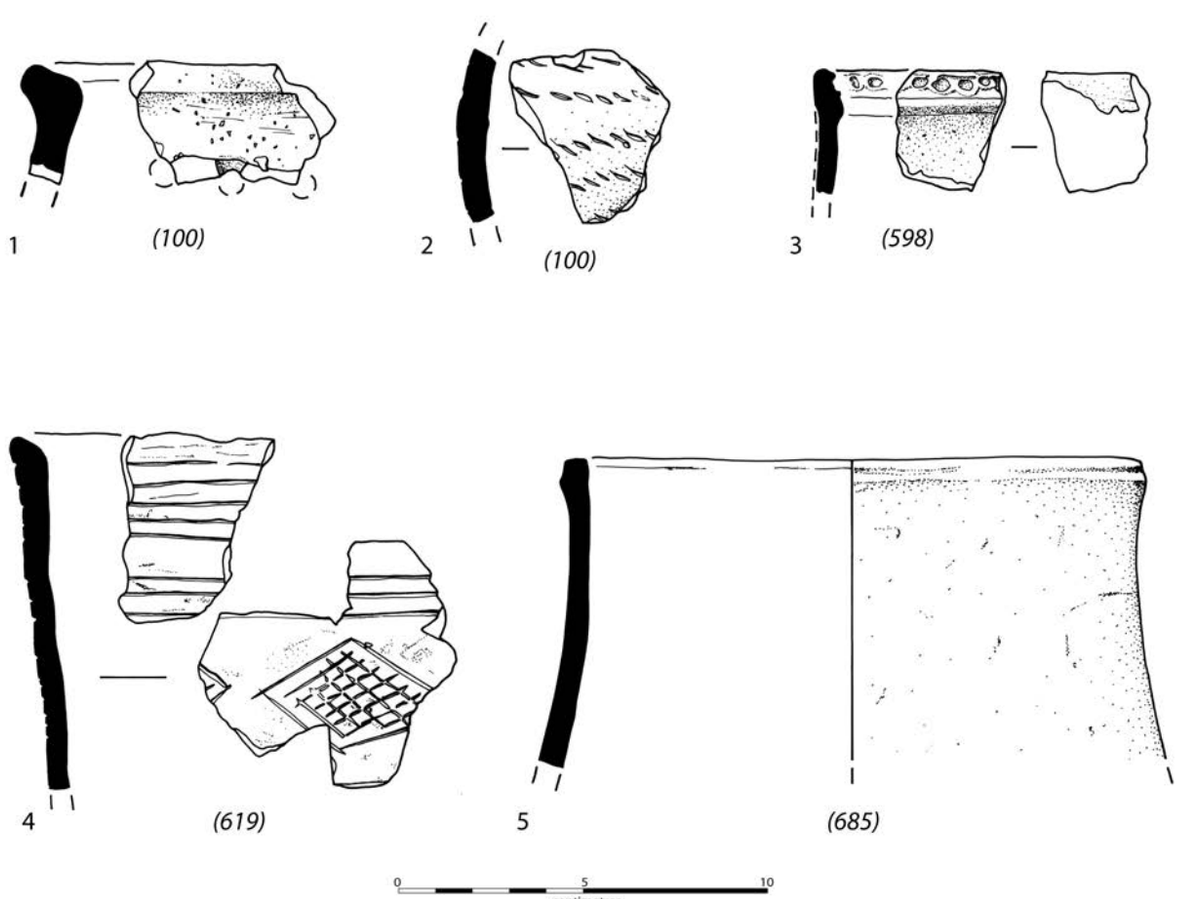


Figure 2.4 Prehistoric pottery (scale 1/2). By SH

episodic, occupation over at least 500 years (Fenton-Thomas 2009, 95). The results from Sewerby, therefore, urge caution about concluding too much from the limited findings at Tranmer House.

III. *Phase 2*: late Neolithic/early Bronze Age (*c.* 2400–1800 BC)

Assigned to this phase are a small number of pits and post-holes, and more tentatively a ditch (Fig. 2.1; Table 1.1). Five of these features were in the western half of Area A, and three were spread between Areas B and C.

The most convincing evidence for occupation is pit *[551]*, in Area A. Other features are less securely attributed or were relatively insubstantial. Features *[618]* and *[679]* fall into the latter category, and pits *[693]* and *[874]* the former. Pit *[693]* is included because of its stratigraphic relationship to pit *[679]*, and feature *[874]* for the assemblage of worked flint it contained, but neither yielded any pottery. Even where a small number of potsherds were found, as in features *[870]* and *[1028]*, these might be residual, following the pattern of such material across the site (Fig. 2.2). This includes worked flint and pottery from the buried soil *(917)* in Area B, and a concentration in Area A.

Ditch [34/508]
(Figs 1.3, 1.4, 2.1, 2.6–2.7)
W. *c*. 0.60m; D. 0.35–0.40m
Fills: *(35)* dark brown sand; *(509)* mid orange-brown to red-brown silty sand; *(510)* mid orange-brown silty sand; *(563)* mid red-brown sand. Moderate-frequent gravel/stones throughout.
Description: first recorded in the 1997 evaluation (Trench 11) as ditch *[34]*, deposit *(35)*. Later it was recorded as feature *[508]* in the main excavation, located in the north-west of Area A, close to the excavation limit. Cut by grave 16 (*Phase 5*).

Straight NNE-SSW aligned cut with a predominantly v-shaped profile, though the stepped profile in one recorded section may imply the setting for a post or palisade. It contained up to two fills *(509–10)*. No finds.

It is assigned to *Phase 2* on the following basis: it is on a different orientation to the later Iron Age field-system (see below, *Sect. V*); it is analogous with early Bronze Age v-shaped ditches encountered at Sutton Hoo (Hummler 2005, 406–13, fig. 176); the Anglo-Saxon grave that cut it yielded a substantial collection of flints of late Neolithic/early Bronze Age date that could have originated from the ditch backfill.

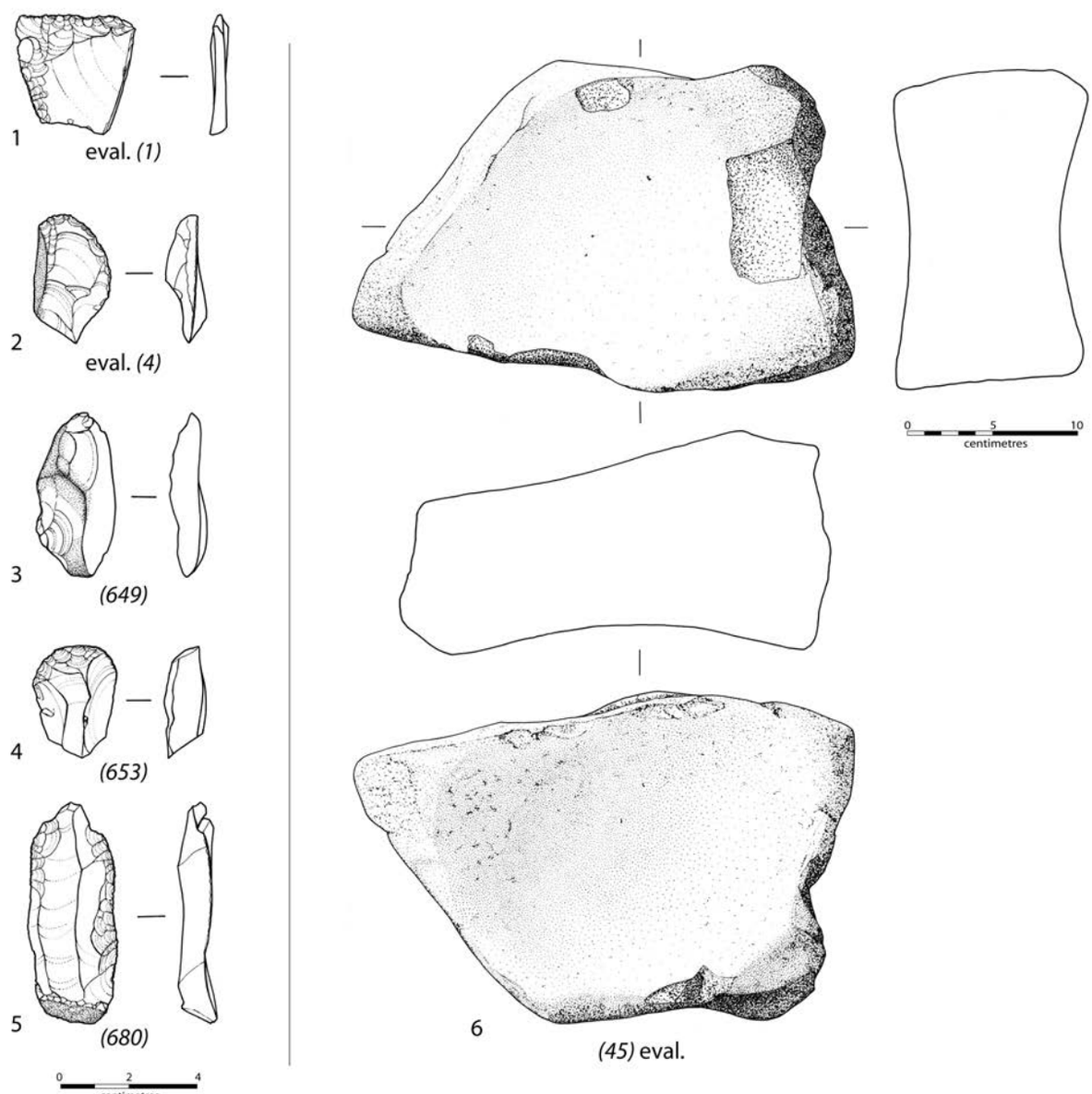


Figure 2.5 Prehistoric worked flint and saddle-quern (scale 1/2: flint; 1/4: quern). By SH

Pit *[551]*
(Figs 1.4, 2.1, 2.6–2.7)
L. 4.00m; W. 2.60m; D. 1.30m
Fills: *(552)* mid orange-brown sand and burnt flint; *(562)* light yellow-brown sand; *(564)* mixed sand, light brown, burnt mid pink-brown, and very dark grey to black, with charcoal inclusions and concentrations throughout, and burnt flint; *(646)* mixed sand, burnt mid pink-brown and dark grey-brown, with densities of charcoal; *(647)* light yellow-orange sand; *(565=648)* light orange-brown sand with frequent gravel/stones; *(649)* mid orange-brown sand.
Description: located in the north-west of Area A, close to the excavation limit. Its north-west edge was cut by 'post-hole' *[500]* (*Phase 5*).

Large ovoid in plan with an inclined base and steeply sloped sides, aligned NNE-SSW on its long axis. It had multiple fills. The base and sides were overlain by redeposited natural sand, *(648)* and *(649)*. Over these were two deposits of mixed soil, *(564)* and *(646)*, which included charcoal concentrations, burnt sand and fire-cracked stones; they were separated and sealed by two uniform, perhaps windblown, sand fills *(562)* and *(552)*. The mixed soils are interpreted as derived from 'occupation events' (see *Chap. 5; Sect V: Soil micromorphology*).
Environment: *(552)* wood charcoal of *Pinus* sp.; *(564) Corylus avellana*, *Ilex aquifolium*, *Quercus* sp.; plant macrofossils of *Corylus avellana* (hazelnut shell), *Quercus* sp. (acorn); pollen of *Polypodiaceae, Quercus* sp., *Tilia* sp., and fungal spores.
FINDS: *(552)* two potsherds, one a comb-impressed Beaker fragment, four flint flakes, one spall and a thick retouched flake; *(562)* one flint flake; *(564)* one utilised thick primary flake; *(648)* one fingernail-impressed Beaker sherd and one flint flake; *(649)* two flakes and one broad flake, the latter perhaps a knife (Fig. 2.5, no. 3).

'Post-hole' *[618]*
(Figs 1.4, 2.1, 2.7)
L. 0.55m; W. 0.40m; D. 0.17m
Fills: *(619)* very dark brown-black silty sand; *(620)* light brown silty sand. Occasional gravel/stones throughout.
Description: located in the north-west of Area A, adjacent to grave 18 (*Phase 5*).

Small pit or possible post-hole, ovoid in plan with a shallow U-shaped profile. The recorded distribution of the fills *(619–20)* suggests the 'ghost' of a post, marked by a dark charcoal-rich soil *(619)*.
Environment: *(619–20)* wood charcoal of *Alnus glutinosa*; plant macrofossils of Chenopodiaceae.
FINDS: *(619)* six potsherds from the same decorated Beaker (Fig. 2.4, no. 4).

Pit *[679]*
(Figs 1.4, 2.1, 2.7, 3.8)
L. 1.43m; W. 0.32m; D. 0.14m
Fill: *(680)* mid red-brown silty sand, mottled with yellow-brown, with moderate gravel/stones.
Description: located in the north-west of Area A, at the north-east edge of ring-ditch *[606]*. Its middle portion had been destroyed by gully *[621]* (modern). It cut pit *[693]*.

Narrow and slot-shaped in plan, aligned N-S. A large pottery sherd *(685)* in the backfill appeared to be 'set' vertically, its rim downwards.
Environment: *(680) w*ood charcoal of *Betula* sp., *Corylus avellana*, *Quercus* sp.
FINDS: *(680)* one retouched flint blade, perhaps a knife (Fig. 2.5, no. 5), possibly early Neolithic; *(685)* one rim sherd of Beaker (Fig. 2.4, no. 5).

Pit *[693]*
(Figs 1.4, 2.1, 2.7, 3.8)
L. 1.55m; W. 1.32m; D. 0.82m
Fills: *(694)* light yellow-brown sand; *(721)* yellow-brown silty sand, mottled with mid brown; *(722)* light yellow-brown sand; *(723)* mid yellowish red-brown sand.
Description: located in the north-west of Area A. Cut by pit *[679]* (*Phase 2*), ring-ditch *[606]* (*Phase 5*), and gully *[621]* (modern).

Ovoid in plan with steep sides and a concave base. It contained four fills *(694/721–23)*. No finds.

Its relationship to pit *[679]* is the reason for its inclusion in this phase, and the pit's form suggested it was man-made.
Environment: *(694)* wood charcoal of *Corylus avellana*, *Quercus* sp.

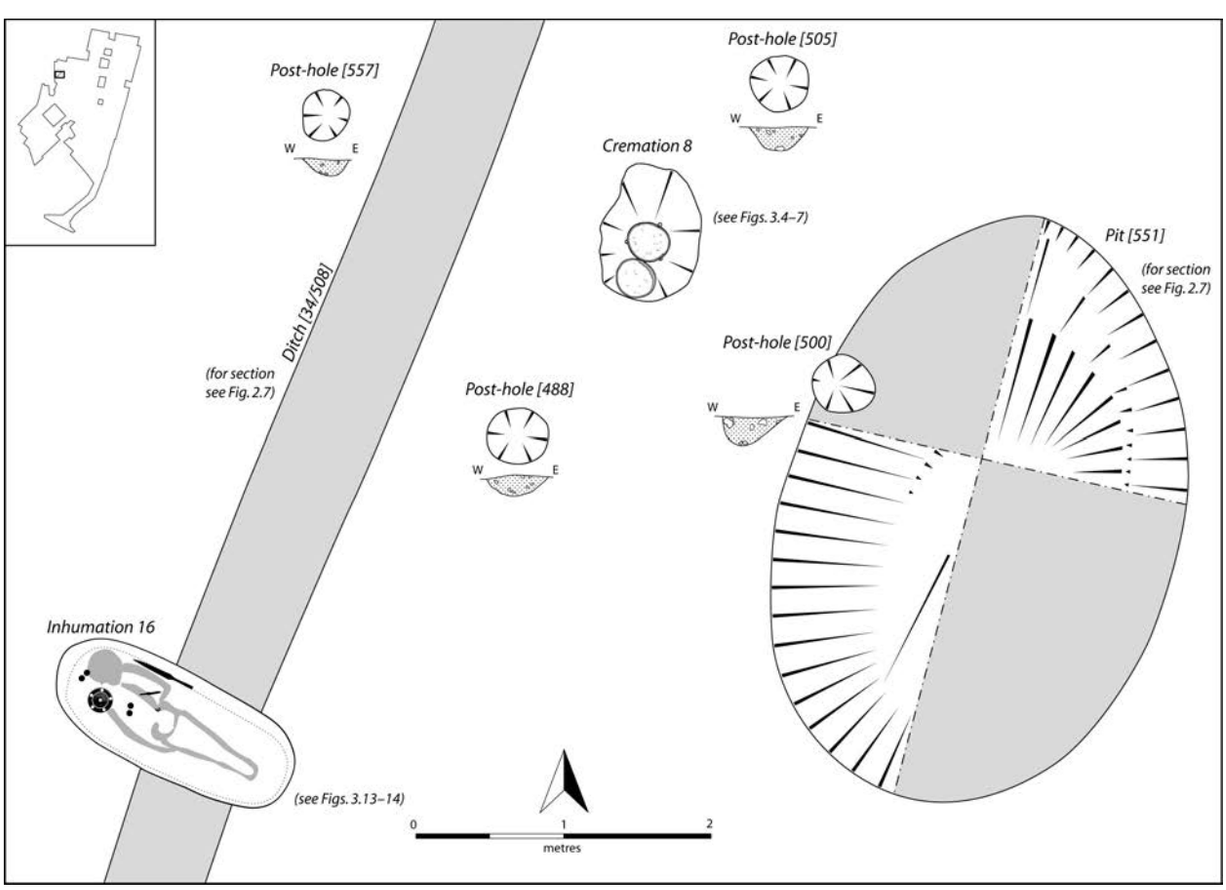


Figure 2.6 Late Neolithic/early Bronze Age pit *[551]* and ditch *[508]*, with Anglo-Saxon graves 8 and 16, and associated post-holes (scale 1/50). By CF

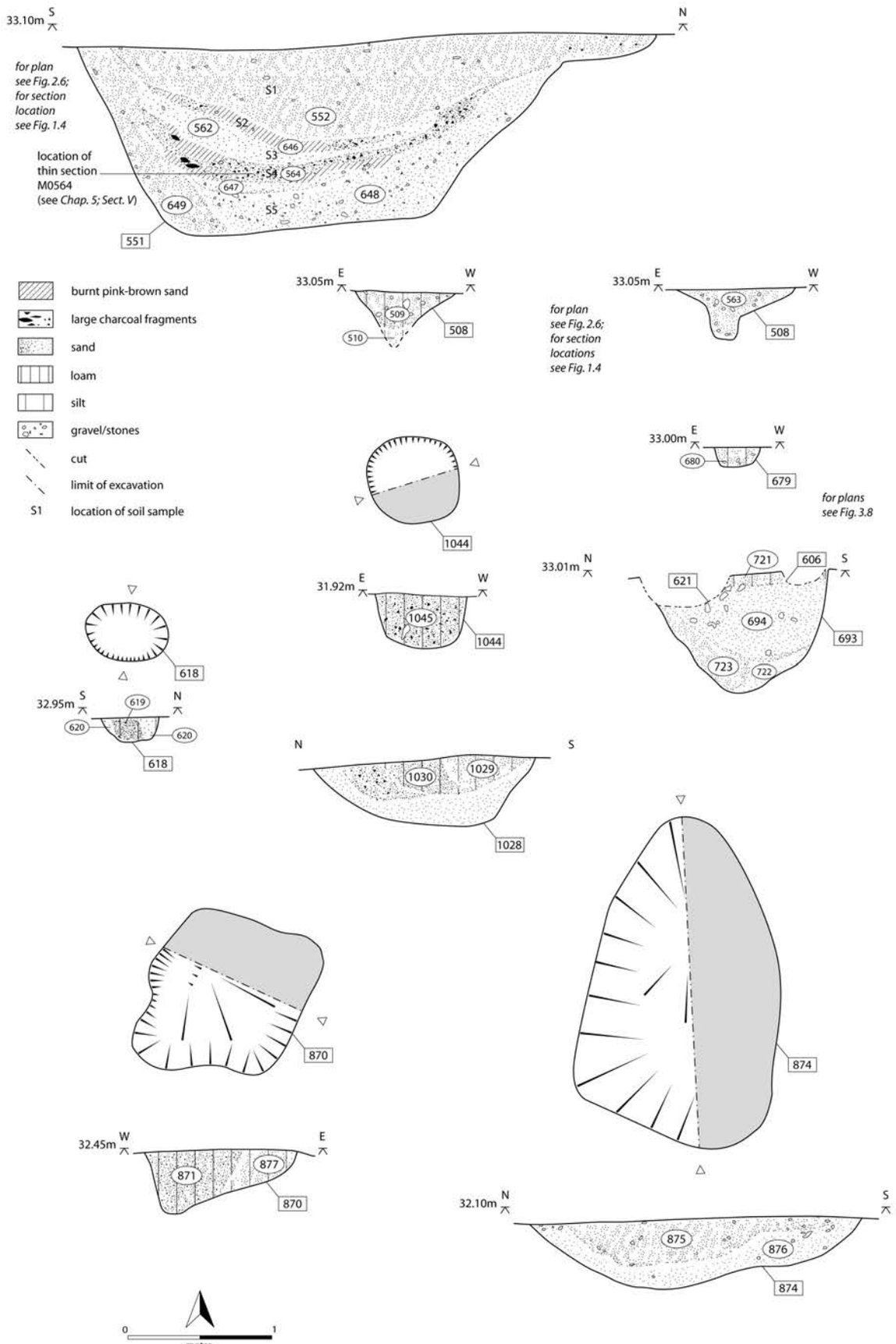


Figure 2.7 Plans and sections for features of the late Neolithic to Bronze Age (scale 1/40). By CF

Pit *[870]*
(Figs 1.4, 2.1, 2.7)
L. 1.25m; W. 1.05m; D. 0.44m
Fills: *(871)* dark brown silty sand; *(877)* mid brown silty sand. Occasional gravel/stones throughout.
Description: located in the north-west of Area B.

Sub-rectangular in plan with irregular sides, from shallow to steep, and a concave base.
FINDS: *(871)* five potsherds, one a fingertip-impressed Beaker sherd.

Pit *[874]*
(Figs 1.4, 2.1, 2.7)
L. 2.32m; W. 1.40m; D. 0.47m
Fills: *(875)* mid orange-brown sand; *(876)* light orange-brown sand; contained burnt flint.
Description: located in the west of Area B.

Irregular ovoid in plan with shallow-sloping sides. Its sand fills *(875–76)* and proximity with similar features suggested a natural origin, perhaps as a tree-throw. It contained a considerable quantity of worked flint, however, as well as fragments of burnt flint.
FINDS: *(875)* sixteen worked flints: seven flakes, six spalls and two blade-like flakes; *(876)* one spall.

Pit *[1028]*
(Figs 1.4, 2.1, 2.7)
L. 2.40m; W. 1.50m; D. 0.50m
Fills: *(1029)* mid yellow-brown silty sand with occasional gravel/stones and charcoal inclusions; *(1030)* dark grey silty sand with charcoal inclusions; at the base, a light yellow sand (no OP record).
Description: located in Area C.

Sub-rectangular in plan with irregular sides. The recorded section suggests four backfills, though only two were allocated OP records *(1029–30)*. It produced only a single potsherd, but its charcoal-flecked upper fills could support its formation from occupation.
Environment: *(1030)* wood charcoal of *Acer campestre*, *Alnus glutinosa*, *Prunus avium*, *Quercus* sp.
FINDS: *(1030)* one potsherd.

Other possible features of Phases 1–3

A small number of further features, from the many unphased examples across the site, may be the result of pre-Iron Age activity (for locations see Fig. 1.4). Some contained a single worked flint, or small assemblage of such (in the absence of later material), and in other instances stratigraphy indicates or strengthens the case for an early date. 'Post-hole' *[624]* contained two pieces of flint, had a dark red-brown silty sand fill *(625)* with charcoal, and was located close to 'post-hole' *[618]*. Pit *[601]* was cut by ditch *[513]* of *Phase 4i*, and had a mid red-brown sand fill *(602)* that yielded one flint spall. Small pit *[423]* was cut by Anglo-Saxon ring-ditch *[344]*; it had a 'good shape', but contained no dating material (Fig. 2.12). Pit *[1023]* was cut by the corner of the enclosure formed by Iron Age ditches *[513]* and *[715/776]*. In Area B, pits *[797]*, *[851]* and *[881]*, and spread *(891–93)* together contained a small amount of worked flint. Lastly, a quantity of burnt stone in pit *[851]* could indicate its formation from occupation.

Residual and unstratified material

(Fig. 2.2)
Twenty-two sherds of pottery and nine flints, including seven Beaker sherds and a scraper, were recovered from the buried-soil layer *(917)* in Area B. Similar concentrations of early Bronze Age material were found in subsoils beneath mounds 2 and 5 at Sutton Hoo (Hummler 2005, 443, fig. 196). In addition, across the whole site, pottery and flint was found in a range of later features of *Phases 3–6*: Bronze Age cremation 33 and pit *[1044]*; Iron Age or later features *[4]*, *[11]*, *[101]*, *[513]*, *[595]* and *[778]*; Anglo-Saxon graves 6, 14, 15, 16, 18, 19, 29 and 30, ring-ditches *[425]* and *[437]*, and 'post-hole' *[469]*; post-Anglo-Saxon features *[101], [159]*, *[357]*, *[371]*, *[444]* and *[466]*; and an unphased tree-throw *[171]*. In Area A, this material was concentrated in the vicinity of the *Phase 2* features and the later Bronze Age barrow of *Phase 3*. This may be a real reflection of activity. However, post-depositional effects and in particular the density of later features at the same location, especially the more-extensively sampled graves of *Phase 5*, could have had a strong influence on the recorded distribution (see *Chap. 1; Sect. V*).

Pottery

by S. Percival
(Tables 2.2–2.3)
A total of 165 sherds of prehistoric pottery were recovered from Areas A–C during the 2000 excavations, of which fifty-eight were identified as belonging to the late Neolithic or early Bronze Age. In contrast, just a single sherd of that date was found in the 1997 evaluation (Table 2.1; Abbott 1997, app. IV). Thirty-eight sherds are of uncertain form, twenty are Beaker (including that from the 1997 evaluation) and one is Grooved Ware. The sherds are slightly larger on average than the early Neolithic examples, with a mean sherd weight of 6g and total of 367g (for the methodology see above, *Sect. II: Pottery*).

Fabric

(Table 2.2)
Six fabrics were identified in three fabric groups. Grog-tempered fabrics (G1, G2 and G3) make up 67% (246g) of the assemblage. The addition of grog (crushed pottery added to the clay to improve its working and firing properties) is highly characteristic of finer Beaker fabrics (Cleal 1995, fig. 16.2). Flint was mainly used for the manufacture of the coarser, thicker-walled vessels (fabric F4, twenty-four sherds, 108g). Sandy fabrics (Q2 and Q3) are represented by five sherds (13g). Quartz sand was often used for the production of Grooved Ware fabrics and this is the case with the one sherd found. The Beaker sherd from Trench 4 of the evaluation was grog-tempered, with added burnt-flint inclusions (Abbott 1997, app. IV).

Form and decoration

(Fig. 2.4, nos 2–5)
The Beaker sherds include rim fragments from two vessels, though perhaps as many as six different pots are represented within the whole assemblage. The collection is fragmentary, making determinations of form difficult, but at least one vessel from unstratified context *(100)* had a globular profile (no. 2). The rim sherd from 'post-hole' *[618]*, fill *(619)*, is simple and upright with a bevelled inside edge, from a vessel with a flared neck (no. 4). The rim from pit *[679]*, separately recorded as context *(685)*, has an externally thickened lip with a grooved edge (no. 5), from a vessel with an elongated hollow neck.

A variety of impressed and incised decorative techniques was used. Fingertip and fingernail impressions are found on four vessels. That on the globular vessel (no. 2) has fingernail-impressed ornament that forms bands, which almost certainly extended all over the body. A second (found with Bronze Age cremation 33) has fingertip impressions forming pinched-out cable designs down the body (not illustrated). Fingernail impressions were also used to fill decorative panels. The incised decoration on the vessel from 'post-hole' *[618]* (no. 4) comprises horizontal banding around the neck, above lozenges filled with lattice-work. Two sherds were perhaps decorated using a square-toothed comb: one from pit *[551]* and one from Anglo-Saxon grave 18 (not illustrated). This mix of finer impressed and incised sherds with coarser fingertip-decorated forms is a highly characteristic and widespread attribute of 'domestic' Beaker pottery, with assemblages from Sutton Hoo and the Fen edge (Hummler 2005; Bamford 1982; Gibson 2002; Healy 1996, fig. 79). Elsewhere in Suffolk similarly decorated assemblages have been found in pits at Flixton (Percival 2012), Little Bealings (Martin 1993, fig. 36) and Worlingham (Pendleton and Gibson forthcoming), and from beneath a round barrow at Martlesham Heath, around 7km south-west of Tranmer House/Sutton Hoo (Martin 1976).

The single Grooved Ware rim sherd (no. 3) from the upper fill of Iron Age ditch *[513]*, context *(598)*, has dot impressions on the internal bevelled edge of the upright rim with a raised ridge below, suggesting

that the vessel is of the Clacton style (Longworth 1971, 237). The rim is similar to an example from Great Bealings, Suffolk (Martin 1993, figs 10, 27).

A sherd of unknown type from the buried soil *(917)* in Area B has a simple rim with applied cordon ornament (not illustrated). It is of grog-tempered fabric suggesting a possible early Bronze Age date.

Deposition

In total, just seventeen late Neolithic/early Bronze Age sherds were identified from only five features believed to be of contemporary date (*[551]*, *[618]*, *[679]*, *[870]*, *[1028]*). Two features produced multiple sherds from single Beaker vessels: six sherds in 'post-hole' *[618]* and five in pit *[870]*, one with fingertip-impressed ornament. A further twenty-two were found either in the buried-soil layer *(917)* in Area B or residual in later features (see above). The remainder were found unstratified across Area A during machining, recorded as context *(100)*.

Discussion of the pottery

The small and fragmentary assemblage suggests relatively limited activity, albeit somewhat more widespread and substantial than in *Phase 1*. Both the pottery types found are broadly contemporary: Grooved Ware spans *c*. 2800–2000 BC (Garwood 1999, 152), and Beaker *c*. 2600–1800 BC (Kinnes *et al.* 1991). Deposits of Beaker material are not uncommon in Suffolk, with recent finds including a large 'domestic' site adjacent to the Waveney at Flixton (Percival 2004; 2012), as well as several fingertip-impressed Beakers associated with a bronze flat-axe at Worlingham (Pendleton and Gibson forthcoming). The nature of the Beaker sherds from Tranmer House suggests an assemblage of domestic origin, with the low number of pits perhaps indicating small scale or intermittent occupation (Garrow 2006, 138), although it must be borne in mind the site was much disturbed by later activity. A much more extensive Beaker assemblage was recorded a short distance to the south at the Sutton Hoo cemetery site, from numerous pits and other settlement features, including 525 sherds of Beaker and related pottery from pit cluster S28, Intervention 55 (Hummler 2005, 406–43, esp. 435–40).

Grooved Ware finds are relatively rare in Suffolk, with only some twenty sites known (Longworth and Cleal 1999, 195). Recent discoveries of Clacton-style sherds include again a large assemblage from Flixton (Percival 2004; 2012) and a semi-complete vessel from Great Bealings (Martin 1993, fig. 27). Grooved Ware was also present at Sutton Hoo, in particular in the area of mound 2 (Hummler 2005, 401, 403, fig. 169). The location of Tranmer House/Sutton Hoo, overlooking a river estuary, is typical of the find spots associated with this pottery (Cleal 1999, 5). Locally, within the Deben valley, Grooved Ware has been found elsewhere at Kirton Lodge Farm (Percival 2008b) and on the Martlesham bypass (Martin 1993, 1–3, fig. 32).

Flint

by S. Bates

(Table 2.4)

In all, 115 worked flints were found in the 1997 evaluation and 2000 excavation. Only a minority were from features of *Phase 2*, with most of the material from later features or unstratified. It seems likely, however, that much of the flint dates to *Phase 2*.

Assemblage

Just under half of the assemblage consists of unmodified flakes. These are mostly small and many are squat in shape. Some are quite irregular. Most appear to have been struck by hard-hammer. Seven blade-like flakes, four blades and a possible bladelet are present. The true blades are all quite small and neat, and one has an abraded platform indicating the preparation of the core from which it came. Some of these may belong to the Mesolithic/earlier Neolithic period (see above, *Sect. II*). Additionally, thirty-three spalls and two chips were found, and a small squat core came from Anglo-Saxon grave 16, which had evidence for flakes struck from multiple sides.

Four scrapers were found. One is a small thick ovate-ended example, from Anglo-Saxon grave 18 (Fig. 2.5, no. 4). Another, a larger thinner flake from Area B, layer *(917)*, has retouch around its distal part. Two were found during the 1997 evaluation. One is typically late Neolithic, a small hard-hammer struck piece with patination and cortex along the left distal side and a very small area of patination on the former surface, on the dorsal face (Fig. 2.5, no. 2). It was found in ditch *[4]*, Trench 2. The other is an irregular, small scraper with minimal retouch, found unstratified, context *(1)*.

Other tools include two possible piercers, both from Anglo-Saxon graves (14 and 16). One might have been made from a thermally-fractured fragment, and the other is an irregular, possibly spurred, example. In addition, one broad flake from pit *[551]*, fill *(649)*, has a slightly ground or worn edge, and was possibly used as a knife (Fig. 2.5, no. 3).

Recovered unstratified in the evaluation was part of a transverse arrowhead (Fig. 2.5, no. 1), probably an oblique type that is diagnostically late Neolithic. It is bifacially retouched along its base and retouched along the surviving part of one side; the tip and possibly the other side are broken.

It should be noted that a few flints are patinated and/or abraded to such a degree as to make a natural origin possible; these include examples from pits *[851]* and *[881]*, Anglo-Saxon 'post-hole' *[469]*, and Iron Age ditch *[778]*.

Deposition and dating of the flint

In the case of pit *[551]*, the twelve flints found may represent primary domestic waste, as they occurred alongside pottery, burnt soils and charcoal. They are mostly small, hard-hammer struck flakes (though two are abraded and may be of natural origin). There is also the possible knife (no. 3), referred to above, as well as a thick retouched flake with patinated cortex, and a utilised thick primary flake. The sixteen pieces from pit *[874]* are also of note as they may indicate deliberate deposition, or discard, in a natural feature.

Five flints were recovered from Iron Age features (*Phases 4i–ii*). The irregular character of the material makes an Iron Age date possible (cf. Humphrey 2004), but not certain, especially given the residual nature of much of the assemblage.

Thirty-one flints came from the fills of seven Anglo-Saxon burials (*Phase 5*), inhumations 14, 15, 16, 18, 19, 29 and 30. Grave 14's assemblage consisted of five flakes, four spalls, a possible piercer and a neat utilised flake. Graves 16 and 18 also contained five and seven pieces, respectively. The former of these two graves cut ditch *[34/508]*, which was possibly the original source of the worked flint, whilst the latter was just to the east of 'post-hole' *[618]*.

Although most of the flint is not closely datable (and except for the few examples allocated to *Phase 1*), a date in the later Neolithic/early Bronze Age seems likely for the majority based on form. The débitage consists of small irregular pieces, generally squat in nature, but the general lack of context poses a problem of interpretation. Only pit *[551]* contained a significant assemblage in an obvious occupation deposit dated by Beaker pottery.

At the Sutton Hoo cemetery, small-scale late Neolithic activity was also indicated by pottery and worked flint (Hummler 2005, 404–6). However, more intensive occupation was recorded there for the early Bronze Age than at Tranmer House, the associated flint assemblage including examples of thumbnail scrapers and barbed-and-tanged arrowheads (*ibid*., 414, fig. 178), diagnostic pieces notably absent here.

North Field: flint and pottery
(Fig. 6.1a)
In 1984, a spread of flint flakes and a single, abraded, prehistoric potsherd (of undiagnostic type) were recorded by fieldwalking in the North Field enclosure (HER: BML009), north-west of the Tranmer House site (see *Chap. 6; Sect. II*). The flint assemblage contained no diagnostic pieces (J. Newman, pers. comm.), but the material does demonstrate the continued westward spread of activity.

Discussion
The small number of pits, and the residual worked flint and pottery of *Phase 2* finds a partial explanation in the pattern of archaeological deposition observed at a local and regional scale. In East Anglia towards the end of the third millennium BC, and certainly by the time that the use of Beaker pottery was prevalent, the practice of pit digging appears to decline. More sites with pits are known, but the number per site is smaller than during the early Neolithic (Ashwin 2001, 28; Garrow 2006, 153; Healy 2013). It would seem that, whilst deposition of occupation debris in surface accumulations continued, and indeed intensified from the late Neolithic, much less of this material subsequently found its way into pits, but is instead represented archaeologically as artefact-rich spreads. At the same time, the material placed into the pits appears to have become more selective, with a greater time delay between artefact use and eventual deposition (Ashwin 2001, 29; Garrow 2006). Therefore, it would seem reasonable to attribute much of the residual material at the site to surface detritus, with only occasional, deliberate deposition in pits. In addition, the quantity of worked flint in pit *[874]* may indicate the use of a natural feature (see Evans *et al.* 1999; Thomas 2012, 3).

The features and material of this phase were spread across the site, though with apparent foci in the centre-west of Area A and in Area B (Figs 2.1–2.2). In Area A, the residual material shows a focus in the area of the Bronze Age barrow. This may indicate the location retained significance into this later period, though post-depositional factors might also have influenced the recorded distribution (see above). Moreover, the 1984 North Field material suggests the further westward spread of activity (Fig. 6.1a). Combined, the flint débitage and tools, Grooved Ware and Beaker pottery suggest occupation around 2000 BC.

The pottery identifies the site as having a strong Beaker component, the assemblage pointing to domestic usage as at Sutton Hoo (Hummler 2005, 406–47). At other sites a blurring of the boundary between 'domestic' and 'ritual' has been suggested for Beaker pottery (Bradley 1984; 1993; Brück 1999; Ashwin 2001). For example, Gibson has argued for the ritualisation of a group of fingertip-impressed Beakers, once considered exclusively domestic, on the evidence of their association with the votive deposit of a copper-alloy axe (Pendleton and Gibson forthcoming). Nevertheless, it remains likely that the pottery found at Tranmer House derives from cooking and storage vessels.

The Tranmer House remains are relatively meagre in comparison to those at Sutton Hoo, with its Beaker pit clusters, ditch-system and at least one roundhouse (Hummler 2005, 406–47). This suggests that the occupation in Areas A–C was to an extent peripheral. In sum, the evidence forms a modest addition to the numerous sites with Beaker domestic assemblages known in East Anglia (Bamford 1982; Gibson 2002). Nevertheless, Garrow's analysis of East Anglian Beaker pits (2006, 126) lends support to the notion that at Sutton Hoo there was an extensive Beaker occupation, with the balance in favour of a persistent or even permanent settlement. But it must be pointed out that at Sutton Hoo survival of the prehistoric sequence was at least in part afforded by the covering mounds; the Tranmer House site was not so well preserved.

Ditch *[34/508]*, though it contained no dating evidence, has been suggested (see above) as a possible early Bronze Age boundary, comparable to examples identified at Sutton Hoo (Hummler 2005, 406–13). There is substantial and growing evidence for such field-systems from this time in lowland southern England (Yates 2007, 80, 141; Evans *et al*. 2009), with supporting environmental data for agricultural intensification during the Beaker period from the same region (Allen 2005a).

Lastly, possible food remains in pit *[551]* comprised charred hazelnut-shell fragments and burnt acorn pieces (see *Chap. 5; Sect. IV: Discussion of the plant and wood remains*). Remains of both were also found at Sutton Hoo, in pits beneath mounds 2 and 5, where they were associated with early Bronze Age activity (Hummler 2005, 446).

IV. *Phase 3*: Bronze Age (*c*. 1800–900 BC)

Four features are assigned to this phase. Of considerable significance in Area A was the levelled remains of a small barrow and its central burial: ring-ditch *[351]* and cremation 33. As well as its original mound, it might also have been marked by a post (i.e. 'post-hole' *[946]*). In Area B, a small pit or 'post-hole' *[1044]* contained the remains of a Bronze Age vessel.

Cremation 33 *[905]*
(Figs 1.4, 2.1, 2.8–2.9)
Diam. *c*. 0.50m; D. 0.24m
Fills: *(906)* dark brown silty sand with a high proportion of cremated bone; the lower fill was a charcoal-rich black silty sand with cremated bone, excavated in four spits: 1st *(912)*, 2nd *(915)*, 3rd *(916)* and 4th *(919)*; *(923)* mid brown silty sand, with occasional gravel/stones.
Description: located in the centre-north of Area A, surrounded by ring-ditch *[351]*. Cut at its north-east edge by small pit or post-hole *[363]* (modern).

Burial pit *[905]* of roughly circular plan with steep sides and a flat base; it was considerably disturbed by tree roots, recorded as *(923)*. Most of the cremated bone was found unurned in the upper fill, *(906)*, which was bowl-shaped. The lower fill *(912/915–16/919)* yielded decreasing amounts of bone towards the base of the feature, mixed with considerable quantities of charcoal fuel ash.
Environment: *(906/912/915–16/919)* wood charcoal of *Alnus glutinosa*, *Corylus avellana*, *Ilex aquifolium*, *Quercus* sp.; *(923) Pinus* sp. (?intrusive); *(906/912/915–16/919)* plant macrofossils of *Rumex acetosella*, *Plantago lanceolata*, small Poaceae, *Vicia/Lathyrus* sp.; *(923) Fallopia convolvulus*, *Plantago lanceolata*.
Residual: *(906)* one late Neolithic/early Bronze Age potsherd; *(912)* one Beaker sherd with fingertip-impressed and pinched-cordon decoration; *(923)* one undiagnostic prehistoric sherd.
Radiocarbon date: two determinations: i) charcoal (*Alnus glutinosa*) from *(915)*, 3100±50 BP (AA–43642); ii) cremated human bone from *(906)*, 3132±30 BP (OxA–20183).
Cremated bone: *(906)*, 415.1g; 1st spit *(912)*, 81.3g; 2nd spit *(915)*, 36.6g; 3rd spit *(916)*, 10g; 4th spit *(919)*, 5.2g; *(923)*, 12.3g.
Age: mature adult (*c*. 23–40 yrs).
Sex: ??female.
Animal: 0.6g; sheep/goat-size.

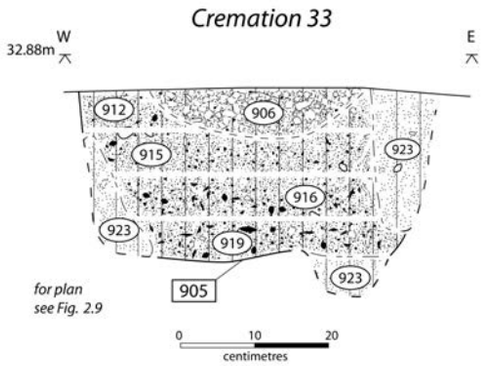


Figure 2.8 Section of Bronze Age cremation 33 (scale 1/10). By CF

Ring-ditch [351]
(Figs 1.4, 2.1, 2.9)
Diam. max. *c*. 7.00m; W. 0.50–0.82m; D. 0.13–0.25m
Fills: *(352)* light yellow-brown very sandy loam; *(446)* mid orange-brown slightly silty sand; *(450–51* light yellow-brown sand, silty in places. Occasional gravel/stones and rare charcoal inclusions.
Description: located in the centre-north of Area A. Cut by multiple features, including: grave 2 and ring-ditch *[425]* (*Phase 5*); linear trenches *[355]* and *[357]* (modern); tree-throws and pits *[444]*, *[452]*, *[454]*, *[456]*, *[458]* and *[466]* (unphased/modern).

Roughly circular ring-ditch with a diameter of *c*. 6.50m (N-S) to *c*. 7.00m (W-E). Its gully was *c*. 0.50m–0.80m wide and survived up to 0.25m deep, with sloped sides and a concave base. The fill *(352/446/450–51)* was approximately one quarter excavated. Cremation 33 was at its centre.
Residual/Intrusive: *(352)* one early Neolithic potsherd; *(446)* one Iron Age potsherd; *(451)* one undiagnostic prehistoric sherd.

'Post-hole' [946]
(Figs 1.4, 2.9)
L. 0.57m; W. 0.50m; D. 0.17m
Fill: *(947)* light orange-brown sand with occasional gravel/stones.
Description: located in the centre-north of Area A, within ring-ditch *[351]*, cremation 33 immediately to its west. Cut by linear trench *[357]* (modern).

Small pit or post-hole, roughly circular in plan, with shallow sides and a concave base. There was no actual evidence for a post. It was possibly contemporary with cremation 33, but it contained no finds or burnt material. Alternatively, the feature might have been associated with the Anglo-Saxon grave group focused on the barrow, or entirely unrelated.

'Post-hole' *[1044]*
Diam. 0.50m; D. 0.30m
Fill: *(1045)* dark grey-brown silty sand with frequent charcoal inclusions.
Description: located in Area B.

Small pit or post-hole with near-vertical sides and a concave base. Twenty-six sherds from a single Bronze Age vessel distributed throughout the charcoal-rich fill. On the evidence of a very small amount of burnt bone, the feature was originally thought a 'possible cremation'. This proved not to be the case; very little bone was found, none of it human.
Environment: *(1045)* plant macrofossil of *Triticum spelta* (glume base).
Residual/Intrusive: two flint chips and a spall, one late Neolithic/early Bronze Age potsherd and three intrusive Iron Age sherds.
'Cremated' bone: *(1045)* <0.1g; very worn and chalky.
Animal: large ungulate and unidentified.
FINDS: *(1045)* twenty-six sherds of a single Bronze Age vessel.

Pottery

by S. Percival
(Tables 2.2–2.3)
Twenty-six sherds (71g) from a single vessel were found in pit *[1044]*, in a heavily grog-tempered fabric with numerous small to medium sub-rounded inclusions (G1).

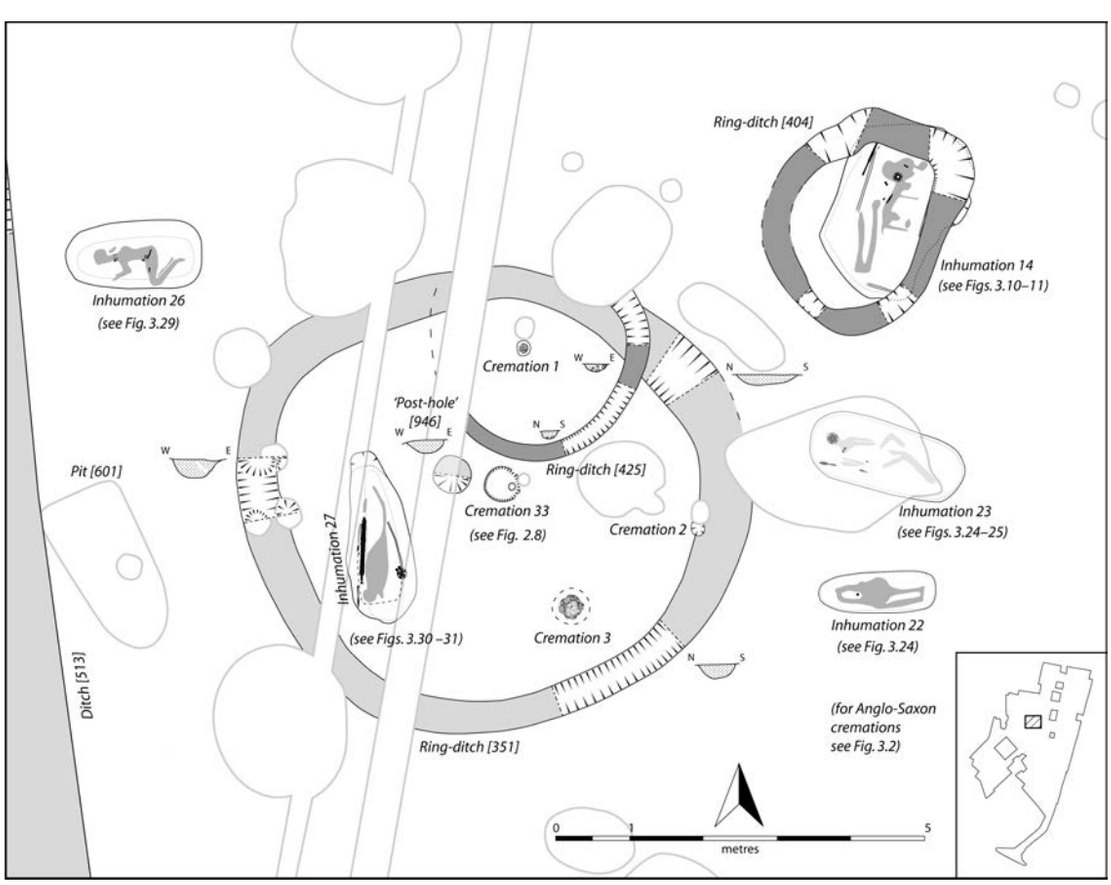


Figure 2.9 Bronze Age cremation 33 and ring-ditch *[351]*, with Anglo-Saxon graves 1, 2, 3, 14, 22, 23, 26 and 27, and associated ring-ditches *[404]* and *[425]* (scale 1/100). By CF

The incomplete pot has a simple upright, rounded rim and a wet-hand, smoothed finish, without evidence of any decoration. Many of the sherds are heavily abraded (for methodology see *Sect. II: Pottery*).

North Field: Bronze Age spearhead
(Fig. 6.4, no. 33)
In 1986, a metal-detector survey in the North Field enclosure (HER: BML009) recovered the tip of a late Bronze Age spearhead, some 75m west of the barrow burial in Area A (Fig. 6.1c; see *Chap. 6*). Together with a socketed axe-head of similar date found recently on the foreshore of the Deben, below Tranmer House (Pendleton in Loader and Everett 2004, HER: SUT195), it represents further evidence of Bronze Age activity, albeit some centuries later.

Discussion
As with *Phases 1–2*, the evidence points to limited but significant activity, chiefly the small barrow and its grave (cremation 33). The burial pit *[905]* containing the cremated remains included much pyre charcoal (Fig. 2.8). This suggests the cremation took place close by, and possibly at the site of burial, though no scorched-surface remains survived. The pit could even have been dug as a *bustum*, located beneath the pyre to collect the bone as the cremation took its course. Alternatively, perhaps it was cut through the pyre site afterwards and the charred remains swept into it, though possibly with some sorting of the calcined human bone, as the majority was concentrated in the upper part of the pit, deposit *(906)*. It is possible a wooden vessel or bag was used as a container, but no trace was found. The human bone has been identified as that of a mature adult, possibly a female (see *Chap. 5; Sect. II*: Table 5.1). The small fragment of sheep/goat bone found with it may be from a food offering put on the pyre. Bone and charcoal samples from the burial have been radiocarbon dated to the 15th/14th century BC, the middle Bronze Age (see *Chap. 7; Sect. II*: Table 7.1). Finally, the uniform, light-to-mid brown sand of the barrow's ring-ditch *[351]* suggests rapid backfilling, possibly by windblown and/or washed in material from the freshly excavated sand of the burial mound.

Importantly, these remains are the first definite instance of a prehistoric burial on the Sutton Hoo promontory, and it seems the barrow had continuing significance. The small monument may have played a role in the laying out of the Iron Age boundary, given its closeness to ditch *[513]*. More certainly, it was a focus for one group of Anglo-Saxon graves. Its small barrow was probably reduced with time, but it is demonstrably not the case that 'it had almost certainly been ploughed flat long before' the Anglo-Saxon cemetery (*pace* Williamson 2008, 102). By contrast, excavations at the Sutton Hoo cemetery failed to find unequivocal prehistoric funerary activity. The best candidates, two 'urns' in the area of mound 6, were ultimately argued as non-funerary (Hummler 2005, 449–51, fig. 200). The barrow now provides the first evidence, therefore, of the prehistoric funerary context long suspected in the setting of the early Anglo-Saxon activity at Sutton Hoo (Ellison 1986, 39–40).

Bronze Age barrows are numerous in East Anglia, both single instances and clusters (Lawson *et al*. 1981). In Suffolk, they are well represented on the elevated ground and light soils of the Sandlings, particularly on the Felixstowe peninsula (Martin 1981, 75–76, fig. 2 6; 1988, 31). Within Sutton parish several groups of extant and flattened barrows are known, including one sited to the east of the Sutton Hoo mound cemetery. Further examples occur on heathland further east of the parish, and on either side of Saxtead Bottom (Martin and Satchell 2008, fig. 10). It is possible further examples once existed on the Tranmer House promontory, perhaps even in the North Field enclosure, that were ploughed flat by later farming or lost to other land-management processes (Williamson 2008, 91). Indeed, a second example may be tentatively suggested from the results of the 1997 geophysics survey (Fig. 1.3): an 'annular' anomaly in Area 5 is close in size to ring-ditch *[351]*, and also adjacent to the later prehistoric boundary.

At 7m in diameter, the Tranmer House barrow ring-ditch is small by local standards. A recent survey on the Felixstowe peninsula found most barrows to be between 15 and 25m in diameter, with an overall range from 7 to 48m (Hegarty 2006, 17). However, contemporary cremation burials under barrows of comparable size have been recorded among the Deverel-Rimbury urn-burials of Essex and south-east Suffolk. At the cemeteries of Ardleigh, Brightlingsea and Lodge Farm (St Osyth) small barrow burials were found closely-packed, with an average ring-ditch diameter at the latter two sites close to 7m (Brown 1999; Clarke and Lavender 2008; Germany 2007). The calibrated radiocarbon-date range for the graves from Lodge Farm was 1430–1200 BC (Germany 2007, 102), and at Ardleigh it was 1410–770 BC (Brown 1999, 172), close to the date of the Tranmer House barrow. An instance of a comparable solitary barrow burial is Clacton Rush Green, Essex, that had an unurned cremation burial at the centre of its ring-ditch of 22m diameter. A radiocarbon measurement on charcoal from this grave gave a result of 3040±80 BP (Buckley and Priddy 1983, 127).

The small pit or possible 'post-hole' *[1044]* in Area B, that contained all the identifiable pottery of the period, might represent a food offering or domestic waste (see Reynolds 2012, 177). However, the several Iron Age sherds also found, if not 'intrusive', would question the feature's inclusion in this phase.

Little can be said about the late Bronze Age spearhead fragment from the North Field enclosure, which could represent a single find, element of a hoard, or votive offering. Nevertheless, a recent study of hoards of the period in south-east England found that they tend to be sited close to waterways, occasionally on promontories and sometimes in association with co-axial field-systems (Yates and Bradley 2010), criteria that fit the findspot.

V. *Phase 4*: Iron Age and later (*c.* 900 BC–AD 550)

In the later prehistoric period an extensive field-system was established on the Sutton Hoo promontory (Figs 1.2 and 2.10). In Area A, its major component was a broad ditch, feature *[513]*, that formed the north-south boundary of a rectilinear enclosure, with ditch *[715/776]* representing its southern limit. The north-south line was continued by ditch sections *[767/1008]*, *[778]* and *[1020]*, in effect bisecting the main site (Area A). A series of small co-axial enclosures, defined by lesser ditches, branched off the eastern side of this main axis. A

minimum of two phases is proposed (Fig. 2.15): in *Phase 4i* the large rectilinear enclosure is suggested as integral with the north-south axis; in *Phase 4ii* the smaller parcels of land were added on the boundary's east side.

This appears to have been part of a local system of territorial organisation known from previous excavations and surveys, notably Carver's 1983–2001 project at Sutton Hoo, and broadly dated there to the Iron Age (2005, fig. 8, fig. 18; Hummler 2005, 451, fig. 201; Newman 2005, 480, 486). The geophysical surveys undertaken in 1997 and 2000 show its continuation to the north and west of the site, with some of the sub-surface anomalies found in 1997 subsequently confirmed by trial-trenching (Figs 1.3, 2.10; see *Chap. 1*). In particular, the 2000 survey identified a west-east boundary that may be suggested as the northern limit of the main enclosure formed by ditches *[513]* and *[715/776]*.

However, at Tranmer House the interpretation of these linear features has been hampered by the very low incidence of late prehistoric pottery. It also proved difficult during excavation to establish stratigraphic relationships between the many ditch intersections. In part this was due to a lack of opportunity, with many junctions outside areas of excavation, but even where sampling and recording was possible, the largely homogeneous sand backfills, probably wind-blown accumulations, yielded little.

Only a very small amount of Roman-period pottery was found, pointing to a very limited presence by this time (*Phase 4iii*).

Phase 4i: large rectilinear enclosure

Together, ditches *[513]* and *[715/776]* formed the south-east corner of a large rectilinear enclosure in the north-west of Area A (Figs 1.4, 2.10, 2.15). Its northern extent may be suggested by linear elements recorded by geophysical survey in North Field (Fig. 1.3).

Ditch *[513]*
(Figs 1.4, 2.10–2.12, 2.14)
W. *c*. 2.50–3.00m; D. *c*. 0.90–1.00m
Fills: *(514)* light orange sand that changed to dark red-brown at the edges, with a thin layer of very light yellow-orange sand at the base, probably redeposited natural (recorded as a single OP); *(566)* yellow-brown sandy loam; *(567)* dark brown sandy loam; *(568)* light orange-brown sandy loam; *(569)* mid orange-brown sandy loam; *(577/579)* mid orange-brown silty sand; *(578/880/996)* mid brown silty sand; *(580)* red-brown silty sand; *(581)* yellow-orange silty sand; *(609)* mid red-brown sand; *(766)* light-mid brown silty sand; *(970/979/983)*, mid orange-brown sand. Occasional-moderate gravel/stones throughout.
Description: located in the centre-north of Area A. Cut by multiple modern features, as well as earlier archaeology: field-boundary *[119]* (*Phase 6*), ditch *[22/494]* (*Phase 4ii*), hearth *[550]* (*Phase 4iii*), and grave 20 (*Phase 5*). It cut pit *[1023]* (unphased) at its intersection with ditch *[715/776]*, and 'pit' *[601]* (?*Phase 2*). Hearth *[550]* was cut into the ditch's partial backfill (or possibly its re-cut profile).

Broad and v-shaped with a concave base of varying acuteness; steep sides, angled at about thirty to forty-five degrees, in places stepped or undulated. On a N-S alignment, recorded for some fifty metres. Some excavated sections had only a single homogeneous fill, but others demonstrated a sequence of multiple deposits. In two cases a shallow basal fill of redeposited natural sand was recorded, e.g. fill *(581)*. The brown sands probably represent wind-blown fills, e.g. *(580)*. The recorded profiles and fills hint at the possibility of one or more re-cuts, though none was confirmed in excavation. Its form and trajectory relates it to ditch *[8/9]*, from the 1997 evaluation (see below; Fig. 2.11).

At its southern end it joined ditch *[715/776]* in a right-angled junction. Excavation at this intersection established that the two ditches were very probably the same boundary, as is also implied by their similar profiles and proportions (cf. Fig. 2.11). Together they suggest the south-east corner of a large rectilinear enclosure.

A thin and shallow length of further N-S boundary, feature *[1020]*, abutted the southern end, linking ditch *[513]* with the continuing N-S boundary represented by ditch sections *[767/1008]*, *[778]* and *[784]*.

Ditch *[513]* was joined on its eastern side by W-E ditch *[22/494]*. The stratigraphic relationship at this intersection was uncertain, but possibly ditch *[513]* cut the W-E boundary. This would contradict the suggested phasing at the site, however, unless ditch *[513]* was re-cut after the establishment of the co-axial field-system of *Phase 4ii*.
Residual: *(598)* one Grooved Ware potsherd (Fig. 2.4, no. 3); *(880)* one late Neolithic/early Bronze Age potsherd; *(983)* one undiagnostic prehistoric potsherd.

Ditch [715/776]
(Figs 1.4, 2.10–2.11)
W. 2.40m; D. 0.85m
Fills: *[715]*: *(716)* dark brown silty sand; *(717)* mid orange-brown silty sand; *(718)* mid brown silty sand with frequent gravel/stones; *(719)* light yellow silty sand; *(720)* light brown silty sand; *[776]*: *(777)* light-mid brown sand; *(839/853)* orange-brown sandy loam; *(1022)* mid yellow-brown silty sand, mottled with dark brown sand, moderate gravel/stones.
Description: located in the centre-west of Area A. Cut by two probable tree/garden features, *[840]* and *[855]*. It cut pit *[1023]* (unphased) at its intersection with ditch *[513]*.

Broad and v-shaped with a concave base; steep sides angled at about forty-five degrees, in places stepped or undulated. On a WSW-ENE alignment, recorded for approximately fifty metres (its two sections were separated by the sunken rose garden). At its right-angle junction with ditch *[513]* it demonstrated a continuous boundary. It contained up to five fills. Primary redeposited light sands, e.g. *(719–20)*, were followed by mid-dark brown silty sands, e.g. *(716–18)*, probably largely wind-blown accumulations.
Residual: *(718)* one early Neolithic potsherd and one flint spall.

Phase 4i: north-south boundary

(Figs 1.3, 1.4, 2.10)
The north-south boundary continued within Area A for over 100m south of ditch *[513]*, recorded in a series of sections (*[767/1008]*, *[778]*, *[784]* and *[1020]*). Ditch *[8/9]*, excavated in the 1997 evaluation to the north (Trenches 1, 3 and 5), was probably part of the same axis, the whole length of which was possibly contemporary with the large enclosure (i.e. *[513]* and *[715/776]*). This impression is reinforced by the close similarity of the ditch profiles *[8/9]* and *[513]* (Fig. 2.11). That they were not part of a continous linear feature, however, is indicated by the fact that no trace of the ditch was found in Trench 7 of the evaluation (Fig. 1.3; Abbott 1997). This could suggest the boundary stopped short of the northern corner of the enclosure, possibly marking an opening (Fig. 2.15).

By comparison, the southern length of the boundary was on a smaller scale. Its northern terminus, ditch section *[1020]*, abutted rather than joined ditch *[513]*, and survived as little more than a shallow gully. It is possible this section was added later to close another, corresponding opening at the south-east corner of the enclosure (Fig. 2.15). The evidence for this is as follows: ditch *[767/1008]* showed evidence for two earlier termini *[790]* and *[787]*; a possible post-hole *[792]* was cut through the base of ditch *[767/1008]*, close to its intersection with ditch *[101/1010]*, possibly at its termination (for location, Fig. 1.4); and the end of the west-east boundary *[101/1010]* overshot the north-south boundary at the same point. (Lastly, if section *[1020]* is later than the rest of the north-south boundary, then it might be contemporary with the activity of *Phase 4ii*.)

A rough chronology for the enclosure and boundary can be suggested on the evidence of pottery, limited stratigraphic evidence and one radiocarbon date. Pottery from ditch *[8/9]* indicates that the north-south axis was probably in use during the Iron Age. Little chronological

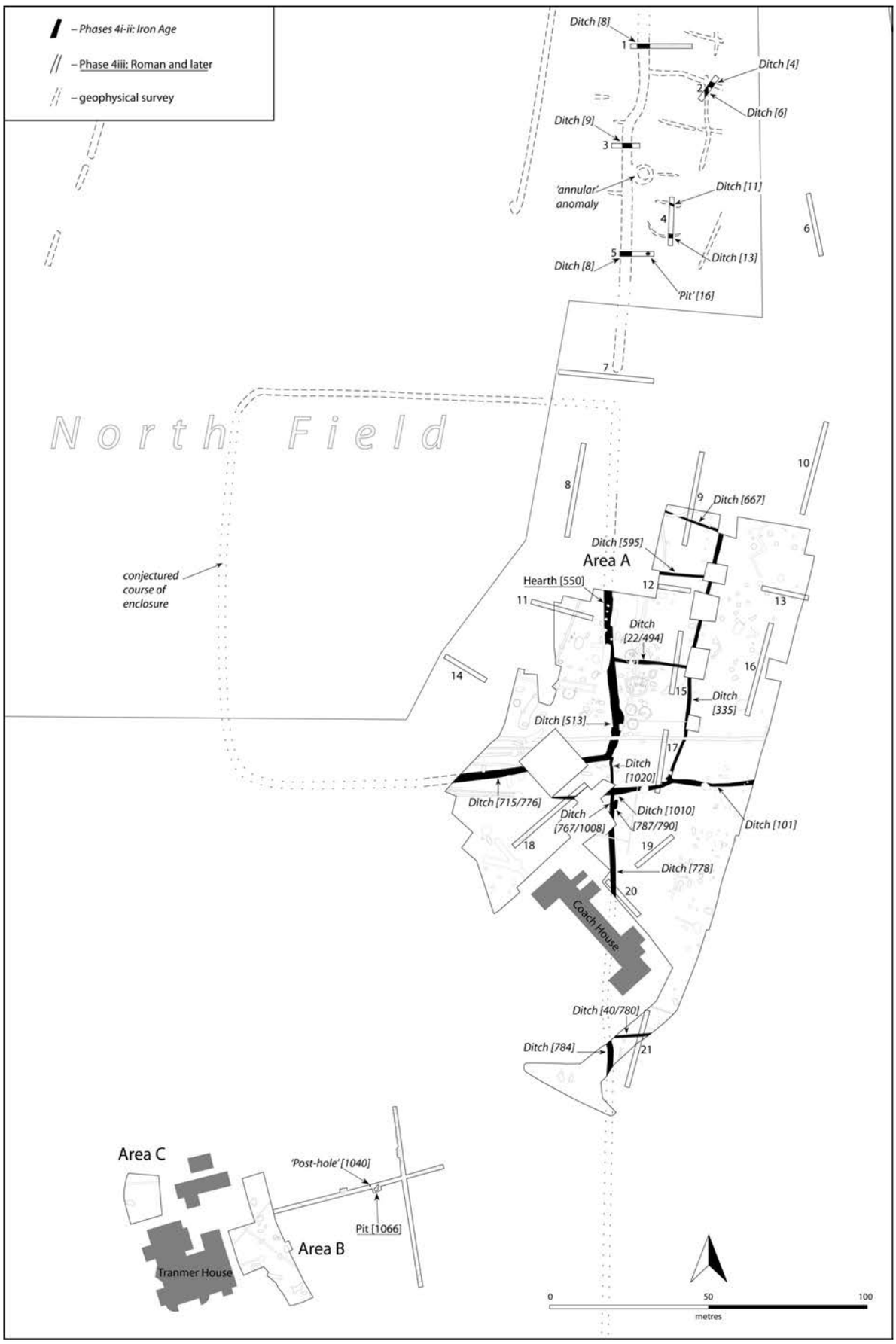


Figure 2.10 *Phase 4(i–iii)*: Iron Age (and later) features (scale 1/1750). By CF

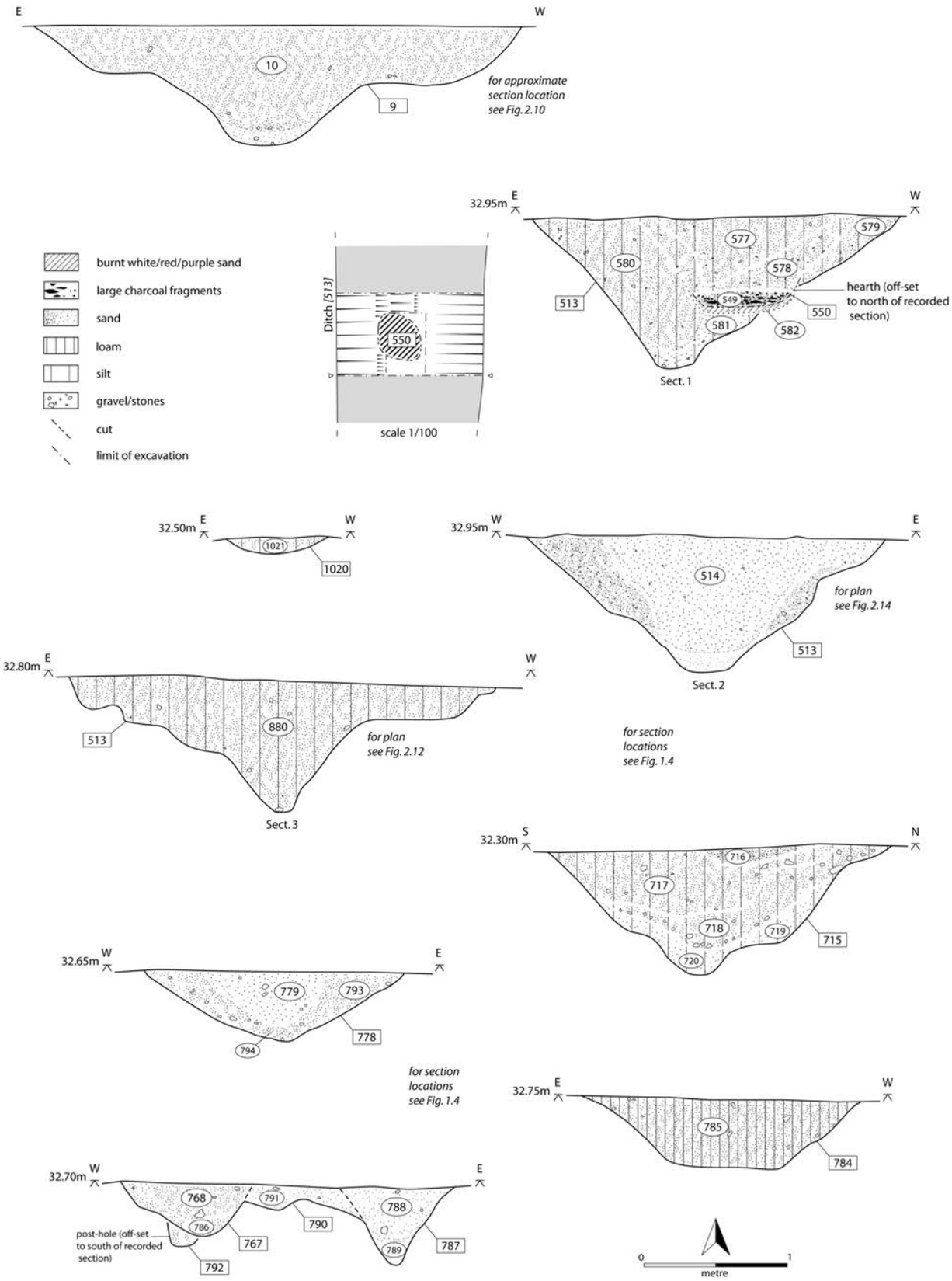


Figure 2.11 Plans and sections of Iron Age ditches *[513]*, *[715/76]*, *[767]*, *[778]* and *[784]* (scales 1/40 and 1/100). By CF

refinement to this is possible, though one isolated sherd found in an Anglo-Saxon grave close to ditch *[513]* pre-dates the 3rd century BC. Other than post-medieval and modern interference, two dated features cut ditch *[513]*: Anglo-Saxon inhumation 20 and hearth *[550]* (for locations see Fig. 1.4). The burial had been dug into the backfilled eastern edge of the boundary, but otherwise appeared to respect it, suggesting the ditch remained as a visible earthwork at this later period. Hearth *[550]* has been radiocarbon dated to *cal AD 240–540* at 95% confidence (AA-43641; 1670±55 BP). This shallow fire-setting was made in the bottom of the half-backfilled ditch, or possibly in a re-cut of it. Indeed, the stepped profiles of some of the ditches could suggest long-term maintenance. However, the near total absence of Roman material from the site argues against use of the field-system at Tranmer House by the time of the hearth (*Phase 4iii*), making it more likely that it represents isolated activity in the ditch earthwork.

In addition, a potential post-hole *[1040]* in Area B contained a single Iron Age sherd, and with the other post-holes excavated nearby it is slim but possible evidence for occupation activity in *Phase 4i* or *4ii*. One of these, 'post-hole' *[1044],* also yielded several Iron Age sherds, though it has been assigned to *Phase 3* on account of the greater proportion of Bronze Age pot it contained (see above, *Sect. IV*).

Ditch *[8/9]*
(Figs 1.3, 2.10–2.11)
W. *c*. 3.25–4.10m; D. 0.85m
Fill: *(10)* mid brown sand with a thin layer of light-mid brown sand at the base (recorded as a single OP), burnt flint.
Description: recorded in the 1997 evaluation as ditch *[8]* (Trenches 1, 5) and ditch *[9]* (Trench 3).

Broad with a stepped, v-shaped profile and concave base. The 1997 geophysical survey plot indicates the onward course of the boundary.
FINDS: *(10)* eleven potsherds (Abbott 1997, app. IV).

Ditch *[767/1008]* with *[787], [790]* and *[792]*
(Figs 1.4, 2.10–2.11)
W. 0.95m; D. 0.36m
Fills: *(768)* mid red-brown sand; *(786/1009)* mid yellow-brown sand. Moderate-frequent gravel/stones throughout.
Description: recorded as *[767]* and *[1008]*. Located in the centre-south of Area A, immediately south of W-E ditch *[101/1010]* (*Phase 4ii*). Cut by 'post-hole' *[792]* (*Phase 4i*) and possibly ditch *[101/1010]* (*Phase 4ii*). It cut feature *[790]*.

Short length of roughly u-shaped ditch, aligned N-S. It contained up to two fills, i.e. *(768/786)*. There was evidence for the modification of the original boundary. Where sampled, it appeared to cut across an earlier feature, *[790]*, interpreted as 'the shallow, truncated remains of a ditch'. This was possibly an earlier terminus that also ran parallel with another, *[787]*. Offset just to the south of the recorded section was a post-hole *[792]*, in the base of the ditch, possibly also part of an original end to the boundary at this point.
Residual: *(768)* one undiagnostic prehistoric potsherd.

Ditch *[778]*
(Figs 1.4, 2.10–2.11)
W. 1.81m; D. 0.49m
Fills: *(779)* light orange-brown sand; *(793)* mid brown sand; *(794)* mid orange-brown sand. Burnt stone in *(793–94)*.
Description: located in the centre-south of Area A; continuation of N-S ditch *[767/1008]*.

Broad and v-shaped ditch. It contained three fills *(779/793/794)*.
Residual: *(779)* one flint flake; *(793)* one flint flake.

Ditch *[784]*
(Figs 1.4, 2.10–2.11)
W. 2.00m; D. 0.50m
Fill: *(785)* orange-brown silty sand.
Description: Located in the south of Area A; probably a continuation of N-S ditch *[767/778/1008]*.

Broad ditch with sloping sides and a flat base; sides angled at 35 degrees. It contained a single, homogeneous fill *(785)*. It is likely that W-E ditch *[40/780]* joined its eastern edge, just beyond the excavation limit. No finds.

Ditch [1020]
(Figs 1.4, 2.10–2.11)
W. 0.70m; D. 0.12m
Fill: *(1021)* mid yellow-brown slightly silty sand.

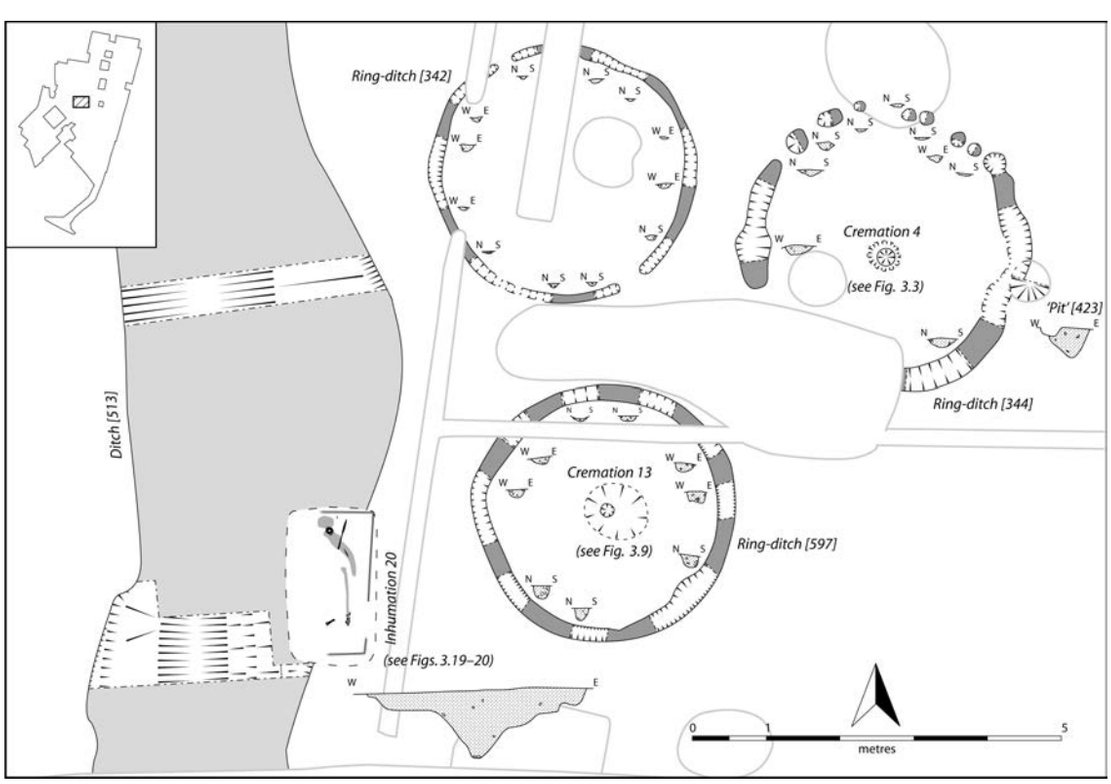


Figure 2.12 Iron Age ditch *[513]*, with Anglo-Saxon graves 4, 13 and 20, and associated ring-ditches *[342]*, *[344]* and *[597]* (scale 1/100). By CF

Description: located in the centre of Area A.

Shallow gully, aligned N-S; approximately 10m in length. It contained a single homogeneous fill *(1021)*. It joined ditches *[767/1008]* and *[513]*, abutting the latter on its eastern side. As it respected ditch *[513]* it most probably represents a later addition, and possibly it was dug to close an earlier gap in the boundary (see above). Its relationship to the W-E boundary *[101/1010]* was not established. No finds.

'Post-hole' *[1040]*
(Figs 1.4, 2.10, 2.13)
L. 0.36m; W. 0.28; D. 0.18m
Fill: (1041) very dark grey sand with a high charcoal content.
Description: located in Area B.

Small pit or possibly a post-hole, ovoid in plan with a u-shaped profile. Its charcoal-rich fill *(1041)* was recorded on site as a 'cremation', but it contained no burnt bone.
Environment: *(1041)* wood charcoal of *Betula* sp.
FINDS: *(1041)* one potsherd.

Phase 4ii: co-axial enclosure

(Figs 1.4, 2.10, 2.13)

Subsequent to the main north-south boundary and large enclosure of *Phase 4i*, it is proposed that smaller enclosures were added along the boundary's eastern side, forming a co-axial system. This comprised a series of broadly west-east aligned ditches, joined at their eastern end by a roughly north-south boundary, ditch *[335]*. A further part of this system may be represented by ditch *[40/780]* at the southern limit of Area A. Unfortunately few ditch intersections could be tested, and those that were showed no clear relationships. It was thought most likely that ditch *[1010]* (*Phase 4ii*) was later than north-south ditch *[767/1008]* (*Phase 4i*). However, the opposite relationship was recorded at the junction of ditch *[22/494]* and (the supposedly earlier) enclosure ditch *[513]*; though this might have resulted from the re-cutting of the large enclosure. To further complicate matters, no material of the Iron Age (or later) was found in any of the ditch sections of this phase sampled in Area A (though some was found in the 1997 evaluation, with a probably related system of enclosure: see below). At the very least, the pre-Anglo-Saxon status of the remains is assured, as ditch *[22/494]* was cut by ring-ditch *[437]*.

Ditch [22/494]
(Figs 1.4, 2.10, 2.13–2.14)
W. 1.10–1.20m; D. 0.30–0.50m
Fills: *(23)* mid brown sand with a light brown sand at the base (recorded as a single OP); *(495)* red-brown sandy loam with occasional gravel/stones; *(570)* yellow-brown sandy loam with frequent gravel/stones.
Description: first recorded in the 1997 evaluation (Trench 15) as feature *[22]*, deposit *(23)*. In the 2000 excavation it was recorded as ditch *[494]*, located in the centre-north of Area A. Cut by trenches *[355]* and *[357]*, a recent tree and post-hole (all modern), and ring-ditch *[437]* (*Phase 5*). Possibly cut by ditch *[513]*. At the excavated section was a small elongated scoop *[496]* with a nearly identical fill.
V-shaped ditch, aligned W-E; approximately 20m in length. The backfill was variable along the length.

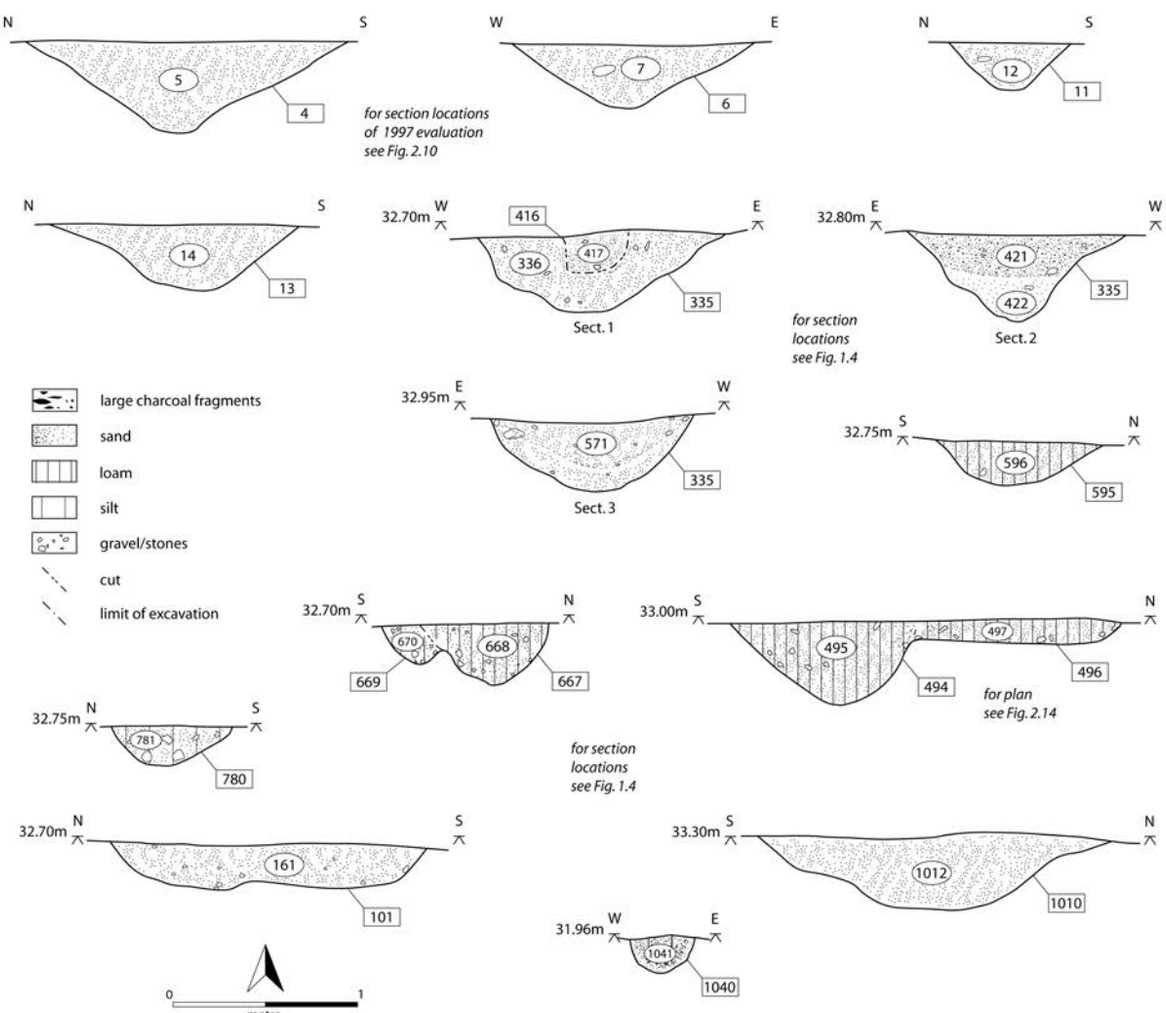


Figure 2.13 Sections of Iron Age features (scale 1/40). By CF

It joined together N-S ditches *[335]* and *[513]*, but only its junction with ditch *[513]* was within the excavation area. The stratigraphic relationship at this intersection was uncertain: possibly ditch *[513]*, or its re-cut, cut this feature. No finds.

Ditch [40/780]
(Figs 1.4, 2.10, 2.13)
W. 0.65–0.70m; D. 0.20m
Fills: *(41)* mid orange-brown sand; *(781)* mid brown silty sand, moderate gravel/stones (especially towards the base of the feature).
Description: first recorded in the 1997 evaluation (Trench 21) as feature *[40]*, deposit *(41)*. In the 2000 excavation it was recorded as ditch *[780]*, located close to the southern limit of Area A.

U-shaped ditch, aligned W-E. A relationship with N-S ditch section *[784]* is probable, but their assumed junction lay just beyond the limit of the excavation. No finds.

Ditch *[101]*
(Figs 1.4, 2.10, 2.13)
W. 0.70–1.70m; D. 0.16–0.30m
Fills: *(102–3)* light-mid brown silty sand; *(161)* mid orange-brown sand; *(165)* mid orange-brown sandy loam; *(593/633)* mid red-brown sand with occasional gravel/stones and charcoal inclusions.
Description: located in the centre-east of Area A. Cut by garden features *[113], [115]* and *[117],* and a rubbish pit *[166]* (all modern).

Shallow boundary of variable width, aligned W-E; approximately thirty metres recorded. Its western end joined ditches *[335]* and *[1010]*. Its terminus possibly overlapped the junction slightly, though the stratigraphic relationship of these features was not established.
Residual: *(161)* one blade-like flint flake.

Ditch *[335]*
(Figs 1.4, 2.10, 2.13)
W. 1.10–1.35m; D. 0.20–0.47m
Fills: *(336/421/594)* mid-dark red-brown sand with moderate gravel/stones and charcoal flecks; *(422)* light red-brown sand; *(571/573)* mid orange-brown sand with occasional gravel/stones; *(412)* yellow-brown sandy loam.
Description: located in the north-east quarter of Area A. Two lines of pits/post-holes ran parallel, but these were from two recent boundaries; one post-hole *[416]* cut the ditch (contained a sherd of 15/16th-century pottery). Also cut by ditch *[119]*, the 19th-century boundary (*Phase 6*).

Narrow ditch, aligned NNE-SSW; approximately eighty metres recorded. It had a relatively constant profile that varied only slightly from a U- to a V-shape, and was generally consistent in its width and depth, suggesting a single boundary. Its fill varied from a uniform deposit, i.e. *(336)*, to a double fill *(421–22)*.

Joined by multiple W-E boundaries, ditches *[22/494]*, *[595], [669]* and *[1010]*, linking it to the main N-S axis of ditches *[513]* and *[767/1008]*. Unfortunately, most junctions coincided with areas that could not be excavated.
Residual/Intrusive: *(412)* one early Anglo-Saxon potsherd; *(422)* three undiagnostic prehistoric potsherds.

Ditch *[595]*
(Figs 1.4, 2.10, 2.13)
W. 0.90m; D. 0.25m
Fill: *(596)* mid orange-brown sandy loam.
Description: located in the north of Area A.

Shallow U-shaped ditch, aligned W-E; approximately thirteen metres recorded. It contained a single homogeneous fill *(596)*. It is assumed, by its position and form, to be part of the same phase as ditches *[335]*, *[22/494]*, *[669]* and *[1010]*, and to have joined boundary *[335]* to ditch *[513]*. However, it had no stratigraphic relationship with any other feature; its junction with ditch *[335]* coincided with a modern tree, preventing excavation.
Residual: *(596)* one late Neolithic/early Bronze Age potsherd.

Ditch *[669]*
(Figs 1.4, 2.10, 2.13)
W. 0.35m; D. 0.20m
Fill: *(670)* orange-brown silty sand with occasional gravel/stones.
Description: located close to the northern limit of Area A. Cut by pit *[695]* and ditch *[667]* (modern).

Narrow U-shaped gully, aligned WNW-ESE. It contained a single homogeneous fill *(670)*. It is assumed to have joined the N-S ditch *[335]*, but the junction was beyond the limit of excavation. No finds.

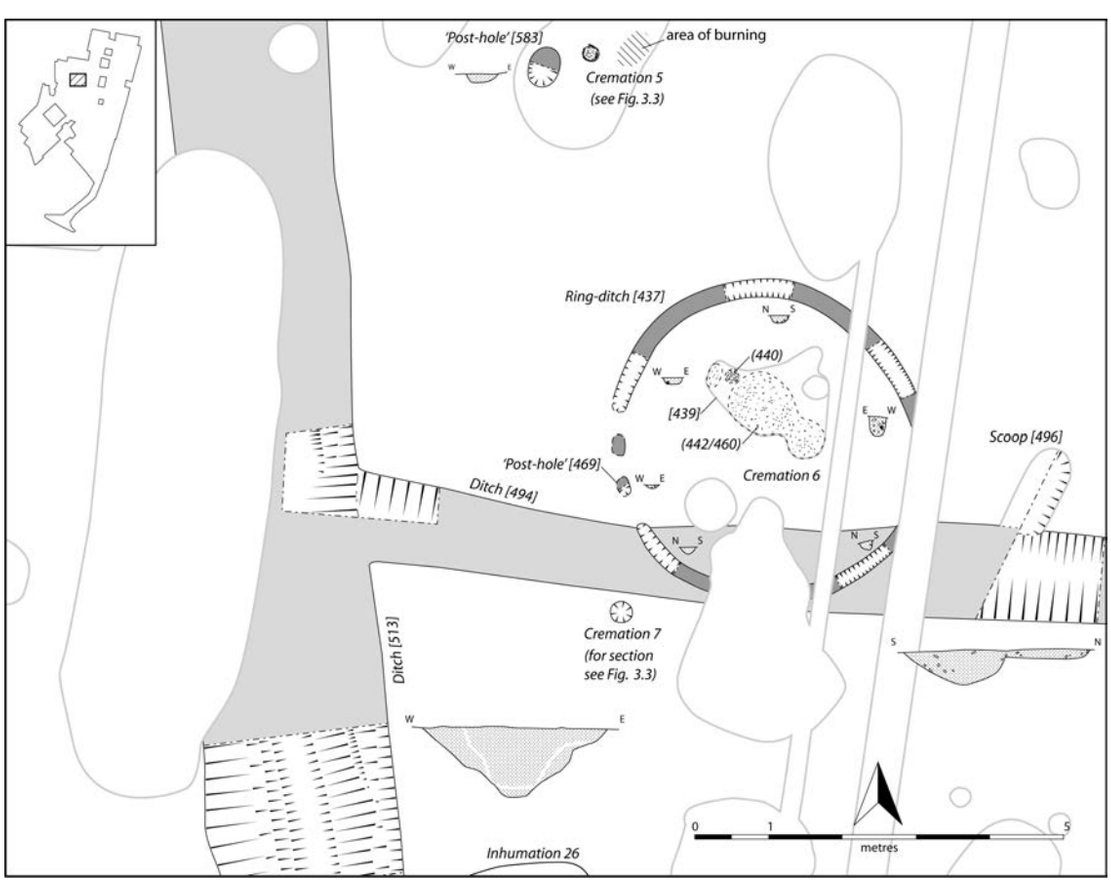


Figure 2.14 Iron Age ditches *[494]* and *[513]*, with Anglo-Saxon graves 5, 6 and 7, and associated ring-ditch *[437]* (scale 1/100). By CF

Ditch *[1010]*
(Figs 1.4, 2.10, 2.13)
W. 0.85-1.90m; D. 0.40m
Fill: *(1011–12)* mid yellow-brown sand with moderate gravel/stones.
Description: located in the centre of Area A. It cut ditch *[767/1008]* (*Phase 4i*).

Ditch with a varied width and profile. It contained a single homogeneous fill *(1011–12)*. It linked ditches *[101]* and *[335]* to the N-S boundary formed by sections *[767]*, *[1008]* and *[1020]*. Its junction with ditches *[101]* and *[335]* was not tested, but at its intersection with the N-S boundary the excavator thought it most likely that it cut ditch *[767/1008]*. No finds.

Phase 4ii: co-axial enclosure recorded in 1997

(Figs 1.3, 2.10)

Elements probably related to the field-system of *Phase 4ii* in Area A were encountered in the 1997 evaluation, in the North Field enclosure (see *Chap. 1, Sect. VI*). The trial trenching provided only a limited excavation window, but the geophysical survey that preceded it indicated the potential extent of the remains (Fig. 1.3; Copp *et al.* 1997). Trench 4 was located over an annular anomaly identified by the survey. However, in excavation, the resulting features *[11]* and *[13]* proved more convincing as transverse boundaries.

A number of features contained pottery of probable Iron Age date, whilst ditch *[4]* produced a wheel-made sherd that is possibly Roman (Abbott 1997, app. IV). As on the main site, however, the overall paucity of dating evidence, combined with the limited excavation in this case, makes any conclusions tentative. In addition, finds of burnt flint in several features further support a prehistoric presence, with a concentration in Trench 4 found together with a large saddle-quern (Fig. 2.5, no. 6).

Ditch *[4]*
(Figs 1.3, 2.10 and 2.13)
W. 1.75m; D. 0.50m
Fill: *(5)* mid brown sand, burnt flint.
Description: located in Trench 2.

Shallow V-shaped ditch, aligned WNW-ESE. It contained a single homogeneous fill *(5)*. The geophysical survey plot indicates the continuing course of the linear feature, which appears to join N-S boundary *[8/9]* to its west. Similar in form to adjoining ditch *[6]*.
Residual: one late Neolithic scraper (Fig.2.5, no. 2).
FINDS: *(5)* one body sherd from a wheel-made pot, possibly Roman (Abbott 1997, app. IV).

Ditch *[6]*
(Figs 1.3, 2.10 and 2.13)
W. 1.30m; D. 0.30m
Fill: *(7)* mid brown sand, burnt flint.
Description: located in Trench 2.

Shallow V-shaped ditch, aligned N-S. It contained a single homogeneous fill *(7)*. The geophysical survey plot indicates its continuing southward course, parallel to ditch *[8/9]*. Similar in form to adjoining ditch *[4]*. No finds.

Ditch *[11]*
(Figs 1.3, 2.10 and 2.13)
W. 0.65m; D. 0.25m
Fill: *(12)* mid brown sand, burnt flint.
Description: located in Trench 4.

Narrow V-shaped ditch. It contained a single homogeneous fill *(12)*.
Residual: one Beaker sherd (Abbott 1997, app. IV).
FINDS: *(12)* one probable Iron Age potsherd (Abbott 1997, app. IV).

Ditch *[13]*
(Figs 1.3, 2.10 and 2.13)
W. 0.65m; D. 0.25m
Fill: *(14)* mid brown sand.
Description: located in Trench 4.

Slightly irregular V-shaped ditch. It contained a single homogeneous fill *(14)*.No finds.

'Pit' *[16]*
(Figs 1.3 and 2.10)
Diam. 1.50m; D. 0.10m
Fill: *(17)* mid brown sand.
Description: located in Trench 5, east of ditch *[8/9]*.

Very shallow 'pit' with a flat base. It contained a single homogeneous fill *(17)*.
FINDS: *(17)* two probable Iron Age potsherds (Abbott 1997, app. IV).

Phase 4iii: Roman to early Anglo-Saxon activity

(Figs 1.4, 2.10)

Only two features are of this phase. The radiocarbon-age calibration (95% probability) for hearth *[550]* indicates a potential date range from the late Roman to early Anglo-Saxon periods (see *Chap. 7; Sect. II*), but the 1 sigma calibration of the age favours the former period, at *cal AD 250–430* (68% probability).[1] The second feature, a pit or tree-throw, contained a sherd of Roman pottery. They suggest only a minor presence after *Phases 4i–4ii*.

Hearth *[550]*
(Figs 1.4, 2.10–2.11)
L. 0.74m; W. 0.72m; D. 0.08m
Fills: *(549)* mottled grey-black silty sand (*c*. 50% charcoal), with occasional gravel/stones; *(582)* white, red and purple burnt sand, with moderate gravel/stones and charcoal flecks/fragments.
Description: located in the north of Area A, within ditch *[513]*, close to its excavated limit. It was either cut into the half-backfilled ditch, or possibly into its re-cut.

Shallow pit, ovoid in plan with a flat base, containing remains of an *in situ* fire. Fill *(549)* had a high density of charcoal fragments. The surrounding sand *(582)* had a burnt appearance. No finds.
Environment: *(549)* wood charcoal of *Acer campestre*, *Alnus glutinosa*, *Ilex aquifolium*, *Hedera* sp., *Prunus avium*, *Quercus* sp., *Sorbus aucuparia*.
Radicarbon date: ivy (*Hedera* sp.) charcoal, 1670±55 BP (AA–43641).

Pit [1066]
(Figs 1.4, 2.10)
L. 2.10m; W. 0.93m; D. 0.25m
Fill: (1067) mid yellow-brown sand.
Description: located in the east of Area B.

Amorphous in plan with an irregular, u-shaped profile; most likely a tree-throw.
FINDS: one Roman black-surface ware potsherd.

Intrusive, residual and unstratified material

In the 2000 excavations, a small amount of Iron Age pottery was found redeposited in later features, or was retrieved during the removal of the topsoil and subsoil: contexts *(100)*, *(891)* and *(918)* (Table 2.3). A number of Anglo-Saxon graves and ring-ditches contained sherds. In addition, there were rare instances of intrusive material, including three sherds in 'post-hole' *[1044]* (*Phase* 3) and a single sherd in ring-ditch *[351]* (*Phase* 3).

Pottery

by S. Percival (incorporating findings by Anderson 2000)
(Tables 2.2–2.3)

Two small assemblages of Iron Age pottery were recovered. Fifteen sherds were identified from the 2000 excavation (for methodology see above, *Sect. II: Pottery*), and around the same number from the evaluation (Table 2.1). From the 2000 campaign, two pottery fabric types have been identified: fabric F3 contained numerous white and grey sub-angular flint pieces up to 5mm in length; fabric Q4 was tempered with quartz sand, but also contained small angular flint pieces. The majority were flint tempered. One sherd is earlier Iron Age, with a flattened rim, found redeposited in Anglo-Saxon grave 15; it has an incised or impressed cable motif running along it, suggesting a date before the 3rd century BC. A

second is undated, but has a simple stepped base, and was intrusive in Bronze Age ring-ditch *[351]*.

A very small amount of Roman pottery was found (Anderson 2000). The five sherds from the 2000 excavation, identified by Sue Anderson, are a mix of greyware and black-surface ware, and include two jar rim forms. Only two were from features: one from pit *[1066]* in Area B; one from Anglo-Saxon grave 18, Area A. Two further examples were found in Area B, in buried-soil layer *(917)*, whilst another was found during machining in Area A, context *(100)*. One body sherd of black-surface ware has incised horizontal line decoration. The scarcity of this material and its abraded character suggests that it is residual and not indicative of occupation (Anderson 2000). In addition, a wheel-made sherd found in the 1997 evaluation in ditch *[11]* may be Roman (Abbott 1997, app. IV).

Quern *(45)*

(Fig. 2.5, no. 6)

During the 1997 evaluation, a large saddle-quern was recovered whilst machining the topsoil in Trench 4. It is a brown quartz sandstone with some mica, and its two sides are dished and worn smooth, but the stone is not otherwise shaped (E. Martin, in Abbott 1997, app. VII). It is only broadly datable from the Neolithic to the early Iron Age.

Discussion

The studies of Edward Martin and Tom Williamson have done much to promote archaeological awareness of the field-systems of early Suffolk. Co-axial arrangements of the Iron Age and Roman period are considered a 'second wave' of land organisation, following the Bronze Age systems now well studied across southern England (Bradley 2007, 241–47; Bradley and Yates 2007; Yates 2007). Martin has summarised them as: 'organised around groups of roughly parallel longitudinal boundaries, which are mostly sinuous and run for considerable distances, with shorter elements running at right-angles' (1999, 52). They are typically found on clay soils, defined by the interfluves of major rivers, with a main axis running at a right-angle to the waterway. Functionally, this may define them as 'linking river-side meadows with 'upland' areas', giving livestock access to varied grazing throughout the year (Williamson 1993, 25). In addition, small banks could have been raised along boundaries with hedges for fencing (Pryor 1998, 87; Bradley and Yates 2007, 97). Possibly the enclosures at Tranmer House were for stock also, since the general lack of pottery argues against manuring for crops. Contrary to the norm, however, the field-system was established on light soil, and the alignment of the main north-south axis was parallel with the river.

A two-phase model proposing the development of the field-system is illustrated in Figure 2.15. However, several factors have made it difficult to reconstruct the sequence: the paucity of pottery; insufficient opportunities to test stratigraphic relationships at ditch junctions; and the homogeneity of many backfills, leading to the poor definition of feature relationships. The stepped profiles of some ditches suggest possible re-cuts, particularly sections *[8/9]*, *[513]* and *[715/776]*, but none was demonstrable (Fig. 2.11). Ultimately, the model is a simplification: the system's development over time must have involved multiple episodes of maintenance and reorganisation.

Phase 4i is suggested as comprising the establishment of the main north-south boundary (ditch sections *[767/1008]*, *[778]* and *[784]*). Integral with this was the large rectilinear enclosure, the south-east corner of which was within Area A (ditches *[513]* and *[715/776]*). There were possibly two openings in the boundary originally, north and south of the enclosure's corners (Figs 2.10, 2.15). To the south, ditch *[767/1008]* possibly had terminated a short distance before ditch *[513]*; the shallow gully *[1020]* excavated at this point was possibly a later 'closing' section, as it formed an insubstantial section in the axis, and it abutted the already existing ditch *[513]*. In addition, this proposed entrance is further implied by ditch *[1010]*, which joined and over-ran the main north-south boundary below the enclosure corner, possibly at the point of the original opening. The gap at the north corner (outside Area A) is based on the absence of the north-south boundary at this point, established by the 1997 trenching and geophysics (Fig. 1.3).

In *Phase 4ii* it is proposed that a co-axial system of small enclosures was added along the eastern side of the north-south boundary (ditch sections *[22/494]*, *[40/780]*, *[101]*, *[335]*, *[595]*, *[669]* and *[1010]*). However, stratigraphic and dating evidence to support this theory is largely lacking (see above). Thus, it cannot be ruled out that all the elements of *Phase 4i–ii* belong to the same layout, though the less substantial, co-axial elements of *Phase 4ii* are perhaps more likely to have followed the main north-south axis.

These difficulties of interpretation are not unique to Tranmer House: co-axial field-systems are notoriously hard to date and are recognised as complex monuments, the end products of long evolutions rather than single planned events (Yates 2007, 139–41; Martin and Satchell 2008, 216). Overall, the evidence inclines towards the conclusion that the system in this case was probably established in the Iron Age. This includes the small assemblage of Iron Age pottery found in ditch *[8/9]*, and from Area A. However, site stratigraphy proved only that it pre-dates the Anglo-Saxon cemetery of *Phase 5*, and based on the radiocarbon date of hearth *[550]* (*Phase 4iii*) in the earthwork of the large enclosure (ditch *[513]*), its more prominent elements at least remained in the landscape of the mid 3rd to 5th/6th centuries. Its survival into the early-medieval period is suggested too by those burials of *Phase 5* that respected the line of the north-south boundary. Indeed, it is possible the large enclosure (ditches *[513]* and *[715/776]*) was a major influence on the location of the cemetery (see *Chap. 6; Sect. V* and *Chap. 8, Sect. II: Setting*). The hearth in the ditch earthwork has been interpreted elsewhere as evidence for the continued functioning of the field-system into the Roman period (Martin and Satchell 2008, 9, 140). However, this is not the impression given by the dearth of Roman pottery. Instead, it may indicate nothing more than a herdsman's fire, for example, made in the shelter of abandoned earthworks, with the landscape by then returned to intermittent grazing.

If the co-axial system is accepted as Iron Age, then its proximity to the middle Bronze Age barrow (ring-ditch *[351]* and grave 33) might not be coincidence. It is possible the north-south axis was aligned on this feature. To this can be added a second potential barrow to the

north, proposed by an 'annular' anomaly on the 1997 geophysical survey plot in area FAS 5 (Figs 1.3, 2.10).

The excavated field-system's wider context has been well documented by an aerial survey undertaken in 1983 by the Cambridge University Committee for Aerial Photography. This recorded extensive areas of co-axial enclosure to the south and east of the Sutton Hoo cemetery, made up of square and rectangular closes (Fig. 1.2; Carver 2005, fig. 8, 18; Hummler 2005, 451, fig. 201; Newman 2005, 480, 486). Elements of it were excavated at Sutton Hoo and dated to the Iron Age (Hummler 2005, 391, 451–56). This included a section of north-south ditch, feature F130, in Intervention 32 (*ibid*., 455–57, figs 201, 204–5), which on the basis of form and the aerial record is highly likely to be part of the same north-south axis found at Tranmer House. In all, it may form a boundary traceable over 1.5km. At Sutton Hoo, ditch F130 was similar in two further respects: it had a hearth set in its sunken, part-filled earthwork; and an Anglo-Saxon burial (no. 31) was aligned on it (Carver 2005, 323; Hummler 2005, 455). Burial 31 has been dated between the 8th to 11th century, allowing for the north-south boundary to have remained in places even longer as a landmark, and at Sutton Hoo it was perhaps bounded by a long-lived trackway (*ibid*., 347–48, 455).

Martin and Satchell (2008, 103, 140) have grouped field-system plots into two sizes: small, of *c*. 0.25ha (0.6 acre), like Taylor's Iron Age 'Celtic fields' (1975, 27); and large, of *c*. 1–1.25ha (2.5–3 acres), most similar to Iron Age and Roman enclosures excavated elsewhere in Suffolk. The small enclosures to the east of the main north-south boundary at Tranmer House (those fully within Area A) measure only 0.07ha (much smaller than a 'Celtic Field'). The proposed large rectilinear enclosure of *Phase 4i* (Figs 2.10, 2.15) measures approximately 120m along each side, making an internal area of *c*. 1.4ha. This is similar in size to examples recorded to the south by aerial photography (see Fig. 1.2).

A number of field-systems of similar date from eastern England can be compared. At Little Melton, Norfolk, an extensive gridded organisation with an axial north-south boundary produced nearly 900 sherds of early Iron Age pottery (Percival forthcoming). Also, in the same county, at Kilverstone a rectilinear ditch-system on a linear axis was constructed in the late Iron Age/early Roman period, following Neolithic/early Bronze Age activity (Garrow *et*

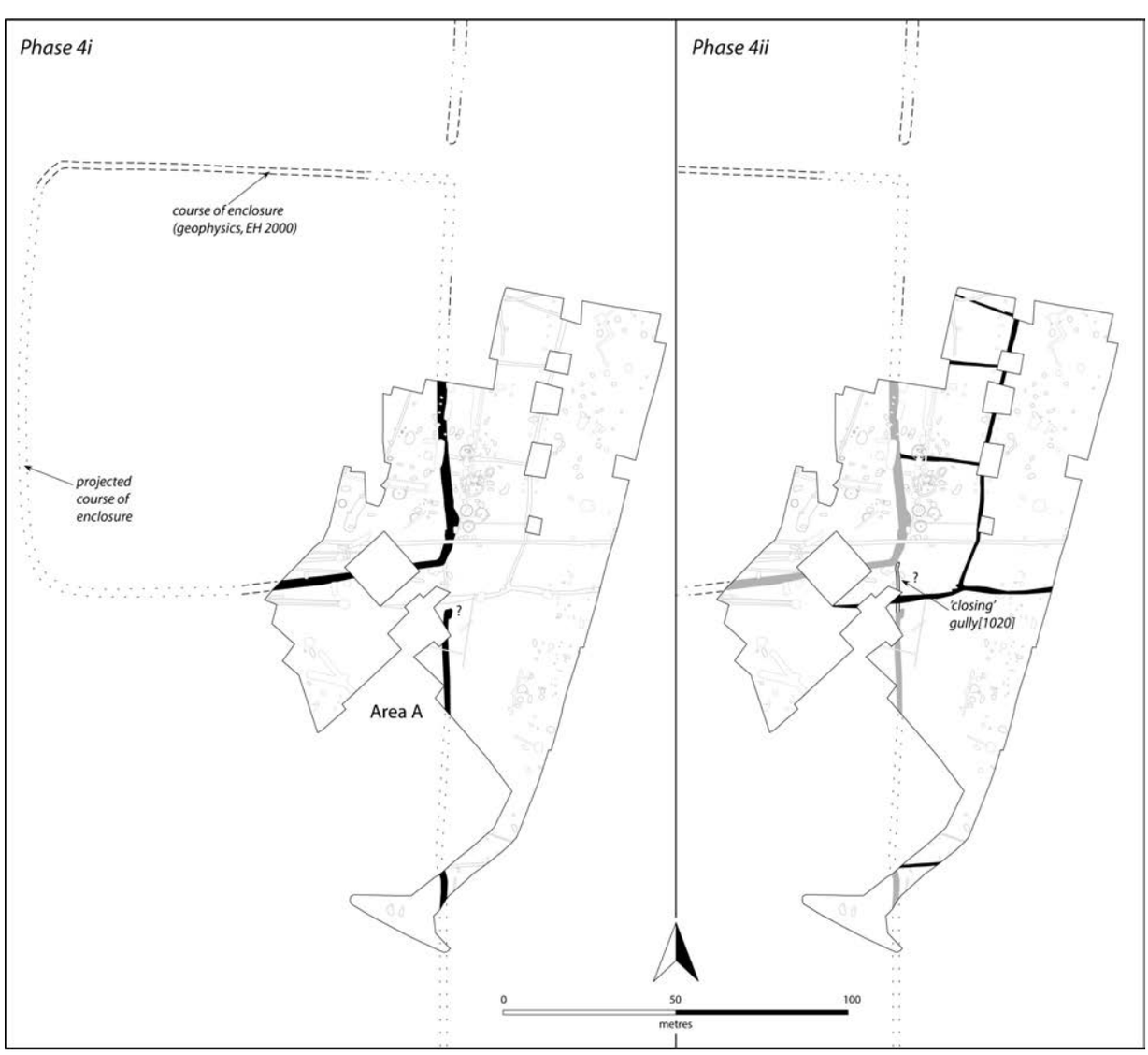


Figure 2.15 Suggested *Phase 4i/ii* development of the Iron Age boundary and enclosure-system (scale 1/2000). By CF

al. 2006, 104, fig. 4.5). Similarly, at Lodge Farm (St Osyth), Essex, a rectilinear enclosure established in the middle Iron Age succeeded earlier prehistoric occupation and burial (Germany 2007, figs 29–30). At Haddon (Peterborough), Cambs, a substantial ditch was constructed in the late Iron Age/Roman period, aligned north-south, with a ditch return forming an enclosure that provides a good parallel for the Tranmer House situation (Hinman 2003, 13–19, fig. 6). Examples are also known from elsewhere in England. In the Raunds Area Survey, Northants, Site 30 exhibited similar Iron Age/Roman enclosures set along a central axis (Parry 2006, 243, fig. 6.53). Such systems were thus widespread, on a scale that suggests considerable local territorial organisation. However, Martin and Satchell (2008, 216) warn against seeing them as a single monument type, as they vary in their extent, function and chronology.

The question of the influence and survival of prehistoric and Roman land organisation into the medieval period, especially in East Anglia, has been addressed by a number of studies (Williamson 1987; Martin and Satchell 2008, 214–16). For example, at Burnham Sutton, Norfolk, a series of late Iron Age/early Roman enclosures provided the framework for early-medieval furlong development (Percival and Williamson 2005). More immediately, at Sutton Hoo evidence was found to suggest that cultivation of the Iron Age field-system continued into the Roman period and perhaps later, in contrast with the situation northwards at Tranmer House (Hummler 2005, 456–57). Ultimately, however, at Tranmer House/Sutton Hoo, the late prehistoric pattern demonstrates no correlation with late-medieval/early post-medieval boundaries (Williamson 2008, 90).

The field-system aside, there was little evidence for actual Iron Age (or later) occupation. However, activity may be suggested in the wider landscape, most notably within a large oval enclosure 250m south-east of Sutton Hoo (Fig. 1.2), where fieldwalking has shown considerable quantities of Iron Age pottery and burnt flint (Newman 2005, 480). Lastly, Roman pottery and a few brooches found in the North Field enclosure might indicate manuring of fields at the edge of a settlement or some other liminal activity (Fig. 6.1a, c; *Chap. 6; Sect. II*).

VI. Conclusion

Four main phases of prehistoric activity have been identified that broadly conform to the findings of the excavations at Sutton Hoo, 500m to the south (Hummler 2005). However, the prehistoric remains suggest a lower density of occupation in the Neolithic to early Bronze Age (*Phases 1–2*), with finds including Mildenhall Ware and Beaker pottery. In particular, Tranmer House lacks the pit clusters, roundhouses and multiple ditches which characterise Sutton Hoo in the same period. Instead, only a few features stand out, such as pit *[821]* with its thirty-two potsherds of the early Neolithic (*Phase 1*), and pit *[551]* which contained Beaker sherds and burnt material, including processed acorns and hazelnuts (*Phase 2*).

Much of the occupation material may have entered the archaeological record indirectly, as the abraded potsherds suggest, with pottery and worked flints first deposited on the surface as casual detritus or in middens. Some of the 'pits' containing such material could have originated as tree-throws or similar. In one case, that of pit *[874]*, deliberate deposition in a natural feature seems possible. Further pottery and worked flints of Neolithic to Bronze Age date were incorporated in Iron Age, Anglo-Saxon and later features, and in buried-soil layers. As the low-fired pottery of this period survives very poorly as surface material, and the remains in pits may be chance survivals, the possibility must be considered that the occupation of these periods at Tranmer House was greater than the archaeological record alone suggests. The distribution of the residual material suggests a nucleus of activity in the centre-west of Area A (Fig. 2.2), where the Beaker pits were located, and where the middle Bronze Age barrow was later positioned.

For the early Neolithic, the notion that settlement was not permanent has become current. Nevertheless, elements of 'fixedness' to a place, as opposed to a 'site', are apparent (Garrow 2006, 49). Pit digging in particular might have played a role in the creation of a sense of place (Garrow 2012). The site of Sewerby Cottage Farm on the east Yorkshire coast may provide the model. Here different areas of the site saw different levels and spans of activity, reflecting episodic occupation over a long period (Fenton-Thomas 2009, 95). The few early Neolithic pits at Tranmer House can be thus considered with the more substantial Sutton Hoo pit groups (Hummler 2005, 396–406). For the late Neolithic/early Bronze Age too, the evidence at Sutton Hoo was more extensive. Beaker settlement was suggested from the pits and roundhouses found preserved beneath the burial mounds (*ibid*., 406–47), as well as a system of boundaries that originated in the early Bronze Age. At Tranmer House, besides the few pits, only a single linear feature is tentatively assigned to *Phase 2*, in part on analogy with the boundaries identified at Sutton Hoo (*ibid*., 406–13). As in the preceding period, therefore, it may be that these remains do not represent occupation at a discrete small-scale locale, but belong to the same broad occupation as at Sutton Hoo.

The repeated use of the landscape over millennia might be seen as representing something of a continuum. There were, however, long spans of time when no activity is documented. It is, therefore, important to stress that no actual continuity between the various periods of use of the site is certain or likely. Nevertheless, the siting of the Bronze Age barrow of *Phase 3* (ring-ditch *[351]* and grave 33) in the same area as the late Neolithic/early Bronze Age activity is notable, and could point to an act of association with the past usage of the landscape. For the later Bronze Age, activity is indicated only by the spearhead fragment found in the North Field enclosure, where the discovery of worked flint also suggests the spread of earlier prehistoric occupation westwards (Fig. 6.1). In turn, the Bronze Age barrow perhaps influenced the layout of the later prehistoric north-south boundary (*Phase 4*); certainly it was important for one Anglo-Saxon grave group (*Phase 5*) (Fig. 2.9), at last adding a prehistoric funerary focus to the landscape not found at Sutton Hoo (Hummler 2005, 449–51).

The co-axial field-system covering the promontory above the River Deben probably had its origin in the Iron Age (*Phase 4*). It is argued that sections of its main north-south axis were sampled at both Sutton Hoo and Tranmer House, forming a boundary at least 1.5km long, off which stemmed a patchwork of square and oblong

enclosures (Fig. 1.2). Two phases to this field-system are proposed; albeit its evolution, function and abandonment at Tranmer House remain aspects little understood (Figs 2.10, 2.15). In *Phase 4i*, it is suggested, the main north-south axis was established, incorporating a large 1.4ha rectilinear enclosure; in *Phase 4ii*, a series of small enclosures was added along the eastern side of the boundary. The lack of Roman pottery speaks against the continued maintenance of the system beyond the Iron Age, at least on the Tranmer House site (cf. Hummler 2005, 456–57). Also, as at Sutton Hoo, the evidence does not point to actual occupation (Hummler 2005, 451–56). Nevertheless, certain factors suggest the earthworks of the enclosure were long-lived at Tranmer House, including up to the time of the Anglo-Saxon cemetery (see *Chap. 6; Sect. V* and *Chap. 8; Sect. II: Setting*).

In summary, the Tranmer House promontory was repeatedly occupied from the early Neolithic to the early Bronze Age. Activity appears to have been discontinuous, and was arguably peripheral to that at Sutton Hoo, although differential preservation at the two sites may have influenced the record. In the Bronze Age at least one small barrow occupied the promontory, although others may await discovery. It was not until probably the Iron Age that the promontory saw extensive utilisation, in the form of a major linear boundary and field-system that was perhaps used for seasonal stock holding, activity that had seemingly ceased by the Roman period.

Endnote

1 The 1 sigma determination (68%) for hearth *[550]* (AA–43641; 1670±55 BP) was calibrated on the IntCal 09 curve using Oxcal v.4.1.61 (Bronk Ramsey 1995; 1998; 2001; 2009). It is presented as recommended in Mook (1986), rounded outwards to the nearest 10 (the error being greater than 25).

Period	Trench	Feature	Context	Pottery			Residual	Notes
				Fabric	Ware	Quantity		
late Neolithic/early Bronze Age	4	Gully *[11]*	*(12)*	coarse grog temper with burnt flint	Beaker	1	X	possible traces of decoration
Bronze Age/Iron Age	5	Scoop *[16]*	*(17)*	burnt flint temper		1		decorated with rows of finger-pinched impressions
Bronze Age/Iron Age	5	Scoop *[16]*	*(17)*	burnt flint and fine grog temper		1		decorated with triangular impressions
Iron Age	3	Ditch *[9]*	*(10)*	burnt flint temper		4		
Iron Age	3	Ditch *[9]*	*(10)*	coarse sand temper		2		
Iron Age	3	Ditch *[9]*	*(10)*	fine sand temper		5		
Iron Age	4	Gully *[11]*	*(12)*	burnt flint and ?burnt organic temper		1		
Roman?	2	Ditch *[4]*	*(5)*	fine sand and grog temper, wheel-thrown		1		
Early Anglo-Saxon (poss. Iron Age)	Unstrat. (machine excavation)		*(1)*	burnt organic temper		1	X	
Early Anglo-Saxon (poss. Iron Age)	15	'Post-hole' *[20]*	*(21)*	burnt organic temper		1		
Medieval	Unstrat. (machine excavation)		*(1)*	sand temper, hard fabric, wheel-thrown	local	2	X	
					TOTAL	**20**		

Table 2.1 Pottery from the 1997 evaluation (after Abbott 1997, app. IV)

Phase	Period	Fabric code	Inclusions	Ware	Quantity	Weight (g)	Summary		
							Total no. sherds	***Total weight (g)***	*MSW*
1	Early Neolithic	F1	common white angular flints, up to 4mm	incl. Mildenhall Ware	27	95	55 (33.4%)	281 (31.8%)	5
1	Early Neolithic	F2	common white angular flints, up to 10mm		1	10			
1	Early Neolithic	Q1	common clear, coloured rounded quartz sand		27	176			
2	Late Neolithic/ Early Bronze Age	F4	moderate small white angular flints, sub-rounded voids	incl. Beaker	24	108	58 (35.1%)	367 (41.6%)	6
2	Late Neolithic/ Early Bronze Age	G1	grog	incl. Beaker	13	95			
2	Late Neolithic/ Early Bronze Age	G2	grog and sparse small flints	incl. Beaker	9	60			
2	Late Neolithic/ Early Bronze Age	G3	grog and sparse small angular flints	incl. Beaker	7	91			
2	Late Neolithic/ Early Bronze Age	Q2	moderate clear, coloured rounded grains of quartz sand		4	5			
2	Late Neolithic/ Early Bronze Age	Q3	moderate clear, coloured rounded grains of quartz sand, sparse sub-angular flints	Grooved Ware	1	8			
3	Bronze Age	G1	common small-to-medium sub-rounded grog		26	71	26 (15.8%)	71 (8.1%)	2
4i–ii	Iron Age	F3	common white and grey sub-angular flints, up to 5mm		12	138	15 (9.0%)	142 (16.2%)	9
4i–ii	Iron Age	Q4	sandy with common small flints		3	4			
	Prehistoric (undiagnostic)				11	21	11 (6.7%)	21 (2.3%)	5
				TOTAL	**165**	**882**			

Table 2.2 Prehistoric pottery fabrics by phase from the 2000 excavation

			Pottery Fabric													Notes			
			Early Neolithic (Phase 1)			Late Neolithic/Early Bronze Age (Phase 2)						Bronze Age (Phase 3)	Iron Age (Phases 4i–iii)						
Area	**Feature**	**Context**	**F1**	**F2**	**Q1**	**F4**	**G1**	**G2**	**G3**	**Q2**	**Q3**	**G1**	**F3**	**Q4**	**Undiag.**		**Residual**	**Intrusive**	**Fig. 2.4**	**Description**
A	Crem. 6	*(442)*				1 (U**)											X			
A	Crem. 6	*(460)*											1 (U*)				X			
A	Inhum. 14	*(493)*				2 (U*)	1 (U*)										X			
A	Inhum. 14	*(512)*											1 (U)				X			
A	Inhum. 15	*(525)*											1 (D,R)				X			cable decoration on rim top
A	Inhum. 18	*(653)*						1 (D)								1*	X			Beaker: straight-comb impressed decoration; Roman: black-surface ware
A	Inhum. 22	*(885)*	1 (U*)														X			
A	Inhum. 30	*(1001)*													1 (U)		X			
A	Crem. 33	*(906)*				1 (U**)											X			
A	Crem. 33	*(912)*				1 (D)											X			Beaker: finger-tip impressed and pinched cordon decoration
A	Crem. 33	*(923)*													1 (U*)					
A	Unstratified	*(100)*	4 (D, R, U*/**)	1 (U)			1 (D)						3 (U)			1*	X		1, 2	early Neolithic rim sherd: pierced-hole 'decoration' around neck (no. 1); late Neolithic/early Bronze Age sherd: rows of impressed finger-nail ornament (no. 2); Roman: Greyware (not illustrated)
A	Pit *[107]*	*(108)*											1 (U*)				X			
A	Ditch *[335]*	*(422)*													3 (U)					
A	Ring-ditch *[351]*	*(352)*	1 (U**)														X			
A	Ring-ditch *[351]*	*(446)*											1 (B*)					X		intrusive(?) Iron Age sherd, with a stepped base
A	Ring-ditch *[351]*	*(451)*													1 (U)					
A	Ring-ditch *[425]*	*(464)*				3 (U**)											X			
A	Ring-ditch *[437]*	*(447)*				1 (U**)											X			
A	Pit *[444]*	*(445)*					1 (U**)								1 (U*)		X			
A	Ditch *[513]*	*(598)*									1 (D,R**)						X		3	Grooved Ware: Clacton-style, impressed dot decoration around interior of rim
A	Ditch *[513]*	*(880)*							1 (U)								X			
A	Ditch *[513]*	*(983)*													1 (U**)					
A	Pit *[551]*	*(552)*						1 (D)		1 (U)										Beaker: straight-comb impressed decoration
A	Pit *[551]*	*(648)*					1 (D)													Beaker: finger-nail impressed decoration
A	Ditch *[595]*	*(596)*						1 (U)									X			
A	Ring-ditch *[597]*	*(605)*											1 (U)				X			
A	Ring-ditch *[606]*	*(735)*											1 (U)				X			
A	'Post-hole' *[618]*	*(619)*						6 (D,R,U)											4	Beaker Ware: incised decoration

			Pottery Fabric																
			Early Neolithic (Phase 1)			*Late Neolithic/Early Bronze Age (Phase 2)*						*Bronze Age (Phase 3)*	*Iron Age (Phases 4i–iii)*			*Roman*	*Notes*			
Area	***Feature***	***Context***	***F1***	***F2***	***Q1***	***F4***	***G1***	***G2***	***G3***	***Q2***	***Q3***	***G1***	***F3***	***Q4***	***Undiag.***		***Residual***	***Intrusive***	***Fig. 2.4***	***Description***
A	Pit *[679]*	*(680)*					1 (D)													late Neolithic/Early Bronze Age sherd: finger-nail impressed decoration
A	Pit *[679]*	*(685)*							1 (R)										5	Beaker
A	Ditch *[715]*	*(718)*	1 (U)														X			
A	Ditch *[767]*	*(768)*													1 (U)					
A	Pit *[821]*	*(822)*	5 (U)		27 (U)															
B	Pit *[870]*	*(871)*							5 (D,U)											Beaker: finger-tip impressed decoration
B	Spread *(891)*	*(893)*											1 (U)				X			
B	Buried soil	*(917)*				11 (U)	8 (B,D, R,U)			3 (U)						2*	X			some could be earlier Neolithic; Beaker: finger-tip impressed decoration; Roman: Greyware
B	‘Post-hole’ *[1036]*	*(1037)*	1 (U)																	
B	‘Post-hole’ *[1040]*	*(1041)*											1 (U)							
B	Pit *[1042]*	*(1043)*	4 (D,U)																	early Neolithic Mildenhall Ware: impressed dot/line decoration
B	‘Post-hole’ *[1044]*	*(1045)*				1 (B)						26 (R,U**)		3 (U)	1 (U)			X		intrusive Iron Age pottery
B	Pit *[1066]*	*(1067)*														1*				Roman black-surface ware
C	Buried soil *(918)*	*(918)*	10 (D,U)												1 (U*)		X			early Neolithic Mildenhall Ware: impressed dot/line decoration
C	Pit *[1028]*	*(1030)*				1 (U)														

F – flint; *G* –grog; *Q* – quartz; *R* – rim sherd; *B* – base sherd; *D* – decorated sherd; *U* – undecorated body sherd; * – abraded; ** – very abraded

Table 2.3 Prehistoric and Roman pottery by archaeological context

Area	Feature/ Grave	Context	No.	chip	core	blade	bladelet	blade-like flake	flake	hammer stone flake	knife	microlith	utilised flake	scraper	spall	piercer	retouched flake	retouched blade	transverse arrowhead	residual	Fig. 2.5	Description
'97 Eval	Unstratified	*(1)*	2											1					1	X	1	Late Neolithic arrowhead
'97 Eval	Tr2/ Ditch *[4]*	*(4)*	1											1						X	2	*Phase 4ii* ditch; late Neolithic scraper
A	Inhum. 14	*(493)*	11						5				1		4	1				X		*Phase 5* burial
A	Inhum. 15	*(525)*	3						2						1					X		*Phase 5* burial
A	Inhum. 16	*(561)*	5		1			1	1						1	1				X		*Phase 5* burial
A	Inhum. 18	*(653)*	7						2					1	4					X	4	*Phase 5* burial; end-scraper
A	Inhum. 19	*(677)*	1						1											X		*Phase 5* burial
A	Inhum. 29	*(994)*	1												1					X		*Phase 5* burial
A	Inhum. 30	*(1001)*	1												1					X		*Phase 5* burial
A	Unstratified	*(100)*	8			2		1	5											X		Recovered during machining; possible Mesolithic/early Neolithic blades
A	Ditch *[101]*	*(161)*	1					1												X		*Phase 4ii* ditch
A	Pit *[172]*	*(172)*	1			1														X		Probably a tree-throw; possible Mesolithic/early Neolithic flint
A	Pit *[291]*	*(292)*	1									1								X		Modern pit; Mesolithic/early Neolithic microlith
A	Pit *[371]*	*(372)*	1												1					X		Probably a modern pit
A	Trench *[357]*	*(382)*	1						1											X		Modern trench
A	Pit *[444]*	*(445)*	5						3						2					X		Modern pit
A	Pit *[466]*	*(467)*	4						1						3					X		Post-*Phase 5* pit
A	'Post-hole' *[469]*	*(470)*	1						1											X		*Phase 5*: part of Anglo-Saxon ring-ditch
A	Pit *[551]*	*(552)*	6						4						1		1					*Phase 2* pit
A	Pit *[551]*	*(562)*	1						1													*Phase 2* pit
A	Pit *[551]*	*(564)*	1														1					*Phase 2* pit
A	Pit *[551]*	*(648)*	1						1													*Phase 2* pit
A	Pit *[551]*	*(649)*	3						2		1										3	*Phase 2* pit; late Neolithic knife
A	Pit *[601]*	*(602)*	1												1					?X		pre-*Phase 4* pit
A	'Post-hole' *[624]*	*(625)*	2					1	1											?X		
A	Pit *[679]*	*(680)*	1															1		X	5	*Phase 2* pit; ?early Neolithic retouched blade/knife
A	Ditch *[715]*	*(718)*	1												1					X		*Phase 4i* ditch
A	Ditch *[778]*	*(779)*	1						1											X		*Phase 4i* ditch
A	Ditch *[778]*	*(793)*	1						1											X		*Phase 4i* ditch
A	Pit *[821]*	*(822)*	2						1						1							*Phase 1* pit; Mesolithic/early Neolithic flints
A	Pit *[864]*	*(865)*	1						1											X		Modern pit
A	sf2024		1										1							X		Found NW of ring-ditch *[351]* of *Phase 3*
B	Pit *[797]*	*(798)*	1										1							?X		
B	Pit *[851]*	*(852)*	3				1		1						1					?X		

Area	*Feature/ Grave*	*Context*	*No.*	*chip*	*core*	*blade*	*bladelet*	*blade-like flake*	*flake*	*hammer stone flake*	*knife*	*microlith*	*utilised flake*	*scraper*	*spall*	*piercer*	*retouched flake*	*retouched blade*	*transverse arrowhead*	*residual*	*Fig. 2.5*	*Description*
B	Pit *[874]*	*(875)*	15					2	7						6							
B	Pit *[874]*	*(876)*	1												1							
B	Buried soil *(891)*	*(892)*	1					1												X		
B	Pit *[881]*	*(895)*	2												2					?X		
B	Buried soil	*(917)*	9			1			5					1			1	1		X		Recovered during machine removal of layer
B	'Post-hole' *[1044]*	*(1045)*	3	2											1					X		*Phase 3* post-hole
C	Buried soil	*(918)*	2						1	1										X		Recovered during machine removal of layer; ?early Neolithic hammerstone flake
		TOTAL	**115**	**2**	**1**	**4**	**1**	**7**	**49**	**1**	**1**	**1**	**3**	**4**	**33**	**2**	**3**	**2**	**1**			

Table 2.4 Prehistoric worked flint from the 1997 evaluation and 2000 excavation

Chapter 3. Catalogue of Anglo-Saxon Graves and Associated Features

by C.J.R. Fern and A.C. Evans

I. Introduction

Interspersed with the prehistoric remains in Area A were burials and other features of early Anglo-Saxon date, belonging to *Phase 5* (Fig. 3.1; Table 1.1). In total, there were thirteen cremation and nineteen inhumation burials (though 'cremation' 12 was not certainly a grave). Associated ring-ditch and post-hole features were mainly found with the cremations.

The following catalogue has been compiled from the work of multiple individuals: the grave descriptions are based on the site records produced by SCCAS excavators; the artefact descriptions (and their associated mineral-preserved organic remains), the human and animal remains, and other ecofacts have been summarised from the findings of the relevant specialist analyses that are presented more fully elsewhere in this publication. In addition, scientific dates have been included, where available. The positions of grave-goods are given relative to the left and right side of the body. For the graphic conventions used for the grave plans and bead illustrations see Figure 1.8.

The acidic sand at the site had destroyed almost all bone in the inhumation burials, but the cremated bone was less affected. Therefore, osteological analysis was largely limited to the human and associated animal remains from the latter rite (see *Chap. 5; Sects. II and III*). For the inhumations, approximate age-ranges have been suggested mainly based on the body stains/sand bodies recorded, though occasional instances of tooth survival provided some further evidence. The age categories used follow McKinley (1994) (Table 3.1). In addition, where a

Figure 3.1 The early Anglo-Saxon cemetery of *Phase 5* (scale 1/350). By CF

infant	0–4
juvenile	5–12
immature	1–12
subadult	13–18
young adult	19–25
mature adult	26–40
older adult	40+

Table 3.1 Age categories (after McKinley 1994a, 19, table1)

'male' or 'female' gender identity is indicated by associated grave-goods this has been added in parenthesis (Stoodley 1999). Throughout, where identifications are uncertain, they have been qualified: ? = 'probable'; ?? = 'possible'.

II. Cremation burials and associated features

Cremation 1 ***[359]***
(Figs 2.9, 3.2; Pl. IIa)
L. 0.23m; W. 0.20m; D. 0.04m
Fill: *(360)* mid red-brown sand, turning dark grey at interface with pot, with charcoal and three cremated bone inclusions.
Description: surrounded by ring-ditch *[425]* and south of pit *[386]*, in the north-east quadrant of ring-ditch *[351]* (*Phase 3*). Heavily truncated horizontally.

Urned in a pot (no. 1), only the base survived, in a small sub-circular grave *[359]*. Bone *(350)* was visible at the level of the natural sand following the removal of the subsoil. Some modern animal disturbance.
Cremated bone: *(350/360)* 34.5g.
Age: adult (>50 yrs).
Sex: unknown.

FINDS:

1. Ceramic **pot** *(349)*. Flat-rounded base only. No decoration. Diam. *c*. 175mm; Ht. *c*. 50mm

Ring-ditch [425]
Diam. 2.90m; W. *c*. 0.25m; D. 0.10m
Fill: *(426)* mid-dark red-brown sand with moderate gravel/stones and charcoal inclusions; *(464)* dark red- brown sandy loam, one burnt flint.
Description: located in the centre-north of Area A, cremation 1 and pit *[386]* at its centre. Its northern and western edges were truncated by tree-throw *[466]* and linear trench *[357]* (modern). It cut ring-ditch *[351]* (*Phase 3*).

Shallow, U-shaped gully with a variable fill *(426/464)*; no surviving evidence of its western extent; approximately half excavated in two parts.
Residual: *(464)* three late Neolithic/early Bronze Age potsherds.
Wood charcoal / Charred plant macrofossils: *(426) Malus sylvestris*, *Tilia* sp. / *Rumex acetosella*.

Cremation 2 ***[370]***
(Figs 2.9, 3.2)
L. 0.25m; W. 0.18m; D. 0.05m
Fill: *(381)* mid-dark red-brown sand with hint of grey, with occasional gravel/stones, charcoal inclusions, fuel-ash slag and cremated bone.
Description: located in the centre-north of Area A. It cut ring-ditch *[351]* (*Phase 3*) on its eastern, inner edge. Heavily truncated horizontally and cut away on one side by pit *[383]* (modern), that included redeposited bone *(384)* and a nail fragment (no. 2).

Probably originally urned in a pot (no. 1), only the base survived, in a small ovoid grave *[370]*. Disturbed bone, mixed with the backfill *(381)*.
Wood charcoal: *(381) Ilex aquifolium*.
Cremated bone: *(381/384)* 17.2g, slightly worn and chalky.
Age: subadult/adult.
Sex: unknown.

FINDS:

1. Ceramic **pot** *(370)*. Flat-rounded base only. Diam. *c*.165mm; Ht. *c*. 40mm
2. Iron nail fragment *(384)*. Could be intrusive/modern. L. 18mm; W. 5mm

Cremation 3 ***[388]***
(Figs 2.9, 3.2; Pl. IIb)
Diam. *c*. 0.50m; D. 0.10m
Fill: *(403)* yellow-brown silty sand.
Description: located in the approximate centre of Area A, inside ring-ditch *[351]* (*Phase 3*).

Urned in a pot (no. 1), only the base survived, in a sub-circular grave *[388]*. Bone *(389),* burnt glass beads (no. 2) and melted ?vessel glass (no. 3), with some mixed charcoal, were visible at the level of the natural sand following the removal of the subsoil. Heavily truncated horizontally.
Wood charcoal / Charred plant macrofossils: *(389) Corylus avellana*, *Ilex aquifolium*, *Quercus* sp. / *Hordeum* sp. (barley grains), *Corylus avellana* (hazelnut shell), *Quercus* sp. (acorn).
Radiocarbon date: cremated human bone, 1531±33 BP (OxA–20211).
Cremated bone: *(389)* 501.8g.
Age: mature adult (*c*. 23–35 yrs).
Sex: ?female (female gender).
Animal (cremated): 1.6g; sheep/goat-size.

FINDS:

1. Ceramic **pot** *(390)*. Lower part only; ?globular vessel with a rounded base. Diam. *c*. 320mm; Ht. *c*. 105mm
2. Twelve glass **beads** (sf2004/2006/2008–10) and one other possible (sf2005) (Pl. XIV). Burnt, (i–v) is a fused 'string' of beads broken into two parts. All beads wound, perforated sides, not marvered flat.
   i) (sf2004) one short, globular, opaque white. Diam. 7mm
   ii) (sf2004) one short, globular, opaque yellow, with red crossing ?trails. Diam. 7mm
   iii) (sf2004) one short, globular, red. Diam. 8mm
   iv) (sf2004) one short, globular, opaque, discoloured ?yellow. Diam. 7mm
   v) (sf2004) one short, globular, translucent green or ?blue, applied opaque yellow ?crossing trails. Diam. 7mm
   vi) (sf2005) ?bead, lump of melted dark glass, attached to bone fragment. W. 17mm
   vii) (sf2006) melted into flat piece of glass; one medium, globular, red with applied white spiral trail. Diam. 11mm
   viii) (sf2008) one short, globular, opaque discoloured ?blue. Diam. 6mm
   ix) (sf2009) one short, globular, red and white, decorative motif not clear. Diam. 8mm
   x) (sf2009) one short, globular, red, with white trails crossing four times. Diam. 9mm
   xi) (sf2009) one short, globular, discoloured, ?yellow, ?decorated. Diam. 7mm
   xii) (sf2009) one short, globular, opaque blue. Diam. 6mm
   xiii) (sf2010) one short, globular, ?discoloured opaque dark brown. Diam. 8mm
3. Two fragments melted ?**vessel** glass (sf2007) (Pl. XIV); probably originally colourless, now opaque, tinged brown. Largest W. 15mm

Cremation 4 ***[395]***
(Figs 2.12, 3.3)
L. 0.64m; W. 0.44m; D. 0.30m
Fills: *(396–97)* dark brown-black (charcoal-rich) silty sand with lenses of yellow sand, occasional gravel/stones, cremated bone, urn sherds, burnt stone, fuel-ash slag and post-medieval/modern brick; *(398)* mixed, orange and black (charcoal-rich) sand, with cremated bone and occasional gravel/stones.
Description: at the centre of ring-ditch *[344]*.

Probably originally at least partly urned (no. 1). Bone, urn sherds and fill mixed due to extensive disturbance by roots and probably recent tree-removal works (uppermost fill *(396–97)* included chainsaw dust). Hence, the recorded grave outline *[395]* and profile are unlikely to be original. Most cremated bone and all the pottery was contained in the upper fill *(396–97)*, suggesting the original focus of burial; excavated in two equal spits. A quantity of associated animal bone was loose in the fill, possibly buried unurned.
Wood charcoal: (all contexts) *Pinus* sp.
Radiocarbon date: cremated large ungulate bone, 1506±27 BP (OxA–23026).
Cremated bone: *(396–98)* 718.3g.
Age: adult.
Sex: ??female.
Animal (cremated): 446.1g; *Bos taurus*, *Equus* sp., large ungulate, sheep/goat-size.

Plate II a) cremation 1; b) cremation 3; c) cremation 5; d) 'cremation' 12; e) ring-ditch *[606]*. By SCCAS

FINDS:

1. Ceramic **pot** *(396–97)*. Fragments of sub-biconical jar with a ?flat-rounded base; small vertical bosses and line (?combed) decoration, arranged in vertical and diagonal sweeps.

Ring-ditch [344]
Diam. 3.00–4.00m; W. 0.09–0.33m; D. 0.02–0.14m
Fills: *(373–80)* light-mid brown silty sand; *(345)* mid-dark brown silty sand. Occasional gravel/stones throughout.
Description: located centrally in Area A, cremation 4 at its centre. It was truncated by modern tree-disturbance at its south-west edge, and it cut two features: pit *[903]* and small pit or post-hole *[423]* (both unphased). A group with ring-ditches *[342]* and *[597]*.

Slightly irregular ring-ditch that survived only intermittently in its northern section, due to horizontal truncation, with a variable fill; approximately two-thirds excavated.
Residual: *(380)* one ?burnt Anglo-Saxon potsherd.
Wood charcoal: *(345/380) Alnus glutinosa*, *Quercus* sp.

Cremation 5 *[427]*
(Figs 2.14, 3.3; Pl. IIc)
Diam. *c.* 0.20m; D. 0.10m
Fill: *(428)* brown-black (charcoal-rich) silty sand.
Description: located in the centre-north of Area A. It cut feature *[462]* (unphased).

Urned in a pot (no. 1), in a close-fitting, sub-circular grave *[427]*. Bone *(430)* was visible at the level of the natural sand following the removal of the subsoil; excavated in two equal spits *(430/432)*; spit *(430)* contained some charcoal.

It was between two possible pyre features: a patch of 'burnt' stones (no OP record) and small 'post-hole' *[583]*.
Wood charcoal: *(430) Quercus* sp.
Radiocarbon date: cremated human bone, 1538±26 BP (OxA–20180).
Cremated bone: *(430/432)* 888g.
Age: mature adult (*c*. 30–40 yrs).
Sex: male.
Animal (cremated): 7.3g; large ungulate.

FINDS:

1. Ceramic **pot** *(429)*. Globular jar with a flat-rounded base, neck and rim missing; vertical, long-boss decoration. Diam. *c*. 185mm; Ht. *c*. 130mm

'Post-hole' [583]
L. 0.45m; W. 0.33m; D. 0.12m
Fill: *(584)* black (charcoal-rich) silty sand with frequent gravel/stones. Had a 'burnt' appearance.
Description: shallow, small pit or possible post-hole, 0.30m west of cremation 5. No post remains or finds.

Cremation 6 *[439]/(440)*
(Fig. 2.14)
L. 0.32m; W. 0.20m; D. 0.06m
Fills: *(440/442/460/465*) brown-black (charcoal-rich) silty sand with cremated bone, fuel-ash slag and burnt stone; *(461/475/478)* yellow-orange sand with occasional lenses of brown silty sand. Occasional-moderate gravel/stones throughout.
Description: disturbed burial inside ring-ditch *[437]*.

Unurned, or originally in a perishable container. The majority of the bone *(440)* was concentrated (dimensions as above) off-centre within the ring-ditch, perhaps indicating the original interment. It was surrounded by a larger bone spread contained by 'cut' *[439]* (L. 1.86m; W. 1.18m; D. 0.05m), excavated in two equal spits *(442/460)*. The base of the cut was poorly defined and showed mixing with the underlying natural soil *(461/465/475/478)*, due to tree and/or animal action. The bone in contexts *(442/460)* was perhaps redeposited from concentration *(440)* by this process. No grave-goods.
Residual: *(442)* one late Neolithic/early Bronze Age potsherd; *(460)* one Iron Age potsherd.
Wood charcoal / Charred plant macrofossils: *(440/442/460) Pinus* sp., *Quercus* sp. / *(440/442/460/461)* catkin fragments, Chenopodiaceae, Ericaceae.
Radiocarbon date: cremated large ungulate bone, 1519±25 BP (OxA–22946).
Cremated bone: *(440/442)* 148.6g.
Age: subadult/adult (>14 yrs).
Sex: unknown.
Animal (cremated): 84.9g; *Ovis aries* (sheep/goat), large ungulate, sheep/goat-sized.

Ring-ditch [437]
Diam. *c*. 4.50m; W. 0.25–0.35m; D. 0.09–0.25m
Fills: *(441/443)* mid-dark orange-brown sand; *(447/468)* very dark grey-brown silty sand, mixed with mid brown sand; *(481)* dark red-brown silty sand. All had occasional-moderate gravel/stones, and charcoal inclusions and concentrations.
Description: located in the centre-north of Area A. 'Penannular' ring-ditch surrounding cremation 6, with two 'post-holes' in its 'entrance'. Cut by linear trenches *[355]* and *[357]*, and a tree-throw (all modern). It cut ditch *[494]* (*Phase 4ii*).

Narrow gully with vertical sides in its east section and a variable fill; approximately half excavated in five parts.
Wood charcoal / Charred plant macrofossils: *(443/447/481) Acer campestre*, *Alnus glutinosa*, *Betula* sp., *Pinus* sp., *Quercus* sp., *Ulex europaeus* / *(447) Medicago/Trifolium/Lotus* sp., indeterminate tubers.

'Post-hole' [469]
L. 0.28m; W. 0.18m; D. 0.05m
Fill: *(470)* dark brown silty sand with occasional-moderate gravel/stones, charcoal inclusions and concentrations.
Description: possible post-hole at the 'entrance' of ring-ditch *[437]*; a second 'post-hole' was not excavated. It proved very shallow and might instead have been the truncated base of the ring-ditch.
Residual: *(470)* one worked flint.

Cremation 7 *[482]*
(Figs 2.14, 3.3)
L. 0.30m; W. 0.25m; D. 0.07m
Fill: *(483)* brown-black (charcoal-rich) silty sand with cremated bone and occasional charcoal concentrations.
Description: located in the centre-north of Area A, just south-west of ring-ditch *[437]*.

Unurned in a shallow bowl-shaped pit *[482]*; no record of the bone distribution. No grave-goods.
Wood charcoal / Charred plant macrofossils: *(483) Acer campestre*, *Alnus glutinosa*, *Quercus* sp. / catkin fragments.
Cremated bone: *(483)* 451.6g.
Age: mature adult (*c*. 25–45 yrs).
Sex: ??female.
Animal (cremated): 139g; *Bos Taurus*, *Equus* sp., *Ovis aries* (sheep/goat), bird, large ungulate, sheep/goat-size, small/medium mammal.

Cremation 8
(Figs 2.6, 3.4–3.7; Pls IIIa)
Located close to the north-west edge of Area A, between pit *[551]* and ditch *[34/508]* (both *Phase 2*).

A cremation in two vessels, a bronze hanging bowl (no. 1) and a ceramic pot (no. 6), buried in pit *[491]*: the bowl held most of the bone *(486)*; the pot contained majority animal bone *(489)*. Joining fragments of a human vertebra were divided between the vessels, confirming that they represent a single burial.

Four small pits surrounded the grave, features *[488], [500], [505]* and *[557]*. Three included small amounts of cremated bone in charcoal-rich fills, together with object fragments and metal globules. Possibly they represent the post-holes of a pyre structure, the pyre debris, incorporated during backfilling or possibly by 'token' placement (though there was no evidence for charred or 'ghost' posts, or a pyre surface).

The cremation was of an adult, probably a female. Artefacts include an unburnt comb (no. 2), a burnt bead (no. 4), remains of a possible bucket (nos 3, 7v, 13, 16; Fig. 4.2), and perhaps another metal bowl (no. 7iv). There is animal bone from cow (or steer), horse, sheep/goat, pig and possibly dog. Textile evidence on the bowl (no. 1) suggests a blanket lining to the grave and indicates the bowl was wrapped with linen, and there were fragments of a wooden lid (Pl. VIIf).

For a reconstruction of the pyre scene see the *Frontispiece*.

Cremated remains in the bronze bowl (485/489)
Fill: *(489)* cremated bone with mid brown silty sand.
Description: bone in hanging bowl (no. 1) with adjacent pot (no. 6), in ovoid pit *[491]*. Complete; bone was sealed beneath a thin layer of soil, so probably no loss.

The bowl and its contents with some of the surrounding soil was block-lifted on site and excavated at the British Museum (Pl. VIIe). When first examined the bowl was thought to have been set on a base of small stones (Bullock 2010), though this was possibly the effect of 'stone roll' and not deliberate (see Carver 2005, 73, pl. 15). The fill *(489)* was removed by quadrants in 20mm spits with all soil sieved; no charcoal or charred plant macrofossils were recorded, so the incorporated soil probably represents in-wash. Cremated bone occurred from about 20mm below the rim, but was mainly concentrated in the bottom 60mm.

Together in the bone fill, 20mm above the base, was an unburnt comb (no. 2) and under it a piece of decorated copper-alloy sheet (no. 3). A bead (no. 4) and melted copper-alloy fragments (no. 5) were mixed with the bone also. Additionally, detached repair patches were found under the base of the bowl (no. 1viii–ix), at the rim (no. 1x) and with the bone (no. 1xi–xii).
Radiocarbon date: cremated human bone, 1538±24 BP (OxA–22944).
Cremated bone: *(489,* incl. *490)* 1268.8g.
Age: mature adult (*c*. 23–35 yrs).
Sex: ?female (female gender).
Animal (cremated): 655g; *Bos taurus*, *Equus* sp., *Ovis aries* (sheep/goat), *Sus* sp., large ungulate, sheep/goat- size, small/medium mammal (?dog).

FINDS:

1. Bronze **hanging bowl** (sf2014 and *(485)*) (Pls VI–VIII). Complete, though misshapen; touching pot no. 6. Three cast hooks with suspension rings surround the rim: two originals have mounting plates, one replacement is without. Two further cast basal mounts and the two original hook-mounts have cast trellis and sub-classical ornament, containing some surviving red enamel inlay. Repaired in antiquity (besides the replacement hook) with two *in situ* riveted patches at the rim, and other detached patches (see below). Wear to suspension rings and mounts. Remains of a wooden lid (*Fraxinus excelsior*) survived close to the rim. Mineral-preserved textile on base and body. Traces of possible cord on the suspension rings.
i) Bowl. Diam. 250–63mm; Ht. 116mm
ii) Replacement hook. Ht. *c*. 30mm; W. 39mm
iii–iv) Two hook-mounts. Ht. 63mm; W. 43mm
v–vi) Two basal mounts: one (vi) has a separate rim, and is partly covered by mineral-preserved textile. Diam. 42–4mm
vii) Three suspension rings. Diam. *c*. 28mm
viii–ix) Detached, sheet copper-alloy repair strip and separate piece from underneath the bowl. Strip (viii) is curved with a small square rivet, with extensive solder on one face and textile remains. It approximates to the curvature of the bowl's basal recess. L. 75mm; W. 9mm; Th. 1mm. Small square patch (ix) has a curved lip, also with evidence of solder. L. 13mm; W. 9mm; Th. 0.5mm
x) Small, square, sheet copper-alloy patch with solder on one side. Found over a worn part of rim, near hook-mount (iv). L. 11mm; W. 5mm; Th. 0.5mm
xi–xii) Detached, sheet copper-alloy ?patches from inside bowl (with bone). Piece (xi) is curved along its length, with solder on reverse. L. 24mm; W. 7mm; Th. 0.5mm. Piece (xii) is small with a curved lip, without solder evidence. L. 11mm; W. 8mm; Th. 0.5mm

2. Antler **comb** (sf2014). In bowl with bone. Incomplete (possibly originally whole), double-sided composite comb with iron rivets. No decoration. L. 112mm; W. 46mm

3. Copper-alloy sheet, ?**bucket fragment** (sf2014). Found under comb. ?Burnt. Triangular with slight curvature to its shorter edge. Punch marks of annulets and triforms, and ?repoussé line ornament. Possibly a bucket 'appliqué' (cf. Cook 2004, 40–1, figs 1–2). L. 56mm; W. 51mm; Th. 0.5mm

4. **Bead** of quartz material, ?amethyst. Found with bone during analysis by J. McKinley. Burnt to an opaque white, slightly stained by copper corrosion. Almond-shaped, flattened on one side. L. 12mm; W. 10mm

5. Numerous very small copper-alloy sheet **fragments** and droplets *(489)*. Mixed with bone. Burnt. Largest L. 7mm; W. 7mm (not illustrated)

Cremated remains in a pot (486–87)
Fill: *(486)* cremated bone with charcoal inclusions and concentrations, and very dark brown silty sand.
Description: pot almost complete (no. 6), missing its rim, in ovoid pit *[491]*. Bone was sealed beneath a thin layer of soil, so probably no loss. Fragments of copper alloy (nos 7–8) were mixed with the bone, including pieces from possibly a bucket and bowl.
Wood charcoal / Charred plant macrofossils: *(486) Betula* sp., *Quercus* sp. / *Medicago/Trifolium/Lotus* sp., *Rumex acetosella*, *Rumex* sp.
Radiocarbon date: cremated horse bone, 1486±24 BP (OxA–22944).
Cremated bone: *(486)* 554.4g.
Age: mature adult (*c*. 23–35 yrs).
Sex: ?female.
Animal (cremated): 328.5g; *Bos Taurus*, *Equus* sp., large ungulate, sheep/goat-size, small/medium mammal (?dog).

FINDS:

6. Ceramic **pot** *(487)*. Touching hanging bowl (no. 1). Shouldered, globular jar with a ?flat-rounded base; upper half covered by a wide band of stamp ornament. Stamp: *Briscoe Type A5aviii* (1983). Diam. *c*. 290mm; Ht. *c*. 210mm

7. Five copper-alloy sheet **fragments** (sf2016). Burnt.
i) L. 30mm; W. 21mm; Th. 1mm
ii) L. 35mm; W. 24mm; Th. 1mm
iii) Curved fragment. L. 20mm; W.13mm; Th. 1mm
iv) Thick with folded ?lip, from a ?**bowl rim**. L. 60mm; W. 26mm; Th. 1.5mm
v) Composite, ?**bucket fragment**. Has a separate rim, fastened by a riveted rim-clip. Like a 'top-hoop' (cf. Cook 2004, 35–6, figs 1–2). Suggests a vessel-wall thickness of about 5mm. L. 44mm; W. 36mm; Th. overall 11mm; L. rivet 5mm

8. Five very small copper-alloy fragments *(486)*. Largest L.5mm; W. 5mm (not illustrated)

Grave pit [491]
L. 0.92m; W. 0.68m; D. 0.17m
Fill: *(490)* mid brown silty sand with cremated bone (15.7g: human and animal) and charcoal.
Description: irregular ovoid pit, of shallow depth, containing cremation 8.
Backfill *(490)* included fragments of copper alloy (nos 9–10).
Wood charcoal / Charred plant macrofossils: *(490) Corylus avellana*, *Quercus* sp. / *Corylus avellana* (hazelnut shell), *Quercus* sp. (acorn), small Poaceae.
Cremated bone: *(490),* included in total of *(489)* (see above).

FINDS:

9. Seven very small copper-alloy sheet **fragments** *(490)*. ?Burnt. Largest L. 4mm (not illustrated)

10. Copper-alloy sheet **fragment** (sf2015). ?Burnt. Thick, curved and deformed, one worked edge. L. 19mm; W. 10mm; Th. 1.5mm

'Post-hole' [488]
Diam. 0.42m; D. 0.15m
Fill: *(498–99)* dark brown-black (charcoal-rich) sand with cremated bone and moderate gravel/stones.
Description: small sub-circular pit, possibly the base of a post-hole.
Backfill *(498–99)* included fragments of copper alloy (nos 11–12); excavated in two equal spits.
Wood charcoal / Charred plant macrofossils: *(498–99) Quercus* sp. / *Rumex acetosella*.
Cremated bone: *(498–99)* 9g; small fragments, very worn and chalky *(499)*.
Age: mature adult (>25 yrs).
Sex: unknown.

FINDS:

11. Copper-alloy strip **fragment** (sf2017). ?Burnt. Remains of two finished edges, striations on one side. W. 29mm; L. 29mm; Th. 1mm

12. Very small copper-alloy sheet **fragment** *(499)*. ?Burnt. L. 4mm (not illustrated)

'Post-hole' [500]
L. 0.45m; W. 0.40m; D. 0.20m
Fill: *(501–2)* dark to very dark brown-black (charcoal-rich) silty sand with cremated bone and moderate gravel/stones.
Description: small sub-circular pit, possibly the base of a post-hole. It cut the north-west edge of pit *[551]* (*Phase 2*).
Backfill *(501–2)* included multiple burnt copper-alloy fragments (nos 13–15); excavated in two equal spits. One decorated piece from the upper spit *(501)* is possibly part of a bucket fitting; a related fragment (no. 16) recorded just to the north was perhaps *ex situ*.
Wood charcoal / Charred plant macrofossils: *(501–2) Alnus glutinosa*, *Quercus* sp., *Sambucus nigra* / *(502) Arrhenatherum* sp. (tuber), *Montia fontana*.
Cremated bone: *(501–2)* 19.7g; small fragments. No human.
Animal (cremated): 19.7g; large ungulate, sheep/goat- size.

FINDS:

13. Copper-alloy strip, ?**bucket fragment** (sf2018). Burnt. Punch marks of annulets and triforms along both finished edges, and traces of an incised border. Like a bucket 'upright' (cf. Cook 2004, 37, figs 1–2). L. 36mm; W. 29mm; Th. 1mm

14. Three copper-alloy sheet **fragments** (sf2019). Burnt. One (i) has a curved section. i) L. 18mm; W. 11mm; Th. 1mm; ii) L. 10mm; W. 6mm; Th. 1mm; iii) L.12mm; W. 7mm; Th. 1mm

15. Numerous copper-alloy sheet **fragments** and globules *(501–2)*. Burnt. Mainly small. Largest L.19mm; W. 8mm

16. Copper-alloy sheet, ?**bucket fragment** (sf2021). ?Burnt. Flat and triangular, an incised border along its short finished edge, with triform punch marks beneath. Like a bucket 'appliqué' (cf. Cook 2004, 40–1, figs 1–2). L. 30mm; W. 33mm; Th. 1mm

'Post-hole' [505]
Diam. *c*. 0.40m; D. 0.15m
Fill: *(506–7)* dark brown sand with cremated bone, with moderate gravel/stones and charcoal inclusions.
Description: small sub-circular pit, possibly the base of a post-hole.

Backfill *(506–7)* included fragments of copper alloy (nos 17–19); excavated in two equal spits.
Wood charcoal / Charred plant macrofossils: *(506–7) Betula* sp. *Quercus* sp. / *(506) Plantago lanceolata*, *Polygonum avicular.*
Cremated bone: *(506–7)* 5.8g; slightly worn and chalky. No human.
Animal (cremated): 5.8g; large ungulate, sheep/goat-size.

FINDS:

17. Copper-alloy sheet, ?**bucket fragment** (sf2022). Pierced. L. 34mm; W. 26mm; Th. 1mm; Diam. hole 2.5mm

18. Five small copper-alloy sheet **fragments** *(506)*. Burnt. Largest L. 10mm; W. 8mm (not illustrated)

19. Copper-alloy **fragment** *(507)*: Burnt and distorted. L. 12mm

'Post-hole' [557]
Diam. *c.* 0.35m; D. 0.10m
Fill: *(558–59)* very dark brown to black (charcoal-rich) sand with moderate gravel/stones.
Description: small sub-circular pit, possibly the base of a post-hole.

Backfill *(558–59)* excavated in two equal spits. No cremated bone or finds.
Wood charcoal: *(558–59) Acer campestre*, *Alnus glutinosa*, *Quercus* sp., *Salix* sp.

Cremation 9 *[636]*
(Fig. 3.7)
L. 0.78m; W. 0.77m; D. 0.09m
Fill: *(637)* mid brown silty sand with occasional darker brown and yellow sand, with moderate gravel/stones and cremated bone.
Description: located in the centre-west of Area A, west of ditch *[513]* (*Phase 4i*).

Very disturbed, survived as a mixed scatter of soil, pot and bone *(637)*, but an indentation in the natural sand suggested where the pot base had been, so probably originally urned (no. 1). Burnt fragments of a bone comb (no. 2) were found with the human bone during analysis.
Radiocarbon date: cremated human bone, 1563±26 BP (OxA–20181).
Cremated bone: *(637)* 53.3g.
Age: adult.
Sex: unknown.

FINDS:

1. Ceramic **pot** *(637)*. Fragments of a ?globular jar with a rounded base; upper body decorated with line and stamp ornament. Stamp: *Briscoe Type A4ai* (1983).

2. Antler **comb** *(637)*. Burnt. Fragments of tooth segment and connecting plate from a double-sided composite comb. No decoration. i) L. 12mm; W. 10mm; ii) L.15mm; W. 10mm

Cremation 10 *[643]*
(Fig. 3.8)
L. 1.00m; W. 0.40m; D. 0.19m
Fill: *(644)* grey-brown sand mixed with cremated bone and charcoal inclusions, a small amount of reddened sand and a burnt stone.
Description: located in the centre-west of Area A, west of ditch *[513]* (*Phase 4i*).

Very disturbed, probably originally urned (no. 1). Rectangular cut *[643]* possibly records a burrow, as fill contained rabbit remains. No record of the distribution of the bone and pottery.
Wood charcoal: *(644) Pinus* sp.
Cremated bone: *(644)* 256g.
Age: adult (*c*. 18–35 yrs).
Sex: ??female.
Animal (cremated): 0.9g; sheep/goat-size.

FINDS:

1. Ceramic **pot** *(644)*. Flat-angled base only. No decoration. Diam. *c*. 220mm; Ht. *c*. 65mm

Cremation 11 *[656]*
(Fig. 3.9)
L. 0.27m; W. 0.23m; D. 0.14m
Fill: unknown (no OP record).
Description: located in the centre-west of Area A, west of ditch *[513]* (*Phase 4i*).

Urned in a pot (no. 1), only the lower half survived, in a tight-fitting ovoid grave *[656]*. Bone excavated in two equal spits *(657–58)*; it included a high proportion of charcoal (Table 5.7). Grave disturbed in antiquity: sherds from the urn (no. 1) were found in inhumation 32.
Wood charcoal / Charred plant macrofossils: *(657–58) Acer campestre*, *Alnus glutinosa*, *Quercus* sp. / *Arrhenatherum* sp. (tuber), *Bromus* sp., *Medicago/ Trifolium/Lotus* sp., *Montia Fontana*, *Rumex acetosella*.
Radiocarbon date: cremated human bone, 1504±26 BP (OxA–20182).
Cremated bone: *(657–58)* 531.5g.
Age: adult (*c*. 20–29 yrs).
Sex: unknown.
Animal (cremated): 11g; large ungulate, sheep/goat-size.

FINDS:

1. Ceramic **pot** *(674/1014)*. Lower half only; flat-rounded base. No decoration. Diam. *c*. 235mm; Ht. *c.* 110mm

'Cremation' 12 *[659]*
(Fig. 3.8; Pl. IId)
L. 0.45m; W. 0.35m; D. 0.30m (section drawing suggests D. *c.* 0.25m)
Fills: *(660)* mid yellow-brown sand mottled with mid brown and dark grey silty sand; *(675)* mixed, mid-dark red-brown and yellow-brown silty sand. Moderate gravel/stones and charcoal inclusions throughout.
Description: at the centre of ring-ditch *[606]*.

Complete pot (contents unknown), in an ovoid pit with two backfill deposits *(660/675)*. Its excavator recorded it as a 'cremation', but there is no subsequent documentation proving what was in it, or where it was emptied/excavated; its contents were not sent for environmental assessment in 2001 (though fills *(660/675)* were sent), nor was any bone sent to Jacqueline McKinley for assessment in 2001. Nothing was found in searches of the SCCAS stores in 2008 and 2009 (S. Boulter and R. Goffin pers. comm.). Possibly it did not contain bone and had some other purpose (?food offering), but the surrounding ring-ditch did yield cremated remains. A site photograph shows no bone at the top of the pot (Pl. IId).
Wood charcoal / Charred plant macrofossils: *(660) Ilex aquifolium* / *Medicago/Trifolium/Lotus* sp.

FINDS:

1. Ceramic **pot** *(662)*. Complete, tall globular jar with a slightly sagging base, wide mouth and upright rim. No decoration. Diam. body 185mm; Diam. rim 160mm; Ht. 180mm

Ring-ditch [606]
(Pl. IIe)
Diam. *c*. 3.80m; W. 0.23–0.35m; D. 0.04–0.25m
Fills: *(610/613/623/629/631–32/642/645/733–38)* variable, mid-dark grey-brown and mid-dark red-brown silty sand mottled with 'charcoal-grey', with charcoal inclusions, possible fuel-ash slag and cremated bone; *(654)* mixed, red-brown and mid yellow sand; *(655)* mixed, mid yellow and yellow-brown sand. Moderate gravel/stones throughout.
Description: located in the north-west of Area A, 'cremation' 12 at its centre. Its north edge was truncated by trench *[621]* (modern); it cut pit *[693]* and was adjacent to pit *[679]* (both *Phase 2*, or earlier).

Gully with predominantly steep-to-vertical sides and a concave-to-flat base; fully excavated in fourteen parts. It had a single fill for the majority of its circumference, except in its north-east section which also had a lower fill of sand *(654–55)*, 0.08m deep. Pyre debris was found mainly in the west of the gully, comprising cremated bone, possible fuel-ash slag *(645)* and fragments of copper-alloy sheet (nos 2–4).

Soil analysis of fill *(623)* showed phosphate enrichment, with fine-fraction charcoal and burnt inclusions; it concluded the soil was 'probably remnant from cremation activity' (see Table 5.10).
Residual: *(735)* one Iron Age potsherd.
Wood charcoal / Charred plant macrofossils: (upper fill only) *Acer campestre*, *Alnus glutinosa*, *Betula* sp., *Corylus avellana*, *Ilex aquifolium*, *Quercus* sp. / *Hordeum* sp. (barley grains), *Plantago lanceolata*, large *Poaceae*, *Rubus* sp., *Rumex acetosella*, *Ulex*

europaeus, Chenopodiaceae, Ericaceae, indeterminate cereals, pollen of Polypodiaceae.
Cremated bone: *(613/623/629/631/642/734–36/738)* 29.7g; mostly very small fragments, worn and chalky.
Age: adult.
Sex: unknown.
Animal (cremated): 15g; *Ovis aries* (sheep/goat), large ungulate, sheep/goat-size, small/medium mammal.

FINDS:

2. Two very small copper-alloy sheet **fragments** *(613)*. ?Burnt. Largest L. 4mm (not illustrated)

3. Two copper-alloy sheet **fragments** *(642)*. Burnt. Largest L. 14mm; W. 9mm

4. Copper-alloy sheet **fragment** *(734)*. Burnt. L. 9mm; W. 7mm (not illustrated)

Cremation 13 *[686]*
(Figs 2.12, 3.9)
Diam. *c.* 0.40m; D. 0.30m (section drawing suggests Diam. *c.* 0.20m; D. *c.* 0.20m)
Fills: cut *[3001]*: *(687)* red sand. Grave *[686]*: *(688/690)* brown silty sand and cremated bone; *(706)* red sand and cremated bone; *(692/697/740)* concentration of cremated bone in light brown sand. Occasional gravel/stones and charcoal inclusions throughout.
Description: at the centre of ring-ditch *[597]*. Badly disturbed, mixed by root and/or animal action.

Urned in a pot (no. 1). It is unclear to what extent the form of 'grave' *[686]* was original, as it was heavily disrupted. Also, it is uncertain whether grave *[686]* cut feature *[3001]* or was cut by it. The majority of the bone was concentrated at the top of the grave; excavated in three spits *(692/697/740)*. The fill below was removed in two spits *(688/690)*. Remains of burnt artefacts came from two contexts *(697/706)* (nos 2–4).

The red sand *(687)* in cut *[3001]* was over the natural sand, beyond grave cut *[686]*; possibly this was a burnt soil, part of an *in situ* scorched surface perhaps, though it was not recorded as such.
Wood charcoal / Charred plant macrofossils: *[686]*: *Alnus glutinosa*, *Corylus avellana*, *Pinus* sp., *Quercus* sp. / *Rumex acetosella*, Chenopodiaceae.
Radiocarbon date: two determinations from a single cremated large ungulate bone, 1540±24 BP (OxA–22947) and 1532±25 BP (OxA–22948).
Cremated bone: *(687/688/690–92/697/706)* 713.4g.
Age: subadult/adult.
Sex: unknown (?female gender).
Animal (cremated): 317g; *Bos taurus*, *Equus* sp., *Ovis aries* (sheep/goat), large ungulate, sheep/goat-size.

FINDS:

1. Ceramic **pot** *(691)*. Almost complete, tall globular jar with a ?rounded base, wide mouth and upright rim. No decoration. Diam. body *c.* 195mm; Diam. rim *c.* 180mm; Ht. *c.* 205mm

2. Very small **fragment** of copper-alloy sheet *(706)*. Burnt. L. 5mm; W. 4mm (not illustrated)

3. Three small fragments of **probable ivory** *(697)*. Burnt. Largest L. 5mm (not illustrated)

4. **Globule** of melted copper alloy *(697)*. Burnt. Diam. 7mm (not illustrated)

Ring-ditch [597]
Diam. *c.* 3.50m; W. 0.18–26m; D. 0.04–17m
Fills: *(603/605/607/617/626–28/708/724/758)* dark red-brown silty sand, occasionally mottled with yellow sand or black (charcoal-rich) silty sand, with one possible instance of fuel-ash slag *(607)*; *(638)* brown-black (charcoal-rich) 'burnt' silty sand; *(757)* red silty sand; *(759)* dark grey-brown silty sand. Occasional-moderate gravel/stones, cremated bone, and charcoal inclusions and concentrations throughout.
Description: located centrally in Area A, cremation 13 at its centre. A group with ring-ditches *[342]* and *[344]*. Uninterrupted, except for a modern pipe trench that cut its northern half, and some modern tree disturbance.

The deepest surviving sections demonstrated a U-shaped gully, with sides varied from shallow to steep; two-thirds excavated in thirteen parts *(603/605/607/617/626–28/708/724/757–59)*; its northern portion was not excavated. Pyre debris was mainly found in the east of the gully, comprising cremated bone, charcoal, ?fuel-ash slag and a burnt copper-alloy stud (no. 5). The excavator thought the gully was 'possibly filled deliberately by human action' (see *Chap. 8; Sect. III: Ring-ditches*).
Wood charcoal / Charred plant macrofossils: (all contexts) *Acer campestre*, *Alnus glutinosa*, *Betula* sp., *Corylus avellana*, *Pinus* sp., *Prunus spinosa*, *Quercus* sp., *Salix* sp. / *Chenopodium album*, *Medicago/Trifolium/ Lotus* sp., *Persicaria maculosa/lapathifolia, Plantago lanceolata*, *Polygonum aviculare*, *Rumex acetosella*, *Stellaria* sp., *Vicia/Lathyrus* sp., small Poaceae.
Cremated bone: *(603/605/607/628/638/708/724/757–59)* 28.6g; small fragments, worn and chalky.

Individual 1
Age: subadult/adult.
Sex: unknown.

Individual 2
Age: infant/juvenile.
Sex: unknown.
Animal (cremated): 14g; large ungulate, sheep/goat-size.

FINDS:

5. Six fragments of burnt and melted copper alloy, including a **stud** (605). Disc-headed with detached shank. Possibly a belt-fitting/ horse-harness fitting/shield-fitting. Diam. 14mm; L. rivet 9mm

Ring-ditch *[342]*
(Fig. 2.12)
Diam. *c.* 3.60m; W. 0.14–0.19m; D. 0.03–0.07m
Fills: *(343/399–402/413–14)* mid orange-brown sand with one burnt flint; *(415)* mid orange-brown sand and dark brown sand.
Description: located centrally in Area A. Penannular ring-ditch with two opposed breaks. No central grave survived, but this could have been destroyed by a modern trench. A group with ring-ditches *[344]* and *[597]*. Cut by linear trenches *[355]* and *[357]* (modern).

Shallow, narrow gully with a mainly uniform fill *(343/399–402/413–15)*; approximately half excavated in eight parts. No cremated bone or finds.
Wood charcoal: *(402) Salix* sp.

Ring-ditch *[665]*
(Fig. 3.1)
Diam. *c.* 2.00m; W. 0.19–0.28m; D. 0.07–0.14m
Fill: *(671/672/701–2/752–56)* mid orange-brown sand with charcoal inclusions.
Description: located in the centre-west of Area A. South-east half removed by linear feature *[703]* (modern) and root action. No grave.

Shallow, U-shaped gully with a uniform fill *(671/672/701/702/752–56)*; completely excavated in nine parts, with one cremated bone fragment *(671)*.
Wood charcoal / Charred plant macrofossils: (all contexts) *Betula* sp., *Quercus* sp., *Salix* sp., *Ulex europaeus* / *Polygonum aviculare*, *Rumex acetosella*, *Ulex europaeus*.
Cremated bone: *(671)* 0.2g; small fragment, worn and chalky. Unidentified.

Ring-ditch *[698]*
(Fig. 8.4)
Diam. *c.* 2.40m; W. 0.15–0.25m; D. 0.04–0.13m
Fill: *(709–14)* orange-brown sandy loam with charcoal inclusions and burnt 'blackened' flint.
Description: located at the north-west limit of Area A. Small ovoid ring-ditch, cut through buried soil *(739)*.

Shallow, U-shaped gully with a uniform fill *(709–14)*; completely excavated in five parts.

The buried soil *(739)*, a light brown silty sand, contained a scatter of Anglo-Saxon potsherds. This was possibly the only remains of a shallow central burial made in the Anglo-Saxon topsoil as there was no evidence of a grave cut into the underlying natural sand. No cremated bone.
Wood charcoal / Charred plant macrofossils: (all contexts) *Acer campestre*, *Alnus glutinosa*, *Betula* sp., *Corylus avellana*, *Ilex aquifolium*, *Quercus* sp. / *Corylus avellana* (hazelnut shell), *Polygonum aviculare*, *Rumex acetosella*, *Sambucus nigra* (elderberry), *Ulex europaeus,* small Poaceae.
Cremated bone: *(709–14)* 0.1g.
Animal (cremated): 0.1g; sheep/goat-size.

FINDS:

1. Five **potsherds** *(739)*. All one vessel; no decoration (not illustrated).

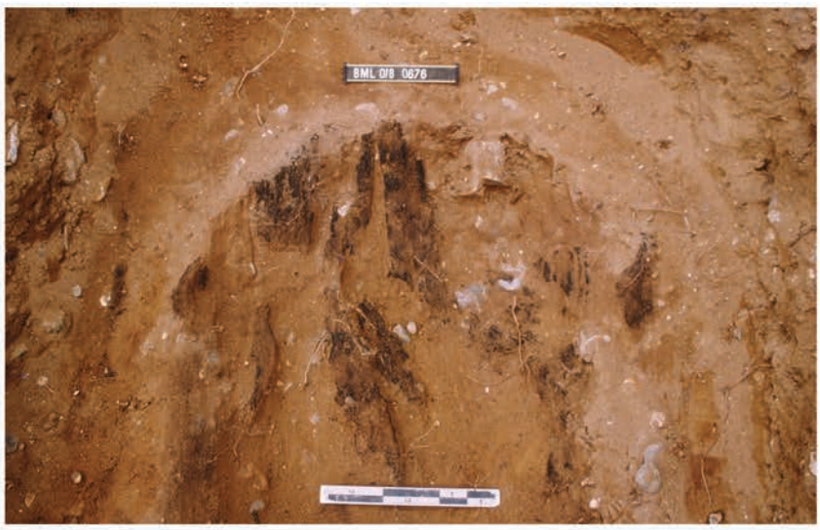
a

b

c

d

Plate III a) cremation 8, hanging bowl during excavation; b) inhumation 16; c) inhumation 17, upper body; d) inhumation 19, upper body. By SCCAS



a

b

c

Plate IV a) inhumation 19, charred material overlying the sand body (head-end); b) inhumation 26; c) inhumation 32. By SCCAS

Ring-ditch *[932]*
(Figs 3.9, 8.4)
L. *c.* 1.50m; W. *c*. 1.25m; W. gully 0.20–0.30m; D. 0.04–0.10m
Fill: *(933–36/940–43)* dark reddish grey-brown silty sand with charcoal inclusions and concentrations, cremated bone and moderate-frequent gravel/stones.
Description: located at the north-west limit of Area A. Small ovoid ring-ditch, with a possible post-hole *[944]* in its gully (see below). No grave.

Shallow, U-shaped gully with a variable fill *(933–36/940–43)*; completely excavated in eight parts. There was a small amount of cremated bone in the fill, together with copper-alloy fragments (no. 1), the only indications of a possible burial.
Wood charcoal / Charred plant macrofossils: (all contexts) *Acer campestre*, *Alnus glutinosa*, *Betula* sp., *Quercus* sp. / *Medicago/Trifolium/Lotus* sp., *Rumex acetosella*, *Ulex europaeus*.
Cremated bone: *(933–35/940–44)* 4.6g; very small fragments, slightly worn and chalky.

Age: subadult/adult.
Sex: unknown.

FINDS:

1. Three copper-alloy sheet **fragments** *(934)*. Burnt. One is pierced. Largest L. 13mm; W. 7mm; Diam. hole 2.5mm

'Post-hole' [944]
Diam. *c.* 0.30m; D. 0.25m
Fill: as ring-ditch *[932]*.
Description: possible ovoid post-hole in the western section of ring-ditch *[932]*; identified at the base of the gully, but with no cut visible against the fill.

III. Inhumation burials and associated features

Inhumation 14 *[492]*
(Figs 2.9, 3.10–3.11)
L. 2.50m; W. 1.75m; D. 0.56m
Fills: *(493)* dark brown sand with charcoal inclusions; *(503)* light yellow-brown sand; *(523)* light-mid yellow coarse sand, mottled with mid brown sand; *(574)* light-mid yellow sand, mottled with mid yellow-brown sand. Moderate gravel/stones throughout.
Description: located in the north-east of Area A, close to ring-ditch *[351]* (*Phase 3*), and within 'ring-ditch' *[404]*.

Irregular, broad grave with a flat base and sides varied from sloped to vertical. A lining stain of light-mid grey-brown sand *(511)* indicated three sides of a rectilinear structure (W. 0.86m), first recorded 0.15–0.30m above the base (site photo ELL71 indicates northern edge also). A collapsed lid was suggested by a thin layer of mottled mid brown sand *(512)*. Further strips of dark staining within the lining stain, and at right angles to the long sides, may indicate base planks (*c*. 0.40m individual width).

Flattish body stain of dark grey-brown 'organic' sand *(504)*, the legs most defined and partly indurated. Suggests a supine-extended position, with legs possibly flexed, oriented NNE-SSW (15°). A lighter (mid-dark brown) stain surrounded the 'body' that could have resulted from putrefaction fluids, or from a vegetation layer, paillasse or animal pelt/textile.

Grave had four fills *(493/503/523/574)*: for interpretation see *Chapter 8* (*Sect. IV: Backfills*). Backfill *(503)* included small fragments of wood and copper alloy (no. 7).

Spearhead (no. 1) to the right of the 'head'; shield-fittings (nos 2–4) at the head and upper chest; buckle (no. 6) and knife (no. 5) in the waist region. The spearhead was *c*. 0.15m above the grave base and beyond the lining stain, which may indicate it was to the side of the small chamber or had been on the container lid. Wood on the outer surfaces of the shield-fittings may be from the collapsed lid, as the shield was over the head, and therefore possibly inside the burial-container. Textile evidence indicates clothing and perhaps a cloak/blanket cover (under the shield). Remains of grasses (*Dactylis glomerata*, *Holcus mollis*) also on the mounts from the shield suggest a layer over the body and grave-goods (inside the container).
Wood charcoal: *(493) Corylus avellana*, *Quercus* sp.
Residual: *(493)* three late Neolithic/early Bronze Age potsherds; eleven worked flints; *(512)* one Iron Age potsherd.
Age: adult.
Sex: unknown (male gender).

FINDS:

1. Iron **spearhead** (sf2023). Right head-end, outside lining stain. Long and narrow blade, two-thirds of total length. *Swanton Type E3* (1973, 83–7). Mineral-preserved wood in socket. L. overall 552mm; L. blade 360mm; W. blade 34mm; L. socket split 138mm; Diam. socket base 20mm
2. Iron **shield-boss** and **hand-grip** (sf2025). At upper ?chest/neck.
   i) Boss: small straight-sided cone (no carination) with a disc-headed apex, and a sloped wall; four disc-headed flange rivets. Silver and copper traces on the apical disc suggest it may have had a ?silver-sheet mount originally. *Dickinson/Härke Type 3* (1992, 14–7). Mineral-preserved shield-board wood with ?leather front cover on flange underside, and wood on cone (possibly from the burial-container lid). Diam. 135mm; Ht. 76mm; W. flange 20mm; Diam. apical disc 26mm
   ii) Hand-grip: incomplete, slightly curved with flared ends. *Dickinson/Härke Type Ia1* (1992, 24–7). Mineral-preserved wood and ?leather from handle, with ?leather back cover of board, and textile on back. L. 124mm; W. 20–43
3. Pair of iron **shield-board mounts** (sf2027). At ?chest, edge-to-edge. Disc-headed, corroded together; perforation in one; one shank ?complete. Mineral-preserved ?leather and wood on underside from shield construction (as no. 2i), and plant remains on front of mounts. i) Diam. 28mm; ii) Diam. 30mm
4. Pair of iron **shield-board mounts** (sf2030). At ?head, edge-to-edge. As no. 3, but one shank with washer and mineral-preserved wood on front (possibly from the burial-container lid). i) Diam. 27mm; ii) Diam. 26mm; L. rivet 10mm
5. Iron **knife** (sf2026). At left ?waist. Blade back and cutting-edge curve towards tip, chine at junction of blade and tang. *Evison Type 1* (1987, 113). Mineral-preserved horn on tang from handle, ?leather on blade from sheath, and textile. L. overall 144mm; L. blade 94mm; W. 26mm
6. Iron **buckle** (sf2029). Centre of ?waist. Oval loop; closed at burial. *Marzinzik Type I.11c* (2003, 34). Mineral-preserved textile on one side, possible belt ?leather on loop, and puparia on other side (Pl. XVIa). W. 30mm
7. Numerous very small **fragments** of copper-alloy and wood (sf2020). In fill *(503)*, ?redeposited; position not recorded. Largest L. 5mm; W. 4mm (not illustrated)

Ring-ditch [404]
L. 3.08m.; W. 2.50m; D. 0.05–0.17m
Fill: *(405–6/409–10)* dark red-brown sand with charcoal inclusions and moderate gravel/stones.
Description: irregular 'ring-ditch' surrounding inhumation 14; it cut the northern and eastern upper edges of the grave.

Shallow gully, indistinct at its western extent, with a uniform fill *(405–6/409–10)*; completely excavated. A fragment of iron (no. 8) came from the fill.
Wood charcoal / Charred plant macrofossils: *(406) Pinus* sp., *Salix* sp., *Ulex europaeus* / indeterminate cereals and small Poaceae.

FINDS:

8. Iron **fragment** *(406)*. ?Wire/rod. L. 14mm

Inhumation 15 *[524]*
(Fig. 3.12)
L. (surviving) 1.00m; W. 0.65m; D. 0.37m
Fill: *(525)* mid grey-brown silty sand.
Description: located in the north-west of Area A, just west of ditch *[513]* (*Phase 4i*). Its western limit (?head-end) was cut away by pit *[528]*, probably a modern tree-throw.

Sub-rectangular grave with sloped sides and a flat base.

Small body stain, flat and formless, of very dark brown-black sand *(548)*: W-E (257°) or E-W (077°) oriented. The small stain, grave size and pot (no.1) suggest an infant or young juvenile (see *Chap. 8; Sect. II: Population*).

Textile remains on the buckle (no. 2) indicate the body was dressed and possibly covered by a cloak/blanket. The pot (no. 1) fill *(527)* yielded no evidence of any contents (see *Chap. 5*: note 1).
Residual: *(525)* three worked flints; one Iron Age potsherd.
Age: immature.
Sex: unknown.

FINDS:

1. Ceramic **pot** *(526)*. Top left of grave. Complete, small curved bowl with a rounded base. No decoration. Diam. rim 110mm; Ht. *c.* 90mm
2. Iron **buckle** (sf2028). At ?waist. Oval loop; closed at burial. *Marzinzik Type I.11a-i* (2003, 32–3). Mineral-preserved textile on front and underside, and belt ?leather at axis and tongue base. W. 25mm

Inhumation 16 *[560]*
(Figs 2.6, 3.13–3.14; Pl. IIIb)
L. 1.76m; W. 0.72m; D. 0.70m
Fill: *(561)* light brown silty sand with some yellow sand and charcoal inclusions.
Description: located in the north-west of Area A. The grave cut ditch *[34/508]* (*Phase 2*) neatly at a right angle. This association looks deliberate, implying the prehistoric ditch (or its bank) survived as a visible earthwork at the period.

Sub-rectangular grave with rounded ends, steep vertical sides and a flat base.

Well-defined sand body of dark grey-brown to black sand *(572)*, indurated in places. Its proportions and the grave size suggest an older

child, supine-extended, oriented NW-SE (300°). Teeth remains were present but did not survive excavation.

Spearhead (no. 1) by the left arm; shield-fittings (nos 2–4) over the head and upper chest; buckle (no. 6) at the waist; knife (no. 5i) together with pin (no. 5ii) on the lower chest. Textile evidence indicates the body was dressed and probably covered with a cloak/blanket (over spear/under shield), and there was evidence of an animal pelt also. Remains of grasses (*Dactylis glomerata*) on the weaponry suggest a layer over the body and grave-goods.
Residual: *(561)* five worked flints.
Age: older juvenile.
Sex: unknown (male gender).

FINDS:

1. Iron **spearhead** (sf2035). Beside left arm. Long and weakly concave blade, two-thirds of total length; slightly bent at junction of blade and socket. *Swanton Type E3/H3* (1973, 83–7, 110–14). Mineral-preserved wood in socket, textile on one face of blade and socket (Pl. XVb) overlain by mineral-preserved plant remains, and unidentified skin product on opposite face. L. overall 445mm; L. blade 294mm; W. blade 46mm; L. socket split 126mm; Diam. socket base 22mm
2. Iron **shield-boss**, **hand-grip** and ?**fixings** (sf2032). At right shoulder.
   i) Boss: weakly convex cone with a small disc-headed apex, slight carination and sloped wall; five disc-headed flange rivets, complete with washers. *Dickinson/Härke Type 3* (1992, 14–7). Mineral-preserved shield-board wood with ?leather back cover between flange underside and rivet washers, mineral-preserved plant remains on outer surface, and animal pelt on rivet washers. Diam. 165mm; Ht. 88mm; W. flange: 25mm; Diam. apical disc 20mm; L. rivet 10mm
   ii) Hand-grip: flat with flared ends; complete rivets with square washers. *Dickinson/Härke Type Ia1* (1992, 24–7). Mineral-preserved wood and ?leather from handle, and animal pelt and textile on back. L. 146mm; W. 28–44
3. Pair of iron **shield-board mounts** (sf2033). At head, edge-to-edge. Disc-headed; shanks and washers complete. Mineral-preserved wood and ?leather from shield construction on underside (as no. 2i, but with ?leather front cover also). Diam. i) 39mm; ii) 40mm; L. rivets 18mm
4. Pair of iron **shield-board mounts** (sf2034). At chest, edge-to-edge. As no. 3, but animal pelt on rivet washer and plant remains on front surfaces. Diam. 46mm (both); L. rivets 18mm
5. Iron **knife** and **pin** (sf2036). At lower chest.
   i) Knife: back of blade angled towards tip, cutting-edge concave. *Evison Type 3* (1987, 113). Mineral-preserved horn on tang and shoulder from handle, ?leather on blade from sheath, and textile on both sides. L. overall 156mm; L. blade 105mm; W. 23mm
   ii) Pin (sf2036a): missing point. Scroll headed. L. 67mm
6. Iron **buckle** (sf2037). Centre of waist. Incomplete, oval loop with expanded tongue-rest; closed at burial. *Marzinzik* ?*Type I.11b* (2003, 33–4). Mineral-preserved textile on front, and possible belt ?leather on tongue and underside. W. 34mm

Inhumation 17 ***[614]***
(Figs 3.15–3.16; Pl. IIIc)
L. 1.97m; W. 0.81m; D. 0.28m
Fill: *(615)* Yellow sand, mottled with orange-brown silty sand and light grey loamy sand, with moderate gravel/stones.
Description: located in the north-west of Area A.

Rectangular grave with sloped sides and a flat base. Coffin/lining stain of light grey sand *(630)* at south-western edge, recorded *c*. 0.15m above the grave base, and of black sand at head-end *(639)* and left leg *(640)*.

Body stain/sand body of dark brown-black sand *(616)*, partly indurated, the legs in low relief and with decayed bone at the right fibula/tibia. Suggests a supine(-?extended) position, possibly with legs slightly flexed, oriented W-E (271°). A further patch of black staining *(641)* at the 'right leg' was distinct from the body and coffin/lining stains, perhaps indicating a perished object, such as a bag or joint of meat.

Spearhead (no. 2) at the left head-end, *c*. 0.15m above the grave base; crushed pot (no. 1) just below spearhead, possibly originally on the shield (nos 3–5); buckle (no. 7) and knife (no. 6) in the waist region. Textile evidence on the buckle (no. 7) indicates clothing. Remains of grasses (*Agrostis canina*, *Dactylis glomerata*, *Holcus mollis*, *Phragmites communis*) on the weaponry suggest a covering, perhaps over the burial-container, as the shield was possibly too large to fit in the coffin-sized structure (though there was no evidence for a coffin-lid).
Age: subadult/adult.
Sex: unknown (male gender).

FINDS:

1. Ceramic **pot** *(634)*. At left shoulder. Complete, sub-biconical jar; line, boss and stamp decoration. Stamps: *Briscoe Types A4ai* and *A5aviii* (1983). Diam. *c.* 175mm; Ht. *c.* 90mm
2. Iron **spearhead** (sf2038). Left head-end. Small leaf-shaped blade. *Swanton Type D1* (1973, 64–7). Mineral-preserved wood in socket, and plant remains on socket. L. overall 250mm; L. blade 104mm; W. blade 30mm; L. socket split 97mm; Diam. socket base 22mm
3. Iron **shield-boss** and **hand-grip** (sf2039). At left chest.
   i) Boss: convex cone with a small disc-headed apex mounted with silver sheet, attached with solder, and a carination overhanging a low concave or sloped wall; five disc-headed flange rivets, some full length. *Dickinson/Härke Type 1/3* (1992, 10–2, 14–7). Mineral-preserved shield-board wood (*Fraxinus excelsior*) with ?leather front cover on flange underside, with bone, and mineral-preserved plant remains on cone. Diam. 146mm; Ht. 75mm; W. flange 22mm; Diam. apical disc 19mm; L. rivet 7mm
   ii) Hand-grip: flat with flared terminals; disc-headed rivets, one complete, its end hammered over. *Dickinson/Härke Type Ia1* (1992, 24–7). Mineral-preserved wood and ?leather from handle. L. 121mm; W. 15–36mm; L. rivet 11mm
4. Pair of iron **shield-board mounts** (sf2041–42). At neck/head, edge-to-edge. Disc-headed, slightly convex; one rivet complete, its end expanded and flattened. Mineral-preserved wood and ?leather on underside from shield construction (as no. 3i, but with ?leather back cover also), and mineral-preserved plant remains over outer surfaces. i) Diam. 37mm; Th. rivet 3mm; ii) Diam. 37mm; L. rivet 10mm; Th. rivet 4mm
5. Pair of iron **shield-board mounts** (sf2044–45). Left of ?arm, edge-to-edge. As no. 4, but both rivets complete, their ends expanded and flattened. i) Diam. 37mm; L. rivet 10mm; Th. rivet 4mm; ii) Diam. 35mm; L. rivet 10mm; Th. rivet 4mm
6. Iron **knife** (sf2040). At lower chest. Blade back and cutting-edge curve towards tip; mouth of sheath defined in corrosion. *Evison Type 1* (1987, 113). Mineral-preserved horn on tang from handle and ?leather on blade from sheath. L. overall 132 mm; L. blade 90mm; W. 16mm
7. Iron **buckle** (sf2043). Centre of waist, pointing left. D-shaped loop, backed by rectangular belt-plates; closed at burial. *Marzinzik Type II.19a* (2003, 46). Mineral-preserved belt ?leather between plates and through loop, puparia on one side, and textile on underside of loop and lower plate. L. overall 68mm; W. loop 24mm; L. plate 40mm; W. plate 15mm
8. Three copper-alloy **mounts** (sf2046–48). Left of arm, arranged in a line. Simple, small and rectangular (in multiple fragments), possibly from shield-board as central one (ii) originally secured to a flat wooden object by three iron rivets (see Dickinson and Härke 1992, 29). Mineral-preserved possible skin product (?leather) on edges, and wood surrounding rivets. i) L. 13mm; W. 9mm; Th. 1mm; ii) L. largest 21mm; W. 10mm; Th. 1mm; L. rivets 4–6mm; rivet spacing 7mm; iii) L. largest 24mm; W. 9mm; Th. 1mm

Inhumation 18 ***[650]***
(Fig. 3.12)
L. 1.56m; W. 1.11m; D. 0.20m
Fills: *(651)* yellow sand, mottled with grey; *(653)* mid grey-brown silty sand, mottled with yellow-orange sand.
Description: located in the north-west of Area A, west of ditch *[513]* (*Phase 4i*).

Wide, shallow, rectangular grave with sloped sides and a base inclined slightly on its long axis. A very dark black stain *(652)* suggested one side of a probable wooden lining, with other smaller areas also, recorded at the grave base only. The sand fill *(653)* inside the lining was distinct from the silty sand backfill *(651)* surrounding it, so possibly the former represents in-wash.

The small and formless body stain *(661)*, together with the grave size, suggests an infant or juvenile. A fragment of cremated bone came from fill *(653)*.

Spearhead (no. 1) position implies a W-E alignment (276°). Knife (no. 2) and buckle (no. 3) in the waist region suggest the body was dressed (though there was no textile evidence).
Residual: *(653)* one Beaker potsherd, one Roman black-surface ware potsherd; seven worked flints (Fig. 2.5, no. 4).
Age: ?immature.
Sex: unknown (male gender).

Cremated bone (653): 3g.
Animal (cremated): 3g; large ungulate.

FINDS:

1. Iron **spearhead** (sf2049). Left ?head-end. ?Angular blade. *Swanton Type E1* (1973, 76–81). Mineral-preserved wood in socket, and unidentified skin product and possibly bone on socket and blade. L. overall 245mm; L. blade 145mm; L. socket split 90mm; Diam. socket base 30mm
2. Iron **knife** (sf2050). At left ?waist. Small overall, blade back and cutting-edge curve towards tip. *Evison Type 1* (1987, 113). Mineral-preserved horn on tang from handle, ?leather on blade from sheath, and puparia on one side. L. overall 100mm; L. blade 55mm; W. 23mm
3. Iron **buckle** (sf2051). At ?waist. D-shaped loop, missing most of tongue. *Marzinzik Type I.10b-i* (2003, 30–1). Possible mineral-preserved belt ?leather running through loop. W. 26mm

Inhumation 19 *[676]*
(Figs 3.17–3.18; Pl. IIId)
L. 2.69m; W. 1.32m; D. 0.72m
Fills: *(677)* mixed, yellow-orange and light grey-brown sand; *(681)* light grey-brown sand.
Description: located near the western limit of Area A.

Wide, sub-rectangular grave with sloped sides and a base inclined slightly on its long axis. The dark grey burial-container stain *(682)*, recorded in plan and section (L. *c.* 1.85m; W. *c.* 0.80m), may suggest a log-coffin with a collapsed lid. Sand fill *(681)* inside the coffin was different from the grave backfill *(677)*. Burnt fragments of 'plank' with a visible 'grain' overlaid the head-end half of the grave (Pl. IVa). The excavator thought this was part of the lid (though for an alternative explanation see *Chap 8; Sect. IV: Grave structures*). The record states that a sample of charred wood *(682)* was retained, but no fragments were found in searches of the SCCAS stores in 2008 or 2010 (S. Boulter and R. Goffin pers. comm.).

Body stain was dark grey-black *(678)* and indistinct overall, though the head survived in partial relief. Suggests a supine(-?extended) position, oriented W-E (261°).

Two brooches (nos 1–2) at the shoulders; beads (no. 3) at the waist; knife (no. 4) to the left of the waist; buckle (no. 5) at the right waist. It was corroded 'open', implying an unworn belt, perhaps for a perished girdle accessory (e.g. a bag). Textile remains indicate a peplos costume (Walton Rogers 2007, 144–52).
Residual: *(677)* one worked flint.
Age: subadult/adult.
Sex: unknown (female gender).

FINDS:

1. Copper-alloy **annular brooch** (sf2052). At neck/right shoulder. Incomplete, three fragments of flat sheet-metal in poor condition. Faint, V-shaped punch marks at inner and outer edges, with alternating diagonal lines of punch marks between. Iron pin, in a slot perforation; closed at burial. Pin is on the wrong side, so possibly a repair. *Leeds Type G* (1945, 46–9). Mineral-preserved textile on pin and possibly on brooch front. Diam. 53mm; W. band 11mm
2. Copper-alloy **annular brooch** (sf2053). At left shoulder. Incomplete, two fragments of brooch and an iron pin. Same form and decoration as no. 1, but with a slightly broader band and better surviving ornament. Mineral-preserved textile on pin. Largest fragment 31mm; W. band 13mm
3. Forty-six amber and glass **beads** (sf2056–2106). Centre of waist (Pl. Va).
   Amber, thirty-four beads, worn:
   i) (sf2057) one very short, wedge-shaped cross-section. Diam. 16mm
   ii) (sf2058/2060/2062–63/2065/2068/2070/2072/2075–76/2080/2085/2090/2097/2102) fifteen medium, facetted. Diam. 11–4mm
   iii) (sf2059) one irregular, incomplete, modern damage. Diam. 11mm
   iv) (sf2067/2073/2083–84/2086/2089/2091/2093–95/2100–1/2105–6) fourteen medium, facetted. Diam. 9–10mm
   v) (sf2096/2098–99) three medium, rounded. Diam. 8–10mm
   Glass, twelve beads (Pl. XIV; for types see *Chap. 4; Sect. II: Beads*; Brugmann 2004; Penn and Brugmann 2007):
   vi) (sf2056) one short, globular. *Type Traffic Light*. Diam. 17mm
   vii) (sf2103) one fragment of an opaque yellow bead with irregular red trail. *Polychrome2*. Diam. 7mm
   viii) (sf2064/2074/2081) three short-to-medium globular, translucent yellow. *Type Melon*. Diam. 13–5mm
   ix) (sf2066) one short, globular, translucent blue. Var. melon. Diam. 13mm
   x) (sf2079) one medium, globular, five ribs, opaque yellow. *Type Norfolk Melon*. Diam. 6mm
   xi) (sf2082/2092) two short, globular, translucent dark blue. *Type Blue*. Diam. 10mm
   xii) (sf2078) one short, annular, translucent light blue. *Type Blue*. Diam. 17mm
   xiii) (sf2087) one short, globular, translucent light green. *Green globular*. Diam. 10mm
   xiv) (sf2088) one short, globular, translucent dark green. *Green globular*. Diam. 7mm
4. Iron **knife** (sf2054). Left of ?waist. Narrow blade, back and cutting-edge curve gradually towards tip; cutting-edge concave. *Evison Type 1* (1987, 113). Mineral-preserved horn on tang from handle and ?leather on blade from sheath. L. overall 139mm; L. blade 96mm; W. 20mm
5. Iron **buckle** (sf2055). Right of ?waist (orientation uncertain). D-shaped loop with flattened cross-section, backed by rectangular belt-plates, pierced by a disc-headed copper-alloy rivet. The large pin has a scalloped profile and an expanded base; open at burial. *Marzinzik Type II.19a* (2003, 46). Mineral-preserved belt or strap ?leather between plates and through loop. L. overall 46mm; W. loop 25mm; L. plate 27mm; W. plate 16mm

Inhumation 20 *[857]*
(Figs 2.12, 3.19–3.20)
L. *c.* 2.10m; W. *c.* 1.20m; D. 0.30m
Fills: *(858)* yellow sand; *(860)* light yellow sand.
Description: located centrally in Area A. It probably cut ditch *[513]* (*Phase 4i*).

The grave edges could not be defined against the fill of ditch *[513]*, but a rectilinear mid brown silty stain *(859)* indicated a probable wooden lining (L. *c.* 1.90m; site photo shows it surviving *c*. 0.10m above the grave base).

Partial sand body of mid brown silty sand with green tinges *(861)*. Suggests a supine(-?extended) position, oriented N-S (359°). The fill *(860)* inside the lining was different to the backfill *(858)* surrounding it, so possibly the former represents in-wash.

Iron fittings (no. 5) at the left 'foot' are from a wooden object, perhaps repair fixings from scrap timber used for a container lid. The spearhead's (no. 1) position suggests the weapon was diagonally across the body, with wood on one blade face possibly from a lid also. Textile evidence indicates clothing and possibly a cloak/blanket over the body. Remains of grasses (*Dactylis glomerata*, *Deschampsia flexuosa*, *Holcus mollis*) on the weaponry suggests a covering, and perhaps a grave-base layer, too. The shield hand-grip (no. 3) found at the foot-end has teeth and bone attached, proving it was originally with the shield-boss (no. 2) over the head.
Age: subadult/adult.
Sex: unknown (male gender).

FINDS:

1. Iron **spearhead** (sf2108). At left upper chest. Long, slender leaf-shaped blade, missing its tip, with a long socket. *Swanton Type D2* (1973, 67–71). Mineral-preserved wood in socket and on one side of blade (possibly from a burial-container lid), with unidentified skin product on the socket, and mineral-preserved plant remains on both sides. L. overall 424mm; L. blade 190mm; W. blade 30mm; L. socket split 140mm; Diam. socket base 20mm
2. Iron **shield-boss** (sf2107). At neck/head. Incomplete, flange mostly missing with no rivets; boss has a weakly convex cone with a copper-alloy disc-headed apex mounted with silver sheet, and a carination overhanging a sloped wall. *Dickinson/Härke Type 3* (1992, 14–7). Mineral-preserved shield-board wood with ?leather front cover on flange underside, and mineral-preserved plant remains on outer surfaces. Diam. 124mm; Ht. 80mm; Diam. apical disc 23mm
3. Iron shield **hand-grip** (sf2112). Right of iron fittings (no. 5). Incomplete, flat and heavy with flared ends; rivets broken. *Dickinson/Härke Type Ia1* (1992, 24–7). Mineral-preserved wood from handle, and teeth and bone (human) on back with mineral-preserved textile (Pl. XVc). L. 135mm; W. 22–46mm
4. Iron **knife** (sf2109). At left ?waist/arm. Small and narrow blade, back and cutting-edge curve towards tip; cutting-edge concave; sheath line visible in corrosion. *Evison Type 1* (1987, 113). Mineral-preserved textile on blade. L. overall 120mm; L. blade: 70mm; W. 16mm
5. Iron **fittings** and **iron** ?**rod/nail** (sf2110). At left foot.

i-iv) One complete and three or four fragmentary fittings (in six pieces); rivets at ends, no shanks complete. Mineral-preserved wood on undersides, grain at right angles to length, and mineral-preserved plant remains on opposite side in one case. i) L. 73mm; W. 10–20mm; ii) W. 15–23mm; iii) W. 10–6mm; iv) W. 11–6mm
v) Rod/nail fragment. Mineral-preserved wood at right angles to length. L. 34mm

6. Iron **rivet** (sf2111). At head-end. ?Domed head with circular washer. Mineral-preserved wood, grain at right angles to shank. L. 32mm

Inhumation 21 *[868]*
(Figs 3.21–3.23)
L. 2.40m; W. 0.91m; D. 0.57m
Fill: *(869)* light yellow-brown silty sand, mottled with mid brown and mid grey-brown, with moderate gravel/stones.
Description: located in the west of Area A. It cut pit *[866]* (unphased), probably a natural feature.

Sub-rectangular grave with vertical sides and a slightly uneven base.

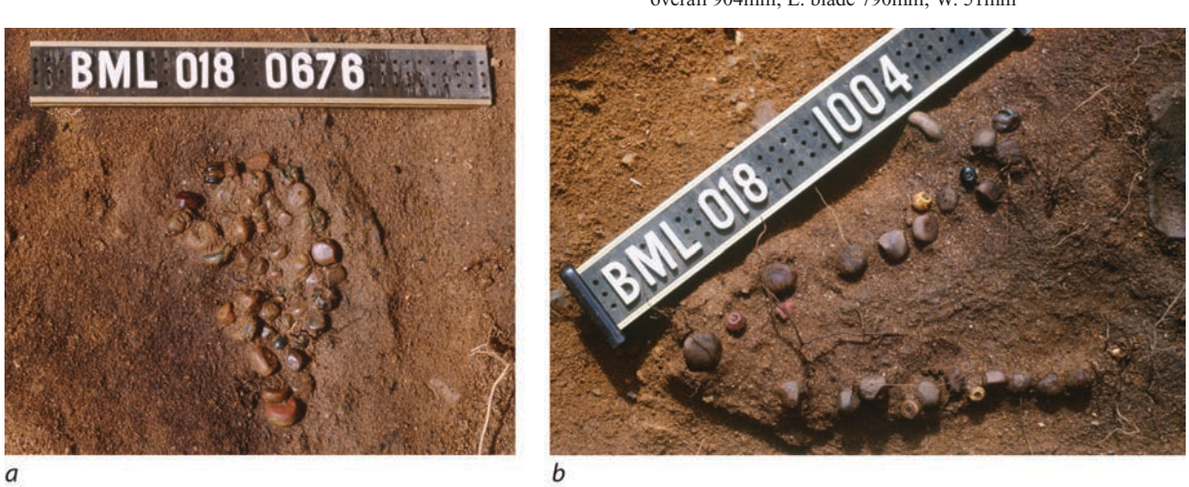
Body stain *(883)* had defined legs of light-mid yellow-olive silty sand, firm in compaction, but an indistinct upperbody of mid-dark grey-brown silty sand. It incorporated a probable shield-board outline at the head. Suggests a supine-extended position, oriented W-E (280°). Teeth and bone survived beneath the shield-boss (no. 2i).

Full weapon-set: spearhead (no. 1) at the left head-end; shield-fittings (nos 2–6) with the 'board' stain at the head, decorated as a suite with gilding and silver sheet, including bird-of-prey and 'fish' mounts (for reconstruction see Fig. 4.6a); sword (no. 7) on the left chest; knife (no. 8) in the waist region. A buckle (no. 9i) that lay close to the sword joins a fitting (no. 9ii) found fixed in the blade corrosion, which together probably come from a sword-belt wrapped around the scabbarded weapon. Textile evidence indicates a cover(s) over the body, and feather fragments on the spearhead may be from a head-pillow. Remains of grasses (*Dactylis glomerata*) on the weaponry suggest a layer over the body and grave-goods.

For a reconstruction of the burial see the *Endpiece*.
Age: mature adult (teeth).
Sex: unknown (male gender).

FINDS:

1. Iron **spearhead** (sf2122). Left head-end. Angular blade, acutely angled at its base, with a proportionately long socket. *Swanton Type F1* (1973, 90–3). Mineral-preserved wood (*Fraxinus excelsior*) in socket, textile on one side of socket overlaid by two feather fragments (Pl. XVIb), and mineral-preserved plant remains on socket and blade. L. overall 280mm; L. blade 130mm; W. blade 34mm L. socket split 90mm; Diam. socket base 23mm
2. Iron **shield-boss** with bichrome decoration (gilt and silver) and **hand-grip** (sf2113/2128). At neck/head.
i) Boss (Pl. Xa): weakly convex cone (almost straight) with a large copper-alloy disc-headed apex, and a carination overhanging a near-vertical wall; five copper-alloy disc-headed flange rivets. *Dickinson/Härke Type 3* (1992, 14–7). The flange rivets form two non-matching sets (three are possibly replacements) with similar gilded 'sunburst' ornament and silver-sheet mounts (attached with solder). The apical disc bears chip-cast Style I animal art, likewise gilded, and with collars of silver sheet (Fig. 4.7). Mineral-preserved shield-board wood (*Fraxinus excelsior*) with ?leather front and back covers between the flange underside and rivet washers, and mineral-preserved plant remains on outer surfaces. Diam. 155mm; Ht. 88mm; W. flange 16mm; Diam. apical disc 41mm; L. rivets 8mm
ii) Hand-grip (Pl. XVa): fragmentary, thin and curved with flared ends; disc-headed copper-alloy rivets mounted with silver sheet, one shank complete. *Dickinson/Härke Type Ia1* (1992, 24–7). Mineral-preserved ?leather and wood (*Fraxinus excelsior*) from handle, and multiple textile layers on back. L. 161mm; W. 20–31mm; L. rivet 10mm
3. Four copper-alloy **shield-board mounts** with bichrome decoration (sf2115–18). Right of shield-boss, edge-to-edge in a row.
i–iv) Disc-headed, in the same suite as the two (?original) shield-boss flange rivets, but larger. They have gilded 'sunburst' ornament combined with raised centres and borders mounted with silver sheet (attached with solder); integral rivets with stout shanks, but only one (ii) survives to full length. Mineral-preserved shield-board wood with ?leather front cover on underside, and ?leather back cover over rivet heads. Wood grain parallel to arrangement of mounts. A whitish calcite and beeswax material backs the mounts (over the front cover). Diam. 20mm; Th. 2mm; ii) L. rivet 7.5mm.
v) Fragment of mineral-preserved shield-board, surrounding two detached rivet shanks, associated with (ii–iv). Pierced wood and ?leather cover indicates spacing of mounts. L. 45mm
4. Four copper-alloy **shield-board mounts** with bichrome decoration (sf2123–26). Left of shield-boss, edge-to-edge in a row.
i–iv) As no. 3i–iv, but no rivets complete.
v) Mineral-perserved shield-board, as no. 3v, but with three rivet-shank fragments. L. 65mm
vi) Four fragments from copper-alloy washers.
5. Cast copper-alloy **'fish' mount** with bichrome decoration (sf2119) (Fig. 4.6a, c; Pl. Xc). Above shield-boss.
i) Finned or ?quadrupedal creature in flattened perspective. Combination gilding and silver sheet (attached with solder; sheet missing at tail), with annulet punch marks. Two stout rivets survive, integral with the mount, with circular washers. Mineral-preserved shield-board wood and ?leather covers, and a whitish compound (as no. 3). Wood grain parallel with length. L. 95mm; W. 15mm; L. rivet 11mm
ii) Fragment of mineral-preserved shield-board, of wood with ?leather covers, from back of mount. L. 36mm
6. Cast copper-alloy **bird-of-prey mount** with bichrome decoration (sf2120) (Fig. 4.6a–b; Pl. Xb). Above shield-boss and 'fish' mount (no. 5). Bird in profile clutching a snake with a figure-of-eight body in its beak and claws. Combination gilding and silver sheet (attached with solder), with annulet punch marks and notching. Two stout rivets survive, integral with the mount, with circular washers. Large fragment of mineral-preserved shield-board wood between rivets with ?leather front cover, ?leather back cover over rivet heads, and a whitish compound (as no. 3). Wood grain at right angles to mount. W. 45mm; L. rivet 9–10mm
7. Iron **sword** (sf2114). At left chest. Long, double-sided parallel blade with central fuller (confirmed one side only) and pattern-welded. Mineral-preserved tripartite horn and possibly ivory hilt, and a scabbard of wood (*Fraxinus excelsior*), ?fleece, leather, cord binding and textile; moulded cord design on one face (Fig. 4.12). L. overall 904mm; L. blade 790mm; W. 51mm



a b

Plate V Beads *in situ*: a) inhumation 19; b) inhumation 31. By SCCAS

8. Iron **knife** (sf2134). At right waist. Straight back to blade, curved cutting-edge; sheath line visible in corrosion. *Evison Type 2* (1987, 113). Mineral-preserved horn on tang from handle, ?leather on blade from sheath, and textile on both faces. L. overall 151mm; L. blade 104mm; W. 22mm
9. Iron **buckle** (sf2114/2130). Buckle and belt-plate found separately but one originally, and probably from a sword-belt: buckle (i) close to sword, at centre waist, joins plate (ii) found during conservation in soil/corrosion on sword's upper half.
   D-shaped loop (i) with enlarged tongue-rest; closed at burial. Belt-plate (ii) narrow and bridge-shaped with a square section; rectangular impression along the top of the mid-section may be from a missing ?silver-sheet overlay based on the presence of silver corrosion; two copper-alloy rivets at the loop end and one at the opposite end, the latter with its washer visible. *Marzinzik Type II.19a* (2003, 46; cf. Boyle et *al*. 1998, fig. 5.79, no. 3). Mineral-preserved belt ?leather on reverse of plate and on loop, ?leather on underside of back-plate from an underlying strap at right angles to plate, and textile on front of loop. L. overall 80mm; W. loop 30mm; L. plate 58mm; W. plate 17mm
10. **Modern glass** shard (sf2121). In backfill. Pale blue-green, sharp edges, possibly bottle glass. Intrusive. L. 30mm; Th. 4mm

Inhumation 22 *[884]*
(Figs 2.9, 3.24)
L. 1.60m; W. 0.55m; D. 0.15m
Fill: *(885)* light brown silty sand with moderate gravel/stones.
Description: located in the north-east of Area A, east of ring-ditch *[351]* (*Phase 3*).

Shallow, sub-rectangular grave with vertical sides and a flat base.

Sand body of mid-dark brown silty sand *(886)* with green tinges at the legs, which were well defined. Its proportions and the grave size suggest a child, supine-extended, oriented W-E (267°).

On site an 'iron object' was recorded in the neck area, but this was not received by the British Museum (H. Bullock pers. comm.); a check of the SCCAS stores in 2011 failed to locate it (R. Goffin pers. comm.). Possibly it proved not to be an object, though this cannot be confirmed.
Residual: *(885)* one early Neolithic potsherd.
Age: juvenile.
Sex: unknown.

FINDS (not illustrated):

1. 'Iron **object**' (sf2127). At upper ?chest/neck. Unknown.

Inhumation 23 *[888]*
(Figs 2.9, 3.24–3.25)
L. 2.15m; W. 0.95m; D. 0.29m
Fill: *(889)* brown silty sand, mottled with yellow and light brown sand.
Description: located in the north-east of Area A, east of ring-ditch *[351]* (*Phase 3*). A tree-throw *[444]* (modern) had partly truncated the upper grave edge, but the burial was intact.

Sub-rectangular grave with vertical sides and a base inclined slightly on its long axis.

Sand body of dark grey to black sand *(890)*, with well-defined and partly indurated legs. Body turned to the left, with legs flexed, oriented W-E (284°).

Spearhead (no. 1) at the right head-end; shield-fittings (nos 2–3) over the head and upper chest; buckle (no. 6) at the right-waist and knife (no. 5) to the right of it. Textile and other evidence suggests cloak/blanket and animal-pelt covers, or grave linings, and a wrapping for the spearhead. A feather on the spearhead may be from a head-pillow, and remains of grasses (*Dactylis glomerata*) may be from a covering and/or grave-base lining. Wood on two objects (nos 2i, 6) could be from a collapsed cover.
Age: subadult/adult.
Sex: unknown (male gender).

FINDS:

1. Iron **spearhead** (sf2132). Right head-end. Broad leaf-shaped blade. *Swanton Type D1* (1973, 64–7). Mineral-preserved wood (*Fraxinus excelsior*) in socket, textile on one blade face and socket overlaid by a feather, and mineral-preserved plant remains on both sides. L. overall 234mm; L. blade 120mm; W. blade 44mm; L. socket split 100mm; Diam. socket base 24mm
2. Iron **shield-boss** and **hand-grip** (sf2131). At head.
   i) Boss: convex cone with a small disc-headed apex, and a carination overhanging a sloped wall; five disc-headed flange rivets. Solder traces on the apical disc suggest it had a decorative sheet-metal mount originally. *Dickinson/Härke Type 3* (1992, 14–7). Mineral-preserved shield-board wood (*Fraxinus excelsior*) with ?leather front cover on flange underside, skin product (unidentified) on outer surface, and wood on the apical disc (possibly from a grave cover). Diam. 166mm; Ht. 94mm; W. flange 22mm; Diam. apical disc 20mm
   ii) Hand-grip: incomplete, flat with flared ends. *Dickinson/Härke Type Ia1* (1992, 24–7). Mineral-preserved wood and ?leather from handle and back cover of shield-board, and animal pelt and textile on back. L. 116mm; W. 20–39mm
3. Three copper-alloy **shield-board mounts** (sf2137). At upper chest, edge-to-edge in a row. Two have disc-heads, one is lozengic (set centrally); all are mounted with silver sheet; shanks complete. Two are conjoined by mineral-preserved shield-board wood (*Fraxinus excelsior*) with ?leather front and back covers. Possible mineral-preserved textile on one rivet washer. Diam. disc-heads 12–6mm: L. lozenge-head 17mm; L. rivets 10mm
4. Copper-alloy **wire** and decayed silver fragments (sf2135). With shield-board mounts. Function unknown. L. wire 32mm
5. Iron **knife** (sf2133). Right of ?arm/waist. Small with an eroded tip; sheath line visible in corrosion. *Evison ?Type 1* (1987, 113). Mineral-preserved horn on tang from handle and ?leather on blade from sheath. L. 101mm; W. 22mm
6. Iron **buckle** (sf2136): At right ?waist. Narrow, flattened oval loop; closed at burial. *Marzinzik Type I.11a-i* (2003, 32–3). Mineral-preserved wood (*Quercus* sp.) on upper surface (possibly from a grave cover), and probable belt ?leather through loop. W. 21mm

Inhumation 24 *[909]*
(Figs 3.26–3.28)
L. 2.18m; W. 0.74m; D. 0.32m
Fill: *(910)* light brown sand.
Description: located in the north-west of Area A, west of ditch *[513]* (*Phase 4i*).

Sub-rectangular grave with vertical sides and a slightly undulated base.

Sand body of dark brown silty sand *(911)* with green tinges. Supine-extended, oriented W-E (275°). Teeth and bone survived beneath the shield-boss (no. 2).

Two spearheads (no. 1) at the left head-end; shield-fittings (nos 2–4, 6) at the head and upper chest; buckle (no. 7) and knife (no. 5) at the waist. Textile and other evidence indicates clothing, and possibly coverings of a cloak/blanket and animal-pelt. Remains of grasses (*Dactylis glomerata*) on the weaponry suggest a layer over the body and grave-goods.
Age: mature/older adult (teeth).
Sex: unknown (male gender).

FINDS:

1. Two iron **spearheads** (sf2142/2150). Left head-end. Corroded together; both have similar, long and narrow blades with lozenge sections, over two-thirds of the total length. Mineral-preserved wood in sockets, *Fraxinus excelsior* in case of (i), plant remains on upper surfaces, and textile on socket of (ii).
   i) *Swanton Type E3* (1973, 83–7) L. overall 542; L. blade 390mm; W. blade 36mm; L. socket split 134mm; Diam. socket base 22mm
   ii) *Swanton Type E4* (1973, 87–91) L. overall 530mm; L. blade: 390mm; W. blade 34mm; L. socket split 144mm; Diam. socket base 23mm
2. Iron **shield-boss** and **hand-grip** (sf2138). At neck/head.
   i) Boss: straight-sided cone with a large iron disc-headed apex, weak carination and sloped wall; five disc-headed flange rivets. Rivet heads and the apical disc mounted with silver sheet. *Dickinson/Härke Type 3* (1992, 14–7). Mineral-preserved shield-board wood (*Alnus glutinosa*) with ?leather front cover on flange underside, and mineral-preserved plant remains on outer surfaces. Diam. 160mm; Ht. 86mm; W. flange 17mm; Diam. apical disc 34mm
   ii) Hand-grip: long, slightly curved with flared ends; disc-headed rivets mounted with silver sheet. *Dickinson/Härke Type Ia1* (1992, 24–7). Mineral-preserved wood (*Alnus glutinosa*) and ?leather from handle; and ?leather shield carrying-strap, animal pelt and textile on back. L. 163mm; W. 21–46
3. Three copper-alloy **shield-board mounts** (sf2139–41). At head, edge-to-edge in a row. Disc-headed, mounted with silver sheet; two rivet shanks complete, surrounded by mineral-preserved shield-board wood (*Alnus glutinosa*) with ?leather front and back covers. Mineral-preserved plant remains on outer surfaces. A

whitish calcite and beeswax material backs the mounts (over the front cover). Diam. 16–7mm; L. rivets 7.5–10mm

4. Three copper-alloy **shield-board mounts** (sf2145–47). At upper chest, edge-to-edge in a row. As no. 3, but all shanks complete and the shield-board wood is different (*Fraxinus excelsior*). Diam. 16–7mm; L. rivets 7.5–12mm
5. Iron **knife** (sf2143). Left of buckle (no. 7). Broad blade, back angled towards tip, curved cutting-edge; X-radiograph suggests blade might have a composite construction. *Evison Type 3* (1987, 113). Mineral-preserved horn on tang from handle, ?leather on blade from sheath, puparia and textile on one side. L. overall 145mm; L. blade 108mm; W. 30mm
6. Iron **buckle** (sf2149). At neck, close to shield-boss, probably from shield carrying-strap. D-shaped loop; closed at burial. *Marzinzik Type I.10a-i* (2003, 30). Mineral-preserved ?leather through loop, pierced by tongue, and textile on underside. W. 22mm
7. Iron **buckle** (sf2144). Centre of waist. D-shaped loop, enlarged tongue-rest; closed at burial. *Marzinzik Type I.10b-i* (2003, 30–1). Mineral-preserved probable belt ?leather through loop, yew wood (*Taxus baccata*) on back (see *Chap. 8; Sect. V*), and textile on underside. W. 26mm

Inhumation 25 ***[956]***
(Fig. 3.28)
L. 2.08m; W. 1.00m; D. 0.18m
Fill: *(957)* mid brown silty sand.
Description: located centrally in Area A, east of ditch *[1020]* (*Phase 4i*). The head-end was recorded during the main excavation; the foot-end was excavated later during a 'watching brief', following demolition of a building. Although the burial appeared intact, it is possible sword fragments recovered nearby, in 2001, originated from this grave (see below, *Unassociated finds*).

Shallow, sub-rectangular grave with sloped sides and a flat base.

Partial sand body of dark brown-black indurated sand *(958)*, the legs well-defined, but the upper torso and head less so. Suggests a supine position, with legs flexed and perhaps crossed, oriented NNW-SSE (322°).

Spearhead (no. 1) at the left head-end; knife (no. 2) at the waist. Plant remains on the spearhead may suggest a lining and/or covering of grasses (*Dactylis glomerata*).
Age: subadult/adult.
Sex: unknown (male gender).

FINDS:

1. Iron **spearhead** (sf2152). Left head-end. Slender and weakly-angular blade. *Swanton Type E2* (1973, 80–3). Mineral-preserved wood in socket and plant remains on both sides. L. overall 334mm; L. blade 190mm; W. blade 28mm; L. socket split 110mm; Diam. socket base 23mm
2. Iron **knife** (sf2153). At left waist. Blade back angled towards tip, cutting-edge concave; X-radiograph suggests blade might have a composite construction. *Evison Type 3* (1987, 113). Mineral-preserved horn on tang from handle, ?leather on blade from sheath, and puparia on one side. L. overall 122mm; L. blade 70mm; W. 22mm

Inhumation 26 ***[960]***
(Figs 2.9, 3.29; Pl. IVb)
L. 1.85m; W. 0.93m; D. 0.39m
Fill: *(961)* mixed, mid brown silty sand and yellow sand.
Description: located in the centre-north of Area A, just north-west of ring-ditch *[351]* (*Phase 3*), east of ditch *[513]* (*Phase 4i*).

Sub-rectangular grave with sloped sides and a flat base.

Well-defined sand body of dark green-grey and indurated black sand *(962)*, with 'mineralised' skull remains. Body tightly-flexed (crouched), lying on right side, oriented W-E (267°).

Beads and a pendant (nos 1, 2) at neck; buckle (no. 5), belt-ring (no. 6) and knife (no. 4) at waist; tweezers (no. 3) at upper left leg. Textile remains indicate clothing.
Age: subadult/adult.
Sex: unknown (female gender).

FINDS:

1. Twenty amber and glass **beads** (sf2158–78). At neck.
   Amber, six beads, worn:
   i) (sf2164) one medium, facetted. Diam. 19mm
   ii) (sf2171/2178) two medium, facetted. Diam. 11–3mm
   iii) (sf2165) one medium, rounded. Diam. 12mm
   iv) (sf2166) one medium, facetted. Diam. 10mm
   v) (sf2160) one long, facetted. Diam. 9mm
   Glass, fourteen beads (Pl. XIV; for types see *Chap. 4; Sect. II: Beads*; Brugmann 2004; Penn and Brugmann 2007):
   vi) (sf2172) one medium, globular. *Type Koch34*, blue. Diam. 15mm
   vii) (sf2158) one medium, biconical. *Polychrome1*. Diam. 10mm
   viii) (sf2167) one medium, cylindrical, red. *Type Cylinder.* Diam. 8mm
   ix) (sf2168) one medium, cylindrical, yellow. *Type Cylinder.* Diam. 8mm
   x) (sf2175) one long, cylindrical, white. Cylinder related. Diam. 6mm
   xi) (sf2170) one long, cylindrical, pentagonal cross-section, white. *Type Cylinder.* Diam. 6mm
   xii) (sf2161) one long, biconical, opaque yellow. Diam. 7mm
   xiii) (sf2159/2162/2169/2173/2176–77) six short to medium, globular, red. Diam. 7-8mm
   xiv) (sf2163) small, light blue glass fragments of bead. Unclassified. Detailed bead plan (Fig. 3.29) suggests it was intact when lifted. White 'sandy' material may be remains of another.
2. Silver sheet **brooch/pendant fragment** (sf2179) (Pl. IX). With beads (no. 1). Round edge with faint annulet punch marks; *Pressblech* design of running spirals around a central collared roundel with a milled border. (Possibly it is the front-plate of an applied saucer brooch, maybe reused as a pendant, but without evidence for a means of suspension.) Diam. *c*. 40mm
3. Copper-alloy **tweezers** (sf2157). At upper left leg. Broken at loop and both ends, plain arms, with notches just above the damaged pinching terminals. Mineral-preserved cord/braid on inside of arms. L. 41–3mm; W. 4mm
4. Iron **knife** (sf2154). At left waist. Two fragments. Blade back and cutting-edge curve towards tip; cutting-edge concave; sheath line visible in corrosion. *Evison Type 1* (1987, 113). Mineral-preserved horn on tang from handle and ?leather on blade from sheath. L. approx. 130mm; W. 19mm
5. Iron **buckle** (sf2156). Centre of ?waist. Oval loop, flattened and enlarged tongue-rest; closed at burial. *Marzinzik Type I.11b* (2003, 33). Mineral-preserved probable belt ?leather under tongue, and textile on back of axis. W. 37mm
6. Iron **ring** (sf2155). With knife (no. 4). Mineral-preserved ?leather wrapping around ring probably from a suspension strap or belt, and mineral-preserved textile on both sides. Diam. 46–8mm

Inhumation 27 ***[967]***
(Figs 2.9, 3.30–3.31)
L. 2.35m; W. 0.90m; D. 0.36m
Fill: *(968)* mixed, light yellow/light orange/yellow-orange/mid brown/dark brown sand with occasional-moderate gravel/stones.
Description: located in the centre-north of Area A, inside ring-ditch *[351]* (*Phase 3*). Top edge cut by linear trenches *[355]* and *[357]* (modern), but the burial was intact.

Irregular grave, rounded at the head-end, but tapered towards the foot-end that was squared off with a small shelf, and with a concave base inclined slightly W-E. A burial-container/lining stain of dark grey-brown *(969)* followed the outline of the grave pit, and in places survived *c.* 0.25m above the base. Viewed together with the 'legs' of the body stain, it is roughly boat-shaped (or prow-shaped) and may be evidence for a 'boat-burial' (see Fig. 8.5; *Chap 8; Sect. IV: Grave structures*).

Body stain/sand body of dark grey-brown sand *(978)*, indurated, but of poor definition. A single tooth fragment was found at the 'head'. Suggests a supine(-?extended) position, oriented S-N (172°).

Full weapon-set (nos 1–5): spearhead (no. 1) at the left head-end; shield-fittings (nos 2–4) at the right side; sword (no. 5) to the left of the chest. A knife (no. 6) and buckle (no. 7) beside the sword probably indicate a sword-belt wrapped around the scabbarded weapon. Both the spearhead and shield-boss (no. 2i) were *c*. 0.15m above the grave base. Wood on the underside of the hand-grip (no. 2iii) implies the shield was either originally on the container lid, if there was one, or set vertically between the container/?boat and grave edge (the shield-boss was at a tipped angle). Other mineral-preserved remains indicate clothing, a textile grave lining and a covering of grasses (*Dactylis glomerata*), the latter over the shield and possible lid. A charred wood (no. 8) fragment was between the 'legs'.
Wood charcoal: *(968)* see below, no. 8.
Age: ?young adult (tooth).
Sex: unknown (male gender).

FINDS:

1. Iron **spearhead** (sf2181). Left head-end, possibly outside burial-container/lining stain. Slender leaf-shaped blade, with a proportionately long socket. *Swanton Type D2* (1973, 67–71). Mineral-preserved wood in socket. L. overall 302mm; L. blade 130mm; W. blade 25mm; L. socket split 90mm; Diam. socket base 22mm
2. Iron **shield-boss** and **hand-grip** (sf2182). At right ?shoulder, tipped.
   i) Boss: convex cone with a copper-alloy disc-headed apex, and a carination overhanging a sloped wall; five disc-headed flange rivets, some complete with washers. *Dickinson/Härke Type 3* (1992, 14–7). Mineral-preserved shield-board wood (*Quercus* sp.) with ?leather front and back covers between the flange underside and rivet washers, and plant remains on outer surface. Diam. 165mm; Ht. 87mm; W. flange 20mm; Diam. apical disc 25mm
   ii) One complete, detached flange rivet and two fragments of shank. Diam. 15mm; L. rivet 13mm
   iii) Hand-grip, long with flared ends; disc-headed rivets. *Dickinson/Härke Type Ia1* (1992, 24–7). Mineral-preserved wood from handle, and wood on back (possibly from a burial-container lid). L. 179mm; W. 20–42mm
3. Pair of iron **shield-board mounts** (sf2184–85). Below and touching shield-boss, edge-to-edge. Disc-headed and slightly convex, off-centre rivets; shanks complete with washers. Mineral-preserved wood and ?leather from shield construction (as no. 2i). Diam. 36–40mm; L. rivets: 14–6mm
4. Pair of iron **shield-board mounts** (sf2188–89). Under shield-boss. As no. 3, one rivet complete.
5. Iron **sword** (sf2180). At left side. Long, double-sided parallel blade, pattern-welded. Tang terminates in a low-convex, boat-shaped pommel. Mineral-preserved tripartite horn hilt, scabbard of wood (*Fraxinus excelsior*), ?fleece and ?leather, bone on one side, and textile on both faces. L. overall 904mm; L. blade 807mm; W. blade 50mm; W. pommel 48mm
6. Iron **knife** (sf2183). With buckle (no. 7) and sword (no. 5). Curved back to blade, straight cutting-edge; X-radiograph suggests blade has a composite construction. *Evison Type 4* (1987, 113). Mineral-preserved horn on tang from handle, ?leather on blade from sheath, and textile on one side. L. overall 139mm; L. blade 90mm; W. 27mm
7. Iron **buckle** (sf2186). With knife (no. 6) and sword (no. 5). D-shaped loop, backed by rectangular belt-plates; open at burial. A large disc-headed rivet pierces the plates, mounted with silver sheet. *Marzinzik Type II.20* (2003, 47). Mineral-preserved belt ?leather between plates, and textile on tongue and outer loop. L. overall 46mm; W. loop 26mm; W. plate 16mm; Diam. rivet 13mm
8. Fragment of charred **wood** (sf2187). Between ?legs. Roughly square; *Quercus* sp. 33g

Inhumation 28 *[990]*
(Figs 3.32–3.33)
L. 1.59m; W. 0.59m; D. 0.18m
Fill: *(1002)* mid-dark brown sand.
Description: located in the west of Area A. The grave's upper edge was cut by feature *[872]* (unphased), but the burial was intact.

Shallow, sub-rectangular grave with sloped sides and a slightly concave base (uneven on its long axis). The backfill *(1002)* included fragments of copper alloy (no. 7).

Sand body of dark grey-brown sand *(1003)*, the legs and head most defined, with teeth fragments. Body turned to the right, legs flexed, oriented W-E (270°).

Spearhead (no. 1) on the right; shield-fittings (nos 2–4, 6) over the head and upper chest; knife (no. 5) at the left waist. Textile remains suggest a cloak/blanket cover. Plant evidence (*Achillea millefolium*, *Calluna vulgaris, Dactylis glomerata*, *Phragmites communis*, *Pteridium aquilinum*) on the weaponry suggests a layer over the body and grave-goods.
Age: ?young/mature adult (teeth; but see *Chap. 8; Sect. II: Population*).
Sex: ??female (male gender).

FINDS:

1. Iron **spearhead** (sf2199). At right arm. Long, narrow and parallel-sided blade, almost two-thirds of total length. *Swanton Type E4* (1973, 87–91). Mineral-preserved wood in socket and possible plant remains on one side. L. overall 448mm; L. blade 264mm; W. blade 26mm; L. socket split 120mm; Diam. socket base 22mm
2. Iron **shield-boss** and **hand-grip** (sf2200/2207). At upper chest/neck.
   i) Boss: straight-sided cone with a disc-headed apex, weak carination and sloped wall; five disc-headed flange rivets, some complete with washers. *Dickinson/Härke Type 3* (1992, 14–7). Mineral-preserved shield-board wood with ?leather front and back covers between the flange underside and rivets, and textile on underside (rivet). Diam. 144mm; Ht. 80mm; W. flange 20mm; Diam. apical disc 22mm; L. rivets 8mm
   ii) Hand-grip: long and slightly curved with flared ends; disc-headed rivets. *Dickinson/Härke Type Ia1* (1992, 24–7). Mineral-preserved ?leather wrapping the sides, and possible textile on back. L. 170mm; W. 16–32mm
3. Pair of iron **shield-board mounts** (sf2202–3/2208). Right of shield-boss. Large, disc-headed and slightly convex, off-centre rivets; one detached shank (iii). Mineral-preserved shield-board wood (*Fraxinus excelsior*) with ?leather front and back covers, and outer surfaces covered by mineral-preserved plant remains (Pl. XVIIIa); Diam. 66mm; iii) L. rivet 10mm
4. Pair of iron **shield-board mounts** (sf2204–5). Left of shield-boss, under spearhead. As no. 3, but both rivets complete, one with washer. Mineral-preserved remains also as no. 3, except plant remains only on outer surface of mount (i). Diam. 68mm; L. rivets 11–3mm
5. Iron **knife** (sf2201). At left waist. Blade back angled towards tip, cutting-edge concave. *Evison Type 3* (1987, 113). Possible mineral-preserved horn on tang from handle and ?leather on blade from sheath. L. overall 149mm; L. blade 94mm; W. 21mm
6. Iron **buckle** (sf2203). Under disc mount (no. 4ii), probably from shield carrying-strap. Oval loop; closed at burial. *Marzinzik Type I.11a-i* (2003, 32–3). Mineral-preserved ?leather on tongue, wood on side (?shield-board), and possible textile. W. 22mm
7. Two very small fragments of copper alloy (sf990). Largest L. 4mm (not illustrated)

Inhumation 29*[993]*
(Figs 3.34–3.35)
L. 2.00m; W. 0.70m; D. 0.22m
Fill: *(994)* mid-dark red-brown silty sand with moderate gravel/stones.
Description: located in the west of Area A. Cut by feature *[872]* (unphased) at its northern edge, but the burial was intact.

Sub-rectangular grave with sloped sides and a flat base. The backfill *(994)* included fragments of burnt copper alloy (no. 5).

Indistinct body stain *(995*) of dark grey-brown silty sand with 'organic' mid olive and dark olive-grey parts. Suggests a supine-extended position, oriented W-E (270°).

Spearhead socket (no. 1) to the right of the 'head'; shield-fittings (nos 2–4) over the head and upper chest. Textile remains indicate a grave-base lining or cover over the body. Plant evidence (*Calluna vulgaris*, *Dactylis glomerata*, *Phragmites communis*, *Pteridium aquilinum*) on the weaponry suggests a layer over the body and grave-goods.
Residual: *(994)* one prehistoric worked flint.
Age: adult.
Sex: unknown (male gender).

FINDS:

1. Iron **spearhead socket** (sf2198). Right head-end. In two pieces (blade not found). Mineral-preserved wood in socket and textile on one side. L. largest 90mm; Diam. socket base 22mm
2. Iron **shield-boss** and **hand-grip** (sf2190/2197). At upper chest/neck.
   i) Boss: squat convex cone with a disc-headed apex, and a carination overhanging a sloped wall; five disc-headed flange rivets. *Dickinson/Härke Type 3* (1992, 14–7). Mineral-preserved shield-board wood (*Fraxinus excelsior*) with ?leather front cover on underside of flange, and outer surface covered by mineral-preserved plant remains. Diam. 154mm; Ht. 72mm; W. flange 21mm; Diam. apical disc 20mm
   ii) Hand-grip: in two fragments, largest under boss; flat with weakly flared ends; disc-headed rivets, shanks complete with washers. *Dickinson/Härke Type Ia1* (1992, 24–7). Mineral-preserved wood (*Fraxinus excelsior*) and ?leather from handle, and on back ?leather shield carrying-strap and textile. L. 135mm; W. 23–9mm; L. rivets 7–8mm
3. Three iron **shield-board mounts** (sf2191–93). At upper chest, arranged in a trefoil. Disc-headed with off-centre rivets, shanks complete, some with washers. Mineral-preserved wood (*Fraxinus*

excelsior) and ?leather on reverse from shield construction (as no. 2i, but indicates a ?leather back cover also), and outer surfaces covered by mineral-preserved plant remains. Diam. 40–5; L. rivets 7–8mm

4. Three iron **shield-board mounts** (sf2194–96). Left head-end. As no. 3. Diam. 37–45; L. rivets 7–8mm
5. Eleven small **Fragments** of copper-alloy sheet *(993)*. Burnt. One rolled (iii); variable thickness; includes a melted globule. Largest L. 17mm; W. 12mm

Inhumation 30 *[1000]*
(Figs 3.35–3.38)
L. 1.57m; W. 0.65m; D. 0.34m
Fill: (*1001*) variable, mid-dark orange-brown sand.
Description: located in the north-west of Area A, close to the limit of excavation.

Sub-rectangular grave with sloped sides and a slightly concave base. Light brown staining from a possible grave lining was recorded *c*. 0.20m above the base. The backfill *(1001)* included a fragment of cremated bone, above the level of the body(ies).

Body stain of mid-dark brown/grey-brown sand *(1032)*, of poor definition, overlaid by further amorphous mid brown staining. Teeth fragments with the brooch (no. 2) and pin (no. 7) in the middle of the grave could indicate a crouched body, oriented W-E (277°). However, a second individual is also possible (a multiple burial), based on the body stain, and the position of the belt-fittings (nos 9–10) and beads/pendant (nos 3–4) (see Figure 3.35 and *Chap.8*; *Sect. IV: Multiple burial*).

The spread of scrap objects (nos 11, 13–16) at the head-end may represent keepsakes or curios (see *Chap. 8; Sect. V*), with possibly the 'latch' and nail (nos 13i, 14) parts from a box that had contained the miscellanies. Iron staples (nos 12, 17) in the same area might have come from a repaired plank(s) used for a coffin-lid/grave-cover that had collapsed. Also present was a girdle-set (no. 5), strap-ends (no. 8), a knife (no. 6) and pot (no. 1). Grass remains (*Dactylis glomerata*) on several iron objects suggest a layer over the body and grave-goods, and/or a grave-base lining (notably this evidence was lacking on the metal staples from the suggested cover).
Residual: *(1001)* one prehistoric potsherd; one worked flint.

Individual 1
Age: ?subadult/adult.
Sex: unknown (female gender).

Individual 2
Age: ?subadult/adult (teeth).
Sex: unknown (female gender).
Cremated bone: *(1001)* 3.7g.
Age: adult.
Sex: unknown.

FINDS:

1. Ceramic **pot** *(1001/1031)*. At legs. Lower half only; flat-rounded base. No decoration. Diam. *c.* 134mm; Ht. *c.* 78mm
2. Copper-alloy **annular brooch** (sf2296). At right ?waist/shoulder. Thin, flat sheet-metal. Border decoration of neat punch marks. Round perforation for pin, which is missing. *Leeds Type G* (1945, 46–9). Diam. 47mm; W. band 9mm
3. Twenty-nine amber and glass **beads** (sf2141–65/2183–84/2194–95). On ?chest.
   Amber, sixteen beads, worn:
   i) (sf2248/2251/2253/2255/2260/2262–63/2265) eight medium, facetted. Diam. 11–4mm
   ii) (sf2246/2264) two medium, rounded. Diam. 11mm
   iii) (sf2241/2243–44/2259/2283–84) six medium, facetted. Diam. 8–10mm
   Glass, thirteen beads (Pl. XIV; for types see *Chap. 4; Sect. II: Beads*; Brugmann 2004; Penn and Brugmann 2007):
   iv) (sf2258) one medium, cylindrical. *Type Reticella*. Diam. 14mm
   v) (sf2256–57) two medium, globular, twelve/thirteen ribs. *Type Melon*. Diam. 12mm
   vi) (sf2254) one medium, globular. *Type Blue*. Diam. 8mm
   vii) (sf2245/2249/2252/2294) four short, globular, yellow. Diam. 7-8mm
   viii) (sf2247) one short, globular. *Green globular.* Diam. 7mm
   ix) (sf2242/2250/2261/2295) small, light blue fragments of four beads. Unclassified.
4. **Pendant(s)** (sf2271). With beads (no. 3). Fragments of sheet silver and copper alloy: the latter are plain, but the silver have finished edges decorated with punch marks. Original field drawing shows a sub-rectangular object (see Fig. 3.36A): L. 27mm; W. 8mm. Copper alloy, largest L. 11mm; W. 7mm; silver, largest L. 8mm; W. 5mm
5. Iron **girdle-set** (sf2238–39a–c/e, 2285–86). Beside left ?upper leg.
   i) Key with a straight shank, curlicued top terminal and C-shaped, hooked ward. Band of copper-alloy sheet adheres with annulet punch marks. Remains of iron ring associated. Mineral-preserved plant remains on upper shank and ring, wood on shank (possibly from a coffin/grave lining), belt/strap ?leather on ring, and textile on one side. L. 194mm; W. band 18mm; Diam. ring 27mm
   ii) Small iron buckle with flattened oval loop, backed by rectangular belt-plates; closed at burial. *Marzinzik Type II.19a* (2003, 46). Mineral-preserved belt ?leather between plates and inside loop. W. loop 21mm; L. plate 18mm, W. plate 13mm
   iii) Key with attached ring, with a curving shank, curlicued top terminal and rounded, hooked ward. Mineral-preserved ?leather on ring probably from suspension strap or belt, and textile on one or possibly both faces. L. shank 127mm; Diam. ring 22mm
   iv) Fragment of iron ?nail/pin/awl. Mineral-preserved threads/cord. L. 20mm
6. Iron **knife** (sf2240). With girdle-set (no. 5). Curved back to blade, cutting-edge concave; sheath line visible in corrosion. Mineral-preserved horn on tang from handle, ?leather on blade from sheath, and plant remains on tip. *Evison Type 4* (1987, 113). L. overall 116mm; L. blade 80mm; W. 21mm
7. Iron **pin** (sf2268). At right ?waist/shoulder. Complete? Mineral-preserved textile along length, and unidentified skin product. L. 107mm
8. Five fragments of sheet copper-alloy **strap-ends** (sf2237). At left ?leg. Incomplete, perhaps two or three actual fittings originally with roughly finished edges; one has an incised 'X'; four pierced by small iron rivets. Mineral-preserved probable belt/strap ?leather and textile. L. 9–36mm; W. 10mm
9. Iron **buckle** and two copper-alloy **disc-headed belt-studs** (sf2266–67/2269). Centre of ?waist, pointing right with studs behind, arranged axially (see reconstruction, Fig. 3.37).
   i) Buckle with oval loop and slightly flattened back; closed at burial. *Marzinzik Type I.11a-i* (2003, 23–3). Mineral-preserved probable belt ?leather around tongue and inside loop, and textile on underside and sides. W. loop 22mm
   ii–iii) Disc-headed studs mounted with silver sheet. Mineral-preserved probable belt ?leather fragment. Diam. 10–11mm; L. rivets 3–5mm
   iv) Fragment of copper-alloy washer from stud (iii). W. 6mm
10. Iron **ring** (sf2270). At left ?waist. Flattened cross-section; butt-join visible. Mineral-preserved plant remains on one side, and an area of possible skin product, maybe from a ?leather suspension strap or belt, and textile. Diam; 39mm
11. Copper-alloy ?**bucket fragment** (sf2287). At neck/head? Burnt. Strip piece, ?pierced. Possibly a bucket 'upright' fitting (cf. Cook 2004, 37, figs 1 and 2). L. 28mm; W. 17mm
12. Six iron **staples** (sf2273a–b/2288–89/2298–99). Top left, ?head-end. Squared C-form with flattened cross-sections (cf. no. 17). Mineral-preserved wood (*Fraxinus excelsior*) on interior and some exterior surfaces, and textile on outer surface of (vi) and one other fragment. i–ii) L. 44mm; W. 25–34mm; iii–iv) L. 42–4mm; W. 20mm; v–vi) L. 37–9mm; W. 22mm
13. Iron '**latch'** and copper-alloy **fragment** (sf2274/2289). At ?head.
   i) Latch, a nail/rivet through one end. Mineral-preserved wood (*Fraxinus excelsior*) on one side, grain running along length. L. 60mm; L. nail/rivet 22mm
   ii) Curved copper-alloy sheet fragment. L. 8mm; W. 8mm
14. Iron **nail** (sf2290). At ?head. Mineral-preserved wood (*Fraxinus excelsior*) along shank, and textile on head. L. 18mm
15. Iron **'blade'** fragment and associated fragment (sf2291). At ?head.
   i) Knife-like, but with a flat cross-section (i.e. no cutting-edge). Mineral-preserved wood (*Fraxinus excelsior*) on one side, and plant remains, skin product and textile along edges and at tip. (X-radiograph shows no pattern-welding.) L. 76mm; W. 24mm
   ii) Iron fragment. L. 24mm; W. 13mm
16. Copper-alloy ?**bucket fragments** (sf2292–93/2297). At ?head.
   i) Seven fragments of thin sheet with *Pressblech* decoration. Original site sketch (see Fig. 3.38) suggests this was perhaps a drinking-vessel 'appliqué' (cf. Cook 2004, 40, figs 1–2, 17d). Largest L. 10mm; W. 10mm
   ii) Thick strip (cf. no. 11) with incised edge decoration and ring-and-dot. Possibly a bucket 'upright' fitting (cf. Cook 2004, 37, figs 1 and 2). L. 23mm; W. 17mm

iii) Burnt, folded, thin copper-alloy sheet. L. 28mm; W. 8mm; Th. 0.5mm

17. Two iron **staples** and fragments (sf2272). At right ?shoulder. Mineral-preserved wood (*Fraxinus excelsior*) on interior surfaces and on one exterior surface (i). (cf. no. 12)
i) Squared C-form with a twisted, flattened cross-section; in three fragments. L. 60mm; W. 24mm
ii) Twisted closed, with a flattened cross-section. L. 34mm; W. 24mm
iii) Fragment. L. 24mm

18. '**Root cast**' (sf2275). At left ?shoulder. Natural (see *Chap 5; Sect. V*). L. 77mm; W. 25mm; Th. 11mm

Inhumation 31 *[1004]*
(Fig. 3.39)
L. 1.80m; W. 0.80m; D. 0.18m
Fill: *(1005)* yellow sand with frequent gravel/stones.
Description: located in the north-west of Area A, at the limit of excavation.

Shallow, sub-rectangular grave with vertical sides and a flat base. A coffin/lining stain was recorded, at the base only, of mid brown silty sand *(1006)*.

Sand body of mid-dark brown sand *(1007*), tinged green in places, with poor definition above the legs. Suggests a supine-extended position, oriented W-E (270°).

Textile remains suggest clothing, with beads (no. 2) in the neck region, and a knife (no. 3) at the waist. A sizeable potsherd (no. 1) could have been a plate for a food offering, though, given its position over the head, its accidental inclusion might be more likely.
Age: subadult/adult.
Sex: unknown (female gender).

FINDS:

1. Ceramic **sherd** (*1005*: sf2209*)*. At head. From jar with boss decoration. L. 90mm

2. Twenty-five amber and glass **beads** (sf2210–35). At neck/head (Pl. Vb).
Amber, eighteen beads, worn:
i) (sf2222) one medium, facetted. Diam. 17mm
ii) (sf2217/2219–21/2225–28/2233) nine medium, facetted. Diam. 11–5mm
iii) (sf2212–13/2216/2230/2232/2234) six medium, facetted. Diam. 9–10mm
iv) (sf2210–11) two medium, facetted. Diam. 9–10mm
Glass, seven beads (Pl. XIV; for types see *Chap. 4; Sect. II: Beads*; Brugmann 2004; Penn and Brugmann 2007):
v) (sf2235) one medium, globular, 7 ribs. *Type Melon*. Diam. 13mm
vi) (sf2218) one short, cylindrical, yellow. *Type Cylinder*. Diam. 8mm
vii) (sf2224) one medium, cylindrical, pentagonal cross-section, red. *Type Cylinder*. Diam. 7mm
viii) (sf2231) one short, globular. *Type Blue*. Diam. 8mm
ix) (sf2214) one short, globular, yellow. Diam. 7mm
x) (sf2229) one medium, biconical, yellow. Diam. 9mm
xi) (sf2223) one short, biconical, red. Diam. 9mm

3. Iron **knife** (sf2236). Centre of waist. Small and narrow blade, straight back, cutting-edge concave. *Evison Type 2* (1987, 113). Mineral-preserved horn on tang from handle, ?leather on blade from sheath, and textile on back of blade. L. overall 120mm; L. blade 75mm; W. 20mm

Inhumation 32 *[1013]*
(Figs 3.40–3.41; Pl. IVc)
L. 2.00m; W. 1.34m; D. 0.15–0.30m
Fills: *(1014)* yellow-brown sand; *(1018)* orange-brown sand. Occasional-moderate gravel/stones throughout.
Description: located in the north-west of Area A, west of ditch *[513]* (*Phase 4i*).

Wide, rectangular grave with sloped sides and a flat base. Patches of red and black 'burnt' sand *(1015–17)* were recorded at the interface of the upper *(1014)* and lower *(1018)* backfills, 0.13–25m above the base, along with sherds derived from the cremation 11 urn *(674)*: eight in fill *(1014*); one with a pair of shield mounts (no. 3) in fill *(1018)*. The 'burnt' soil was perhaps from a pyre surface, present at the time, associated with the cremation 11 burial, that had been disturbed by the excavation and/or backfilling of this grave.

Sand body of dark grey-black sand *(1019*), indurated, with green tinges and well-defined legs, and teeth at the 'head'. Suggests a supine-extended position, oriented W-E (275°).

Spearhead (no. 1) at the left head-end, *c*. 0.10m above the grave base; shield-fittings (nos 2–4) at the left upper leg; two buckles (nos 6–7) at the waist along with a knife (no. 5). The buckles could imply two belts, or be from one belt and one shield strap. Textile evidence indicates clothing and probably a cloak/blanket cover. Plant remains (*Dactylis glomerata*, *Phragmites communis*, *Pteridium aquilinum*) on the weaponry suggest a layer over the body and grave-goods.
Age: mature adult (teeth).
Sex: ?male (male gender).

FINDS:

1. Iron **spearhead** (sf2277). Left head-end. Very small blade, long socket: an extreme of its type. *Swanton Type D3* (1973, 70–3). Mineral-preserved wood (*Fraxinus excelsior*) in socket and plant remains on one side. L. overall 303mm; L. blade 65mm; W. blade 22mm; L. socket split 120mm; Diam. socket base 22mm

2. Iron **shield-boss** and **hand-grip** (sf2278). At left upper leg.
i) Boss: convex cone with a disc-headed apex mounted with silver sheet (obscured by corrosion), and a distinct carination overhanging a low vertical wall; five disc-headed flange rivets, two full length. *Dickinson/Härke Type 3* (1992, 14–7). Mineral-preserved shield-board wood (*Fraxinus excelsior*) with ?leather front and back covers between the flange underside and rivet washers, and outer surface covered by mineral-preserved plant remains. Diam. 145mm; Ht. 82mm; W. flange 22mm; Diam. apical disc 24mm; L. rivets 10mm
ii) Hand-grip: slightly curved with weakly flared ends; one rivet complete and hammered over. *Dickinson/Härke Type Ia1* (1992, 24–7). Mineral-preserved wood from handle, and textile on back. L. 121mm; W. 16–22mm

3. Pair of iron **shield-board mounts** (sf2279). Left of shield-boss (no. 2i). Disc-headed. Mineral-preserved wood (*Fraxinus excelsior*) and ?leather on reverse from shield construction (as no. 2i), and outer surfaces covered by plant remains. Diam. 30–4mm
A potsherd was found during conservation and examined at the British Museum (Spataro 2011): it was of a 'similar' fabric to urn *(674)*, cremation 11, and is probably from the same vessel.

4. Pair of iron **shield-board mounts** (sf2280). Right of shield-boss (no. 2i), between legs. As no. 3, but rivets off-centre, one shank complete, with an expanded and flattened end (for plant remains see Pl. XVIIIb). Diam. 34–8mm; L. rivet 10mm

5. Iron **knife** (sf2276). At left waist. Long and narrow blade, back curves gradually to tip, cutting-edge concave. *Evison Type 1* (1987, 113). Mineral-preserved horn on tang from handle, ?leather on blade from sheath, and textile on back of blade. L. overall 180mm; L. blade 113mm; W. 22mm

6. Iron **buckle** (sf2281). At left waist. Oval loop; closed at burial. *Marzinzik Type I.11a-i* (2003, 32–3). Mineral-preserved probable belt/strap ?leather inside loop, and possible textile on front. W. 23mm

7. Iron **buckle** (sf2282). Centre of waist. Oval to round loop, enlarged tongue-rest; closed at burial. *Marzinzik Type I.11b* (2003, 33). Mineral-preserved probable belt/strap ?leather inside loop and puparia on one side. W. 22mm

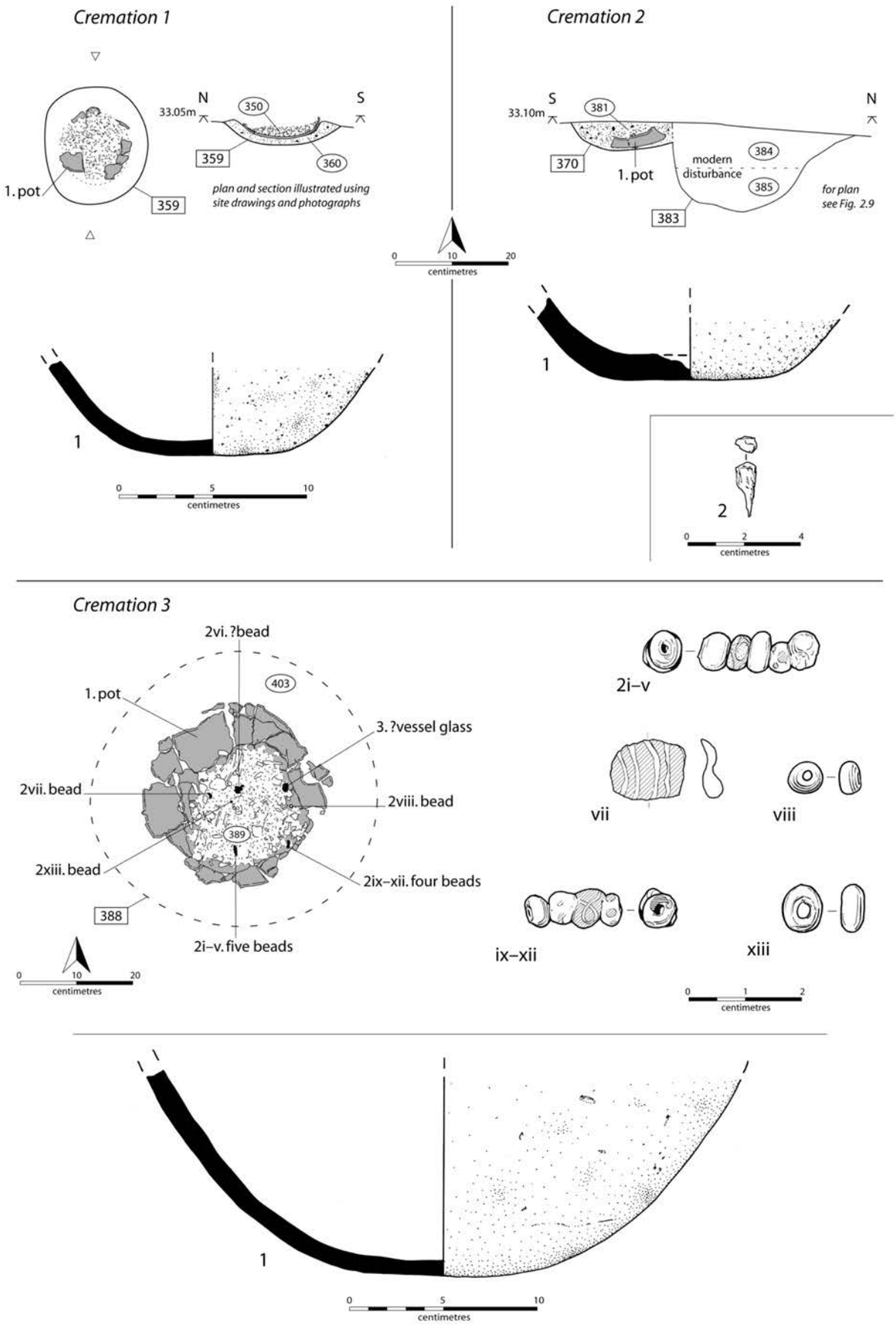


Figure 3.2 Cremations 1, 2 and 3 (scales 1/1, 1/2, 1/3 and 1/10). By CF (graves), KM (finds) and SH (pot)

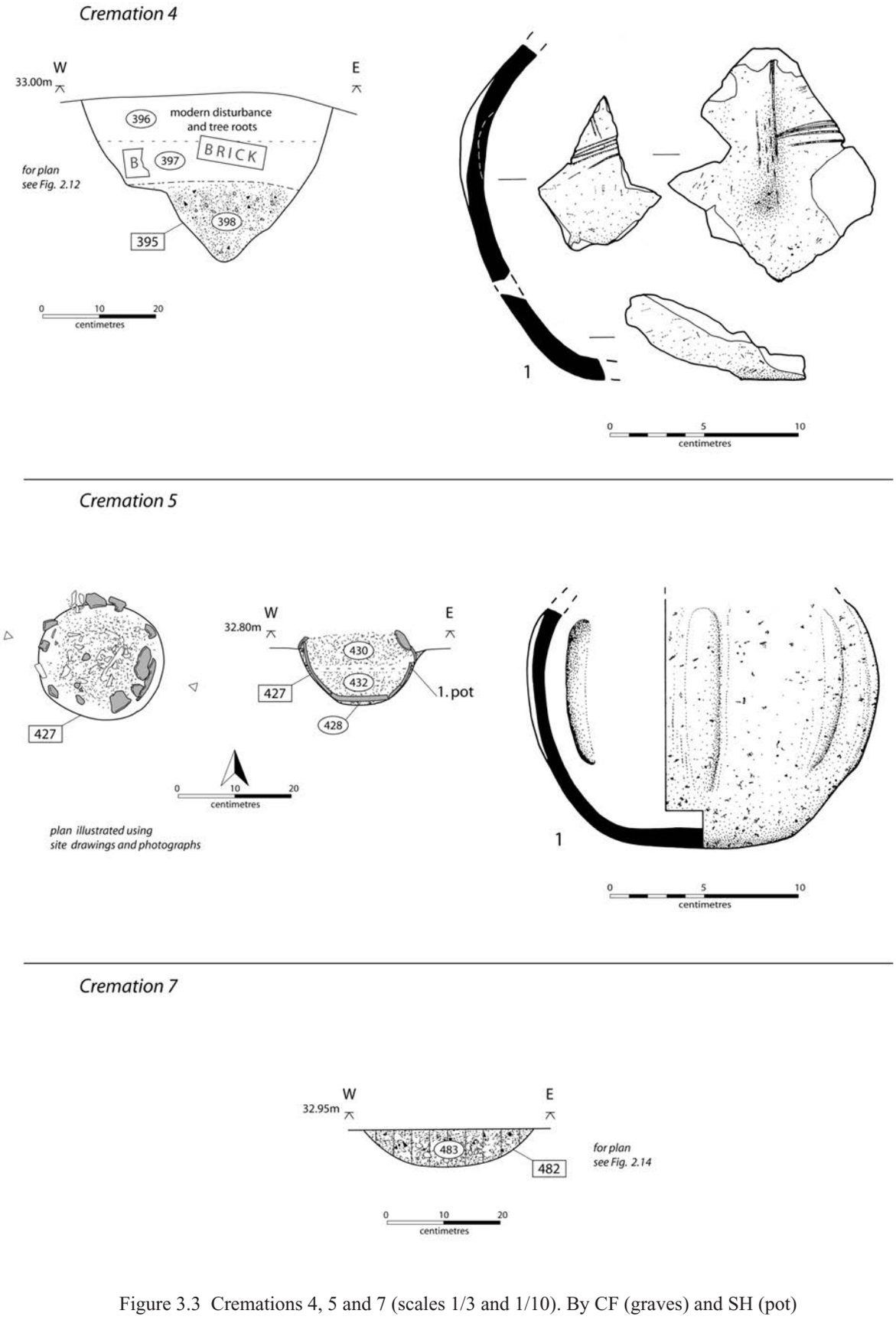


Figure 3.3 Cremations 4, 5 and 7 (scales 1/3 and 1/10). By CF (graves) and SH (pot)

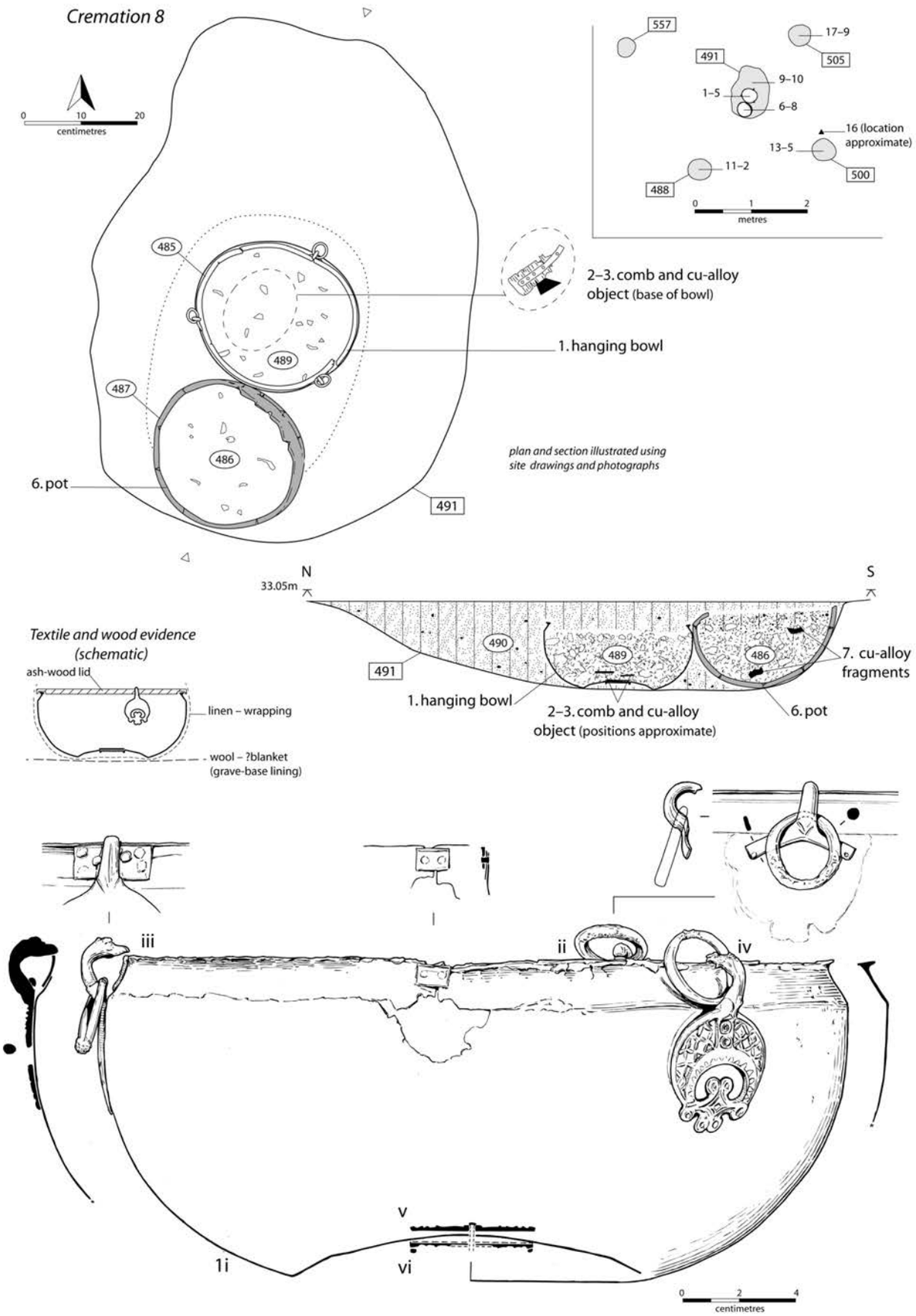


Figure 3.4 Cremation 8 (scales 1/2, 1/10 and 1/100). By CF (grave) and KM (find)

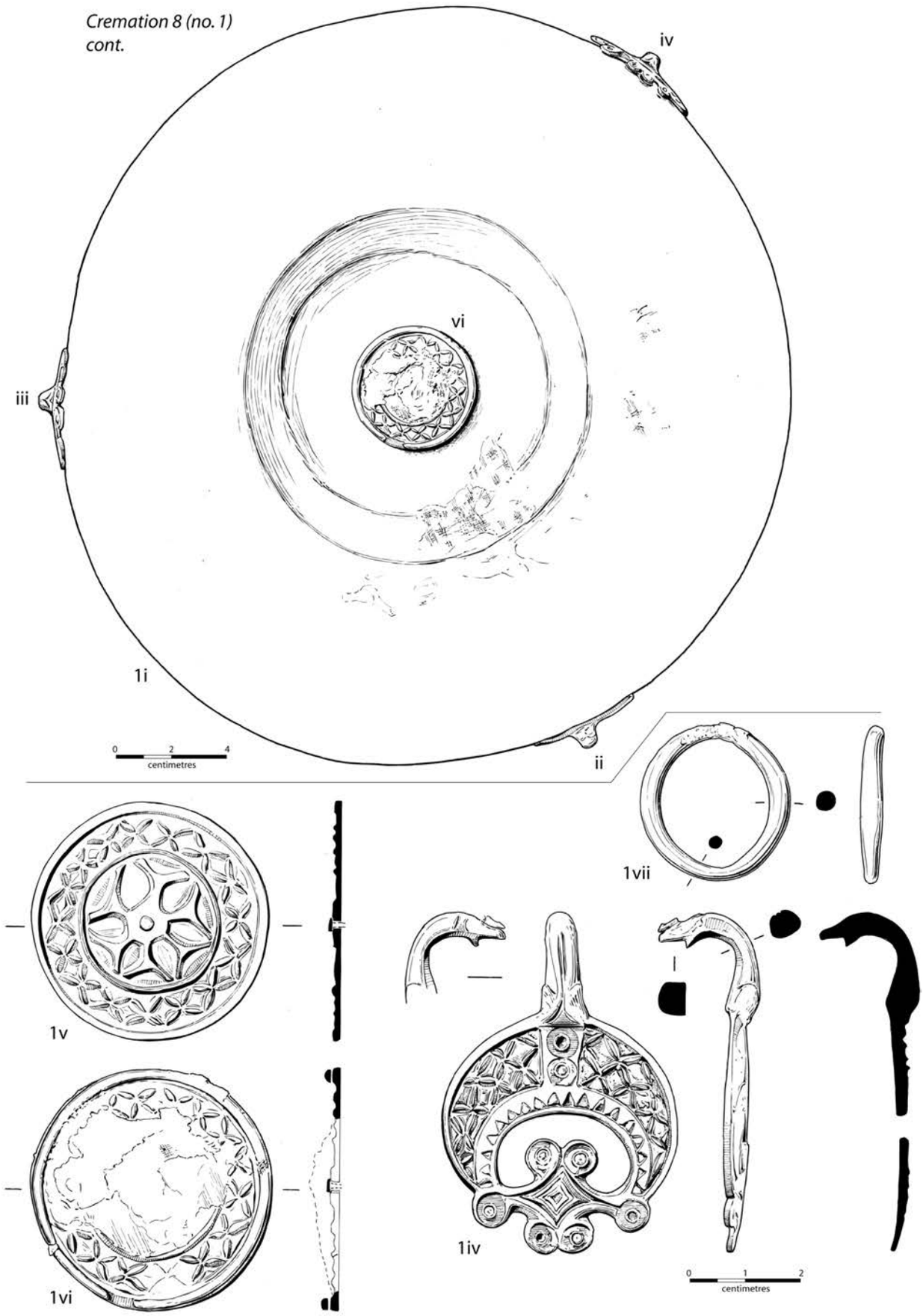


Figure 3.5 Cremation 8 cont. (scales 1/1 and 1/2). By KM

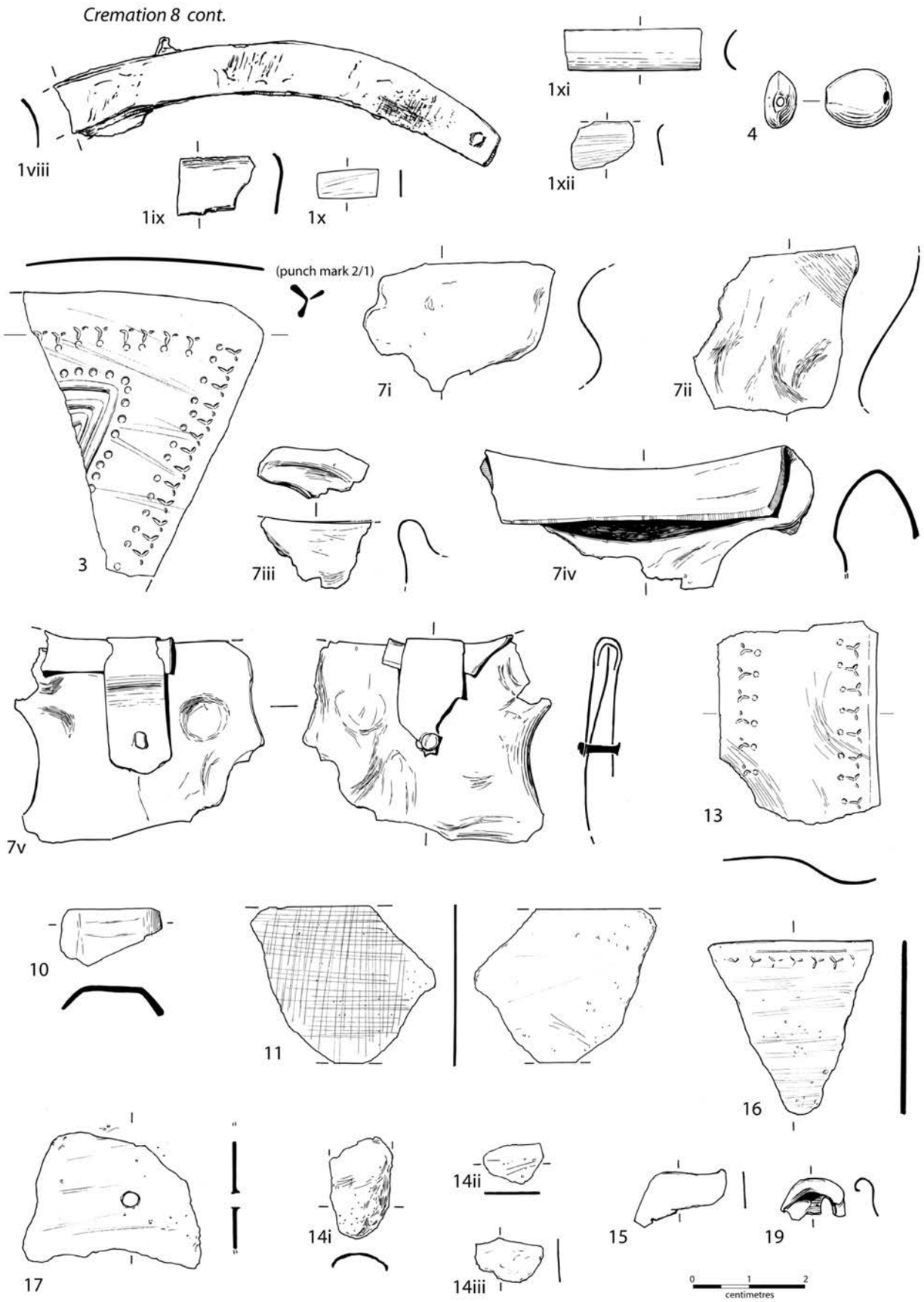


Figure 3.6 Cremation 8 cont. (scales 2/1 and 1/1). By KM

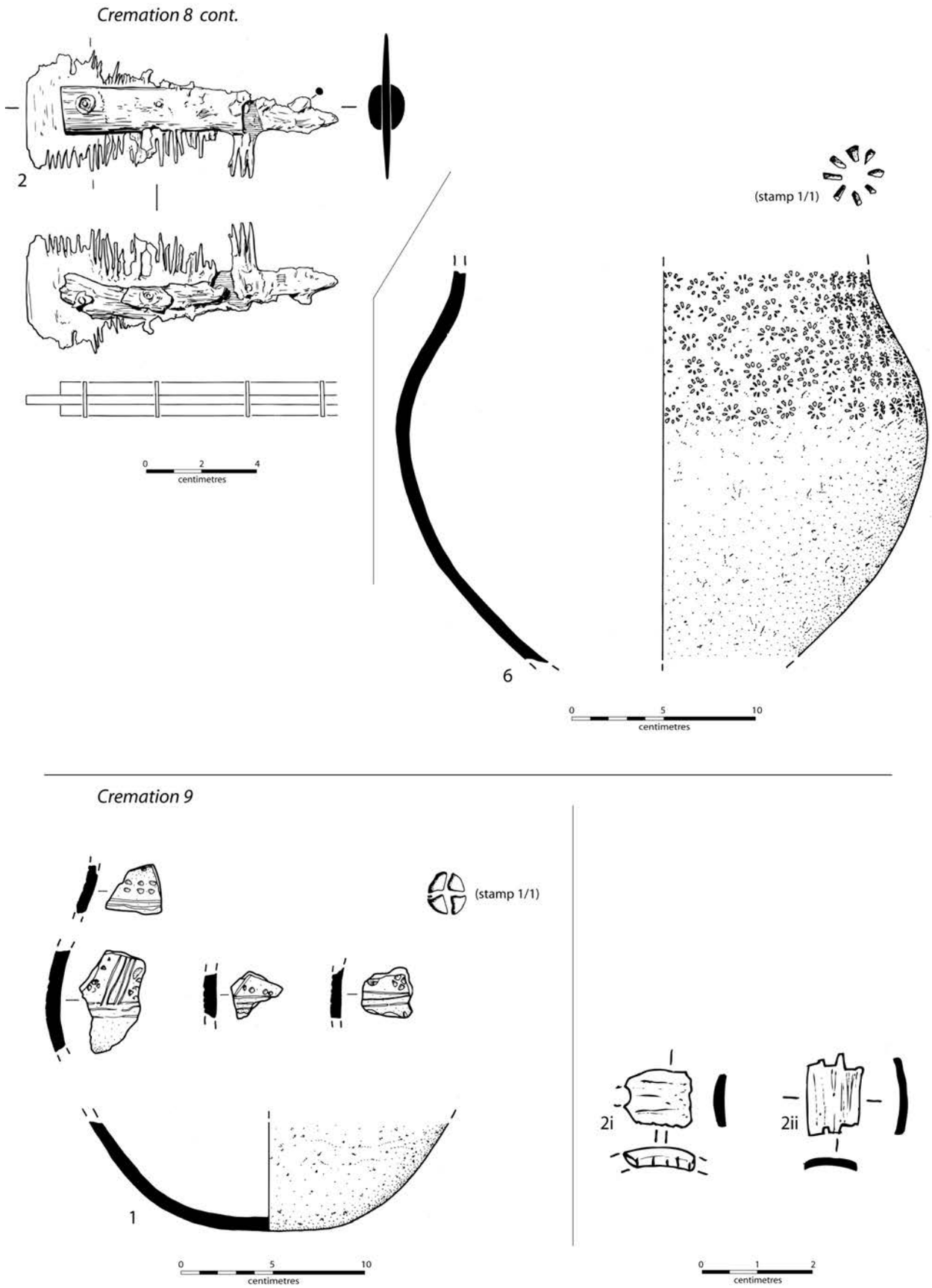


Figure 3.7 Cremations 8 (cont.) and 9 (scales 1/1, 1/2 and 1/3). By KM

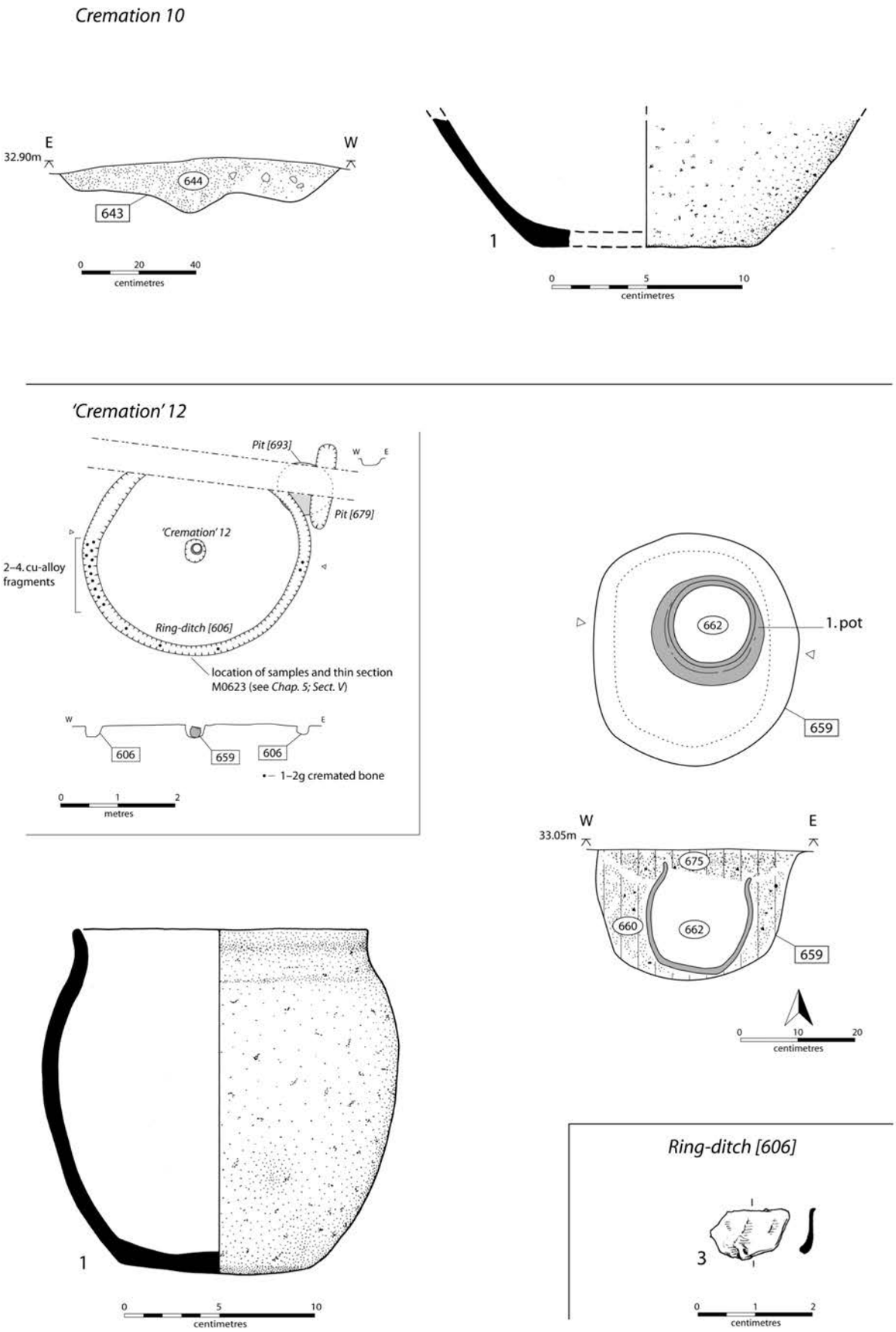


Figure 3.8 Cremation 10, 'cremation' 12 and ring-ditch *[606]*, and pits *[679]* and *[693]* (scales 1/1, 1/3, 1/10, 1/20 and 1/100). By CF (features), KM (finds) and SH (pot)

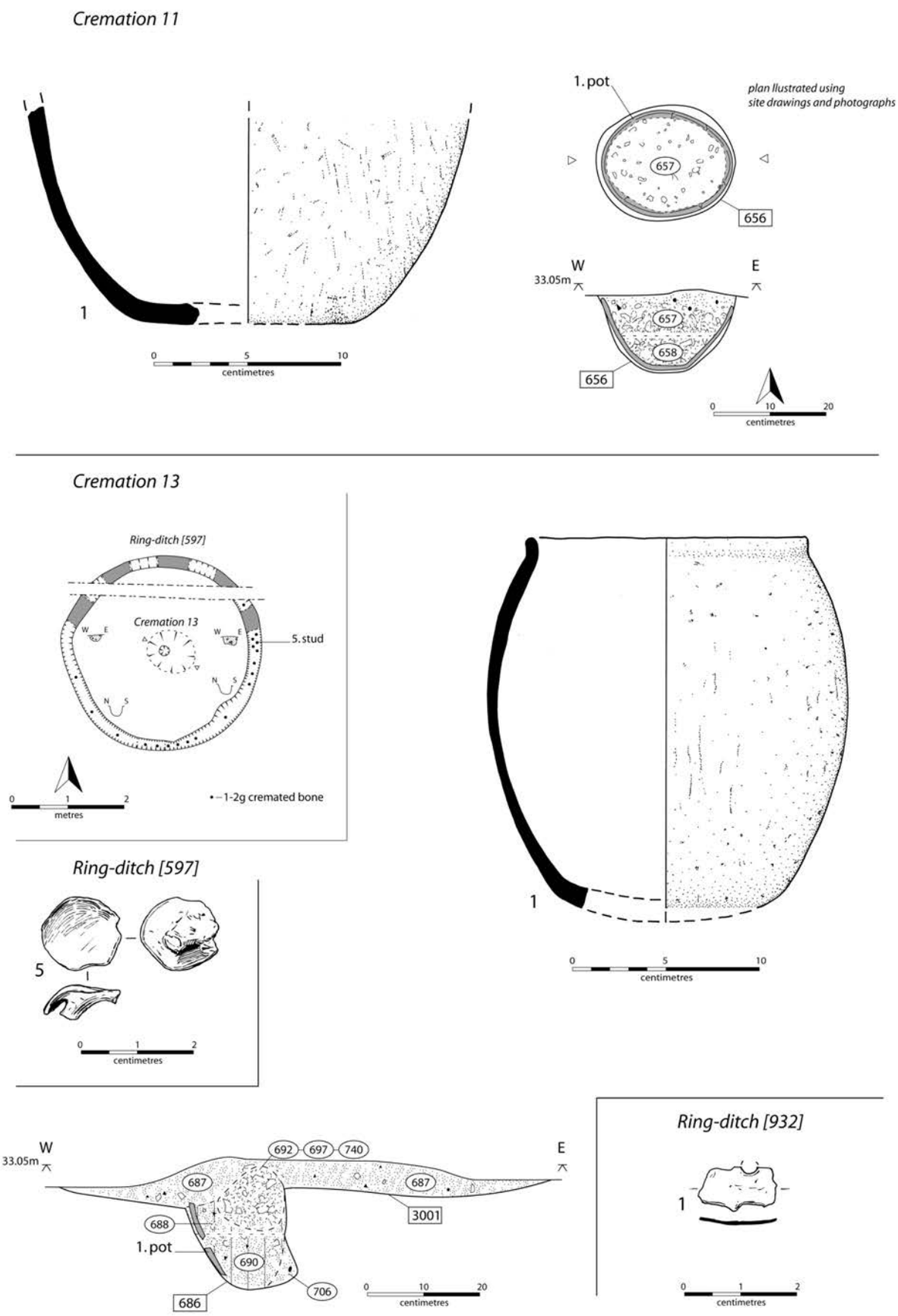


Figure 3.9 Cremations 11 and 13, and ring-ditches *[597]* and *[932]* (scales 1/1, 1/3, 1/10 and 1/100). By CF (features), KM (finds) and SH (pot)

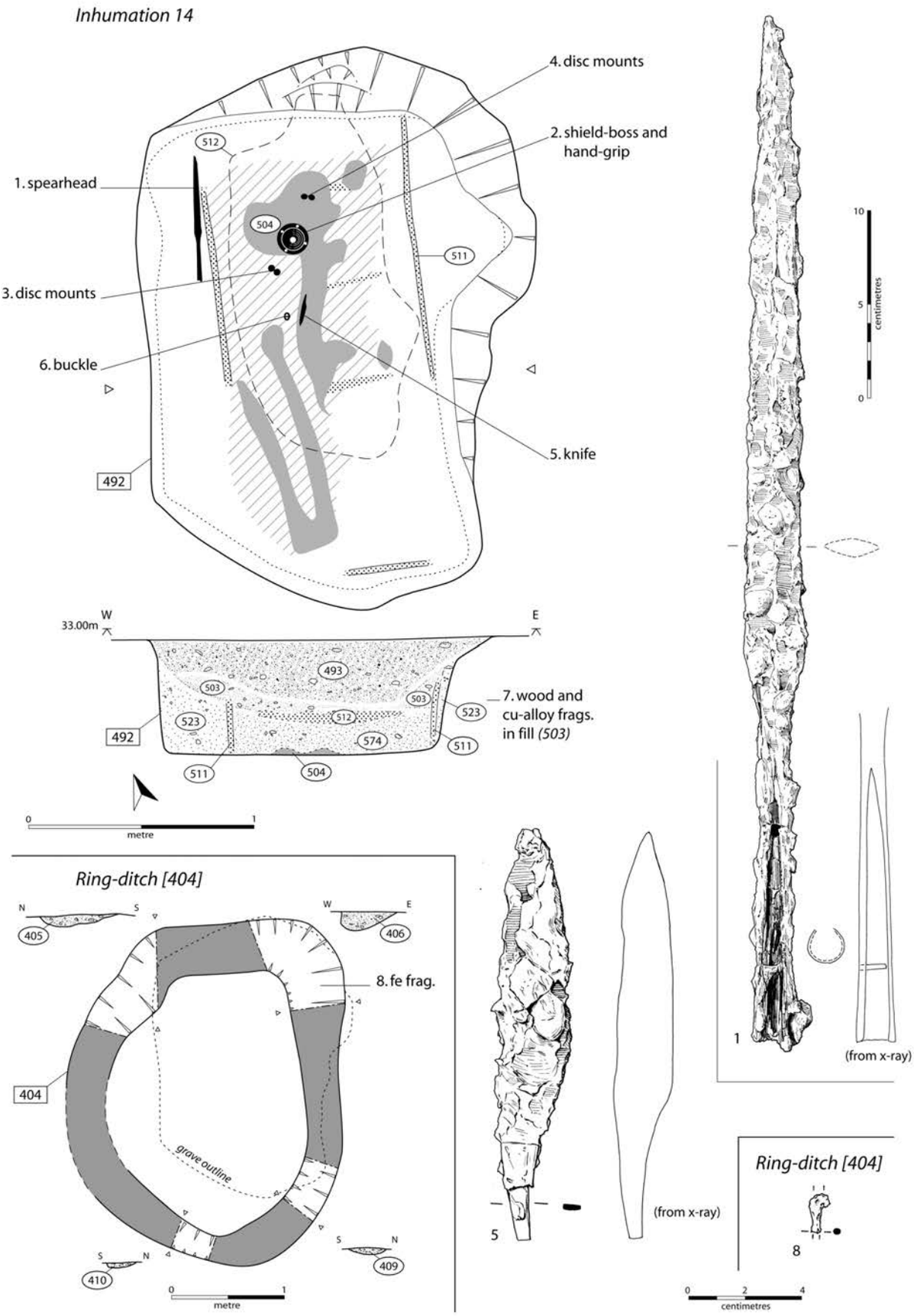


Figure 3.10 Inhumation 14 and ring-ditch *[404]* (scales 1/2, 1/3, 1/25 and 1/50). By CF (features) and KM (finds)

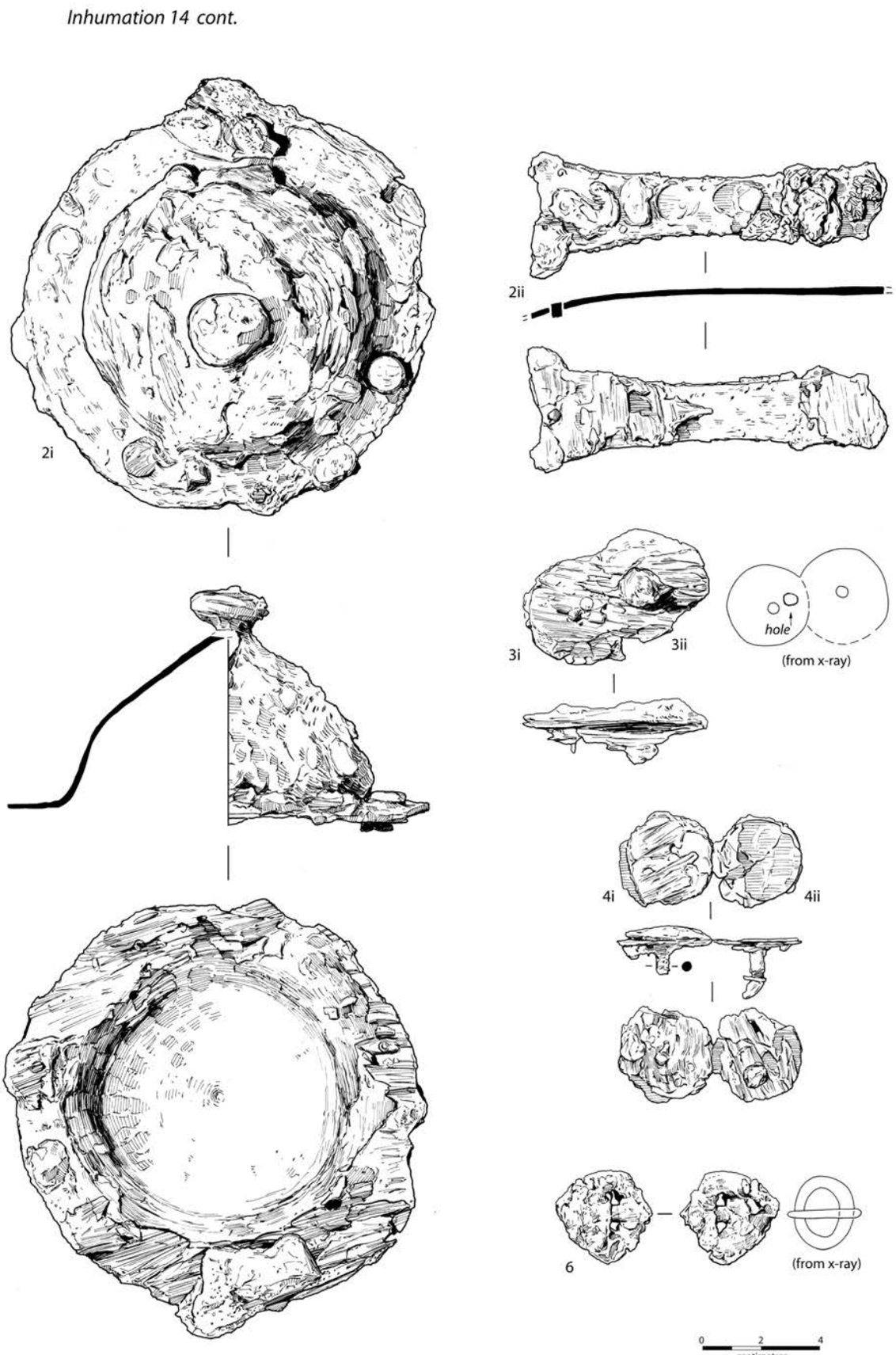


Figure 3.11 Inhumation 14 cont. (scale 1/2). By KM

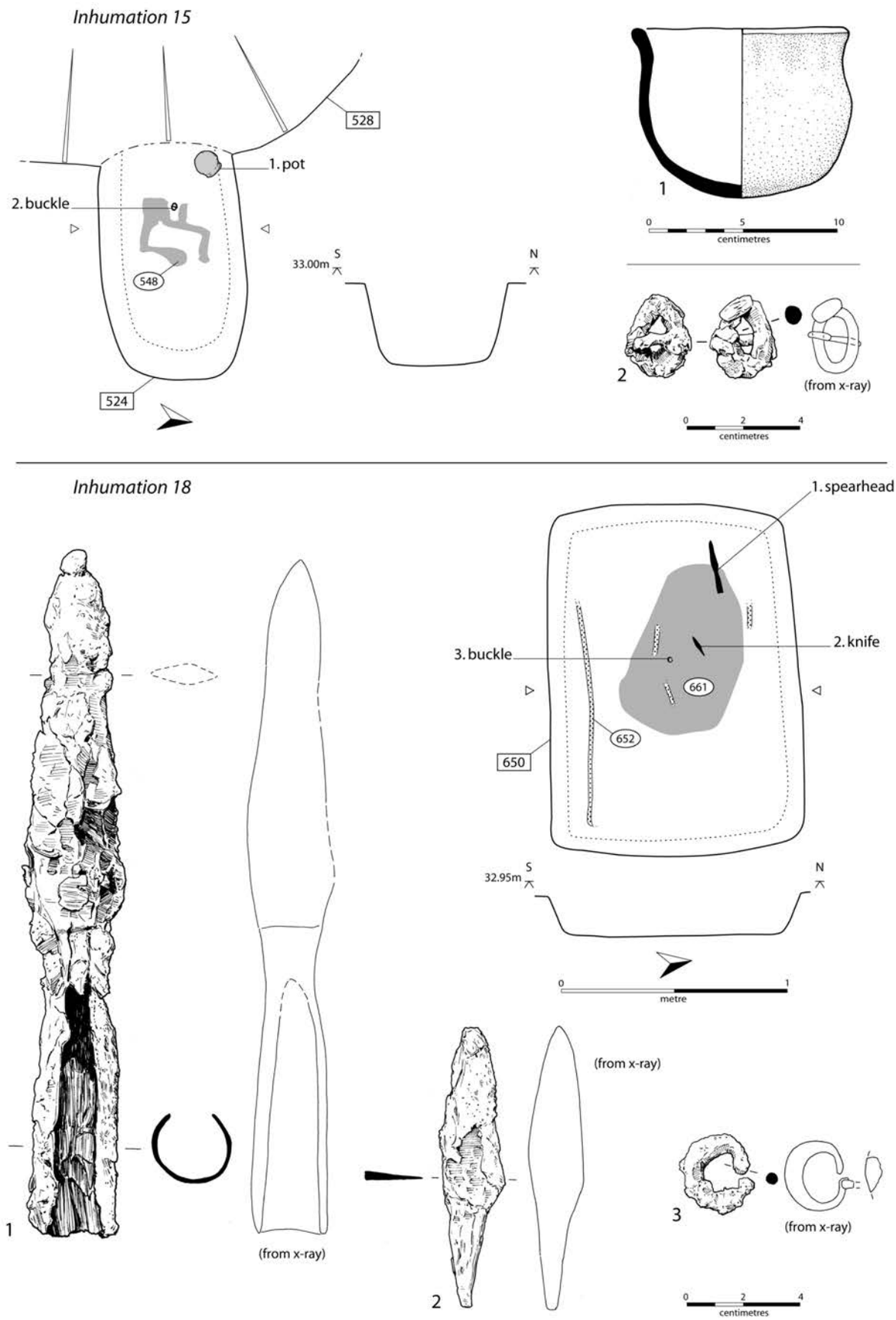


Figure 3.12 Inhumations 15 and 18 (scales 1/2, 1/3 and 1/25). By CF (graves), KM (finds) and SH (pot)

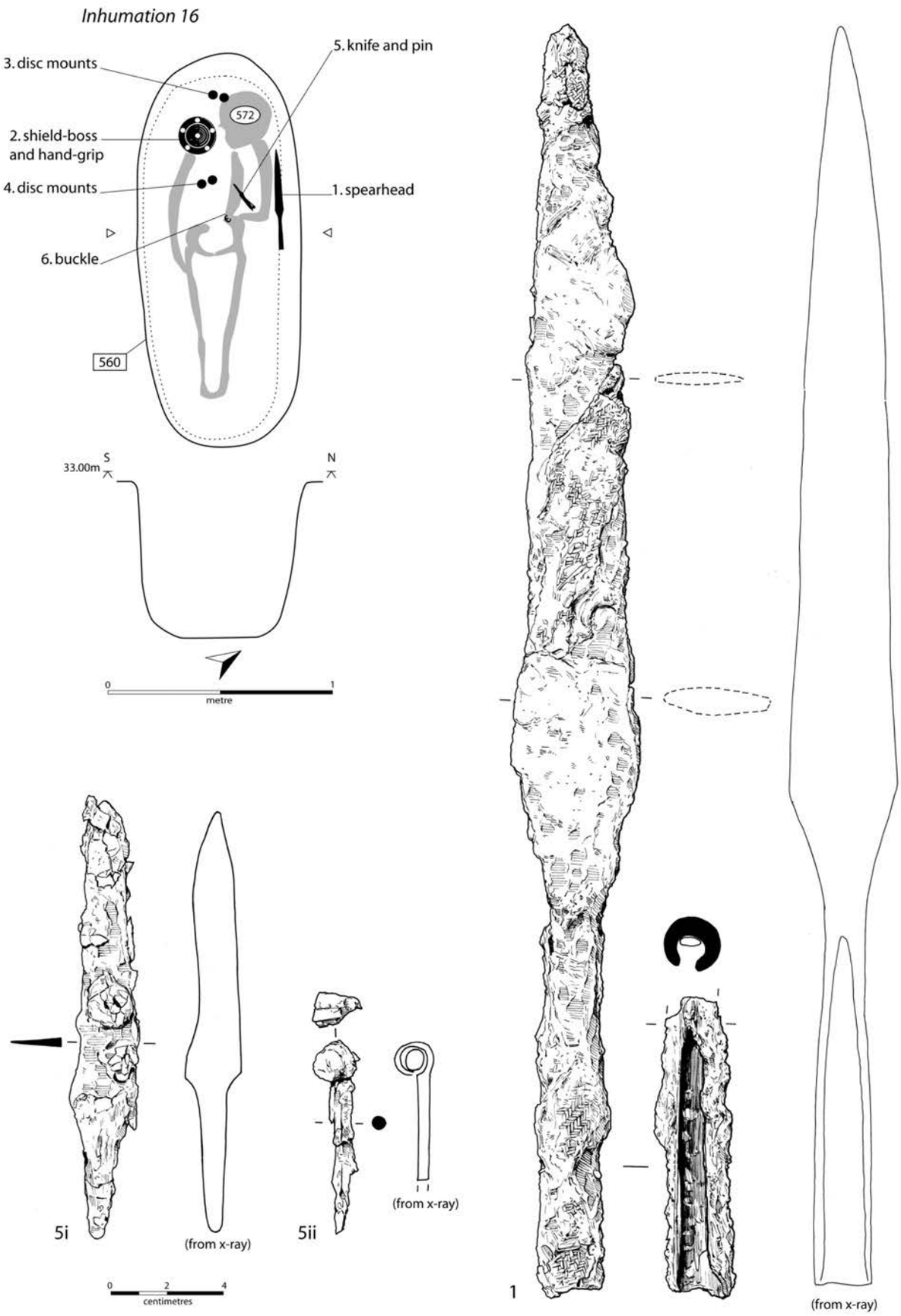


Figure 3.13 Inhumation 16 (scales 1/2 and 1/25). By CF (grave) and KM (finds)

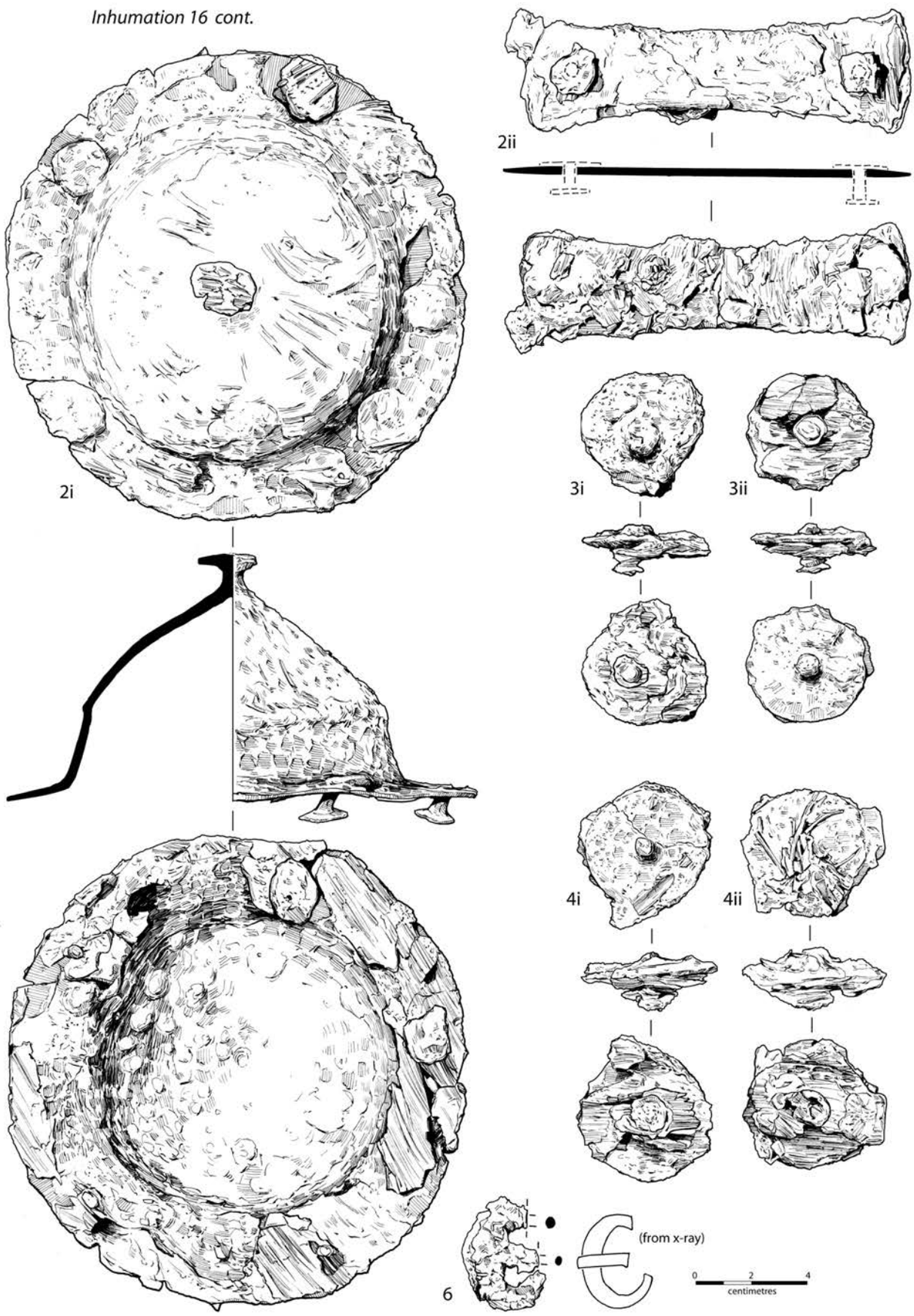


Figure 3.14 Inhumation 16 cont. (scale 1/2). By KM

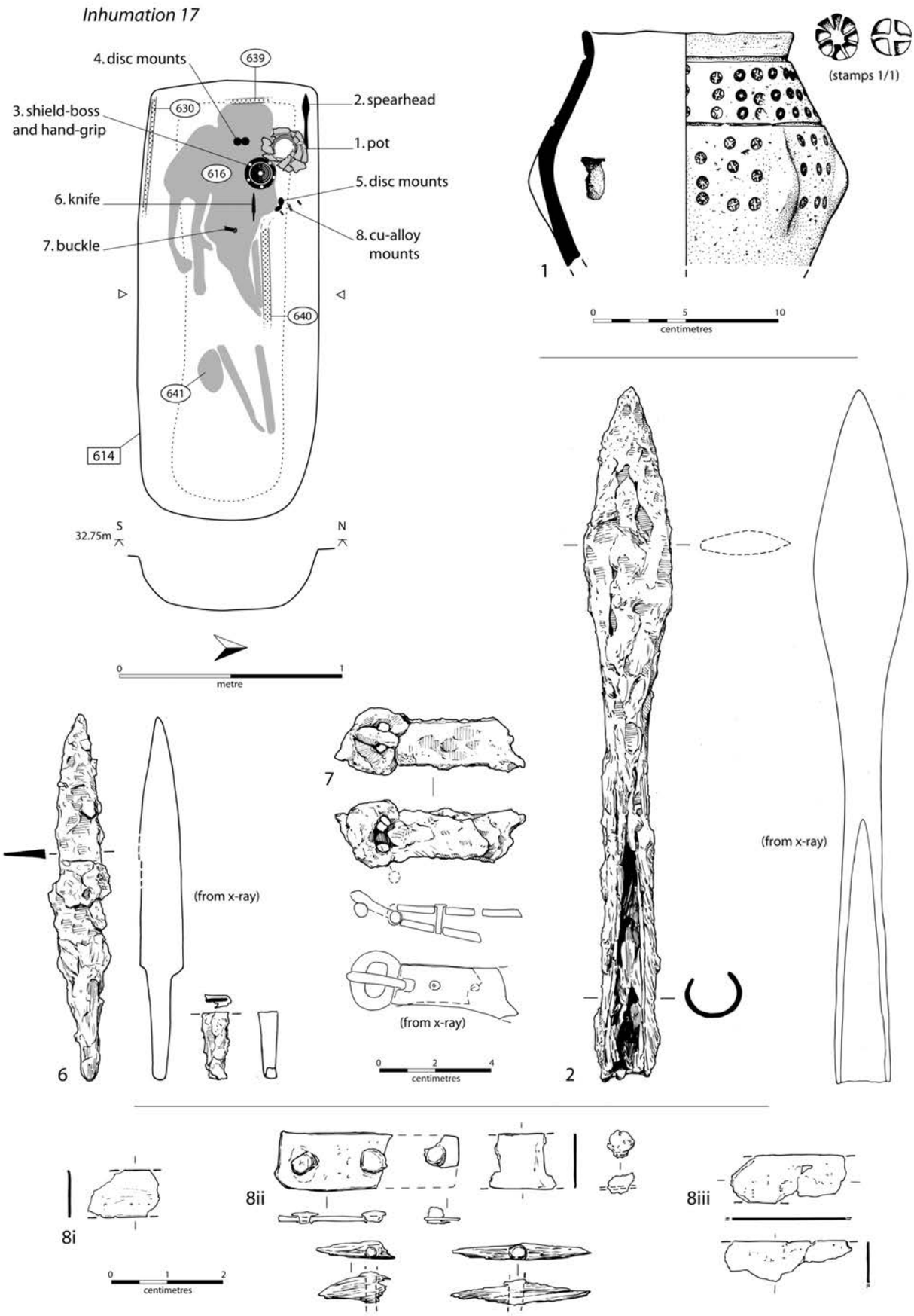


Figure 3.15 Inhumation 17 (scales 1/1, 1/2, 1/3 and 1/25). By CF (grave), KM (finds) and SH (pot)

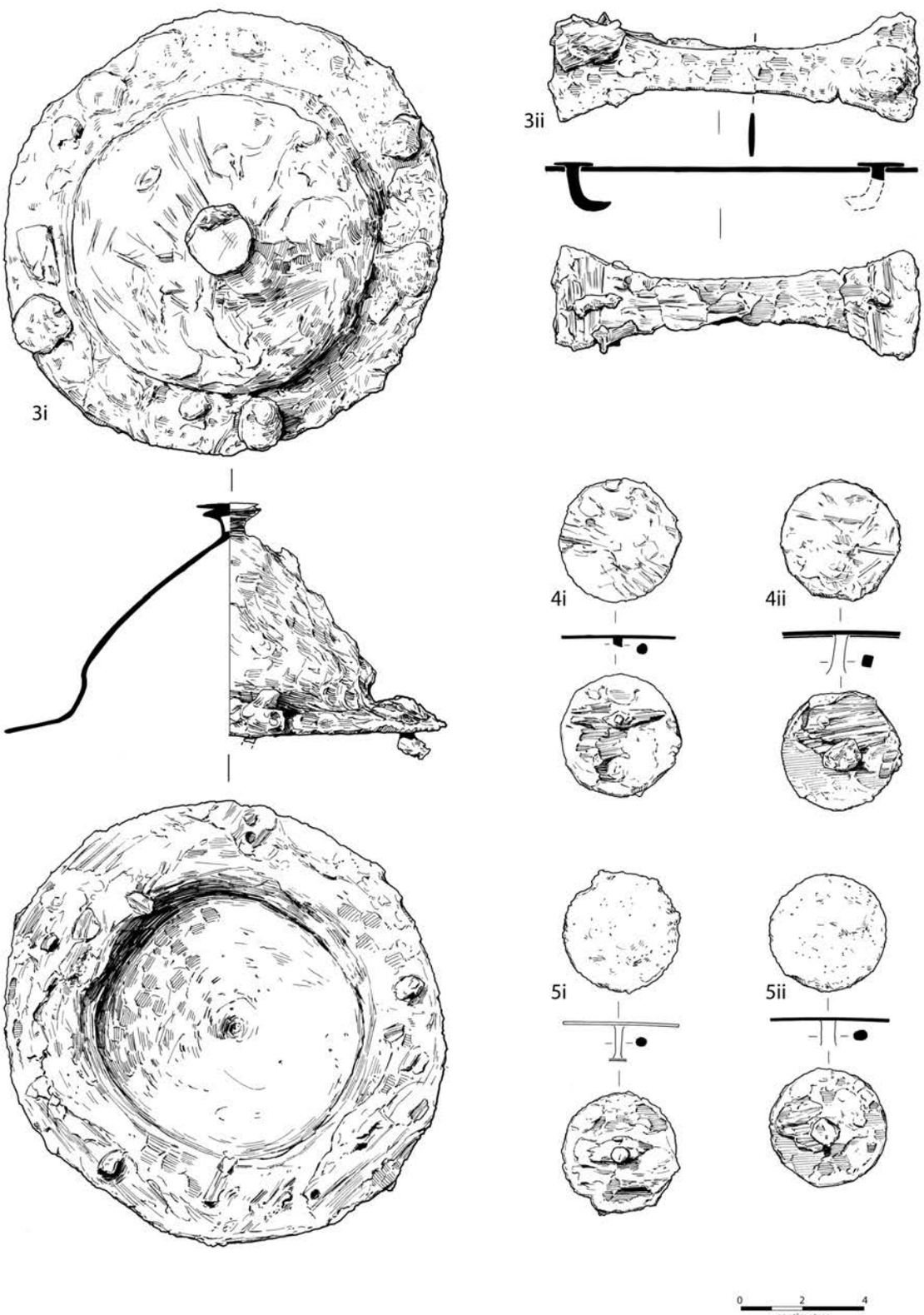


Figure 3.16 Inhumation 17 cont. (scale 1/2). By KM

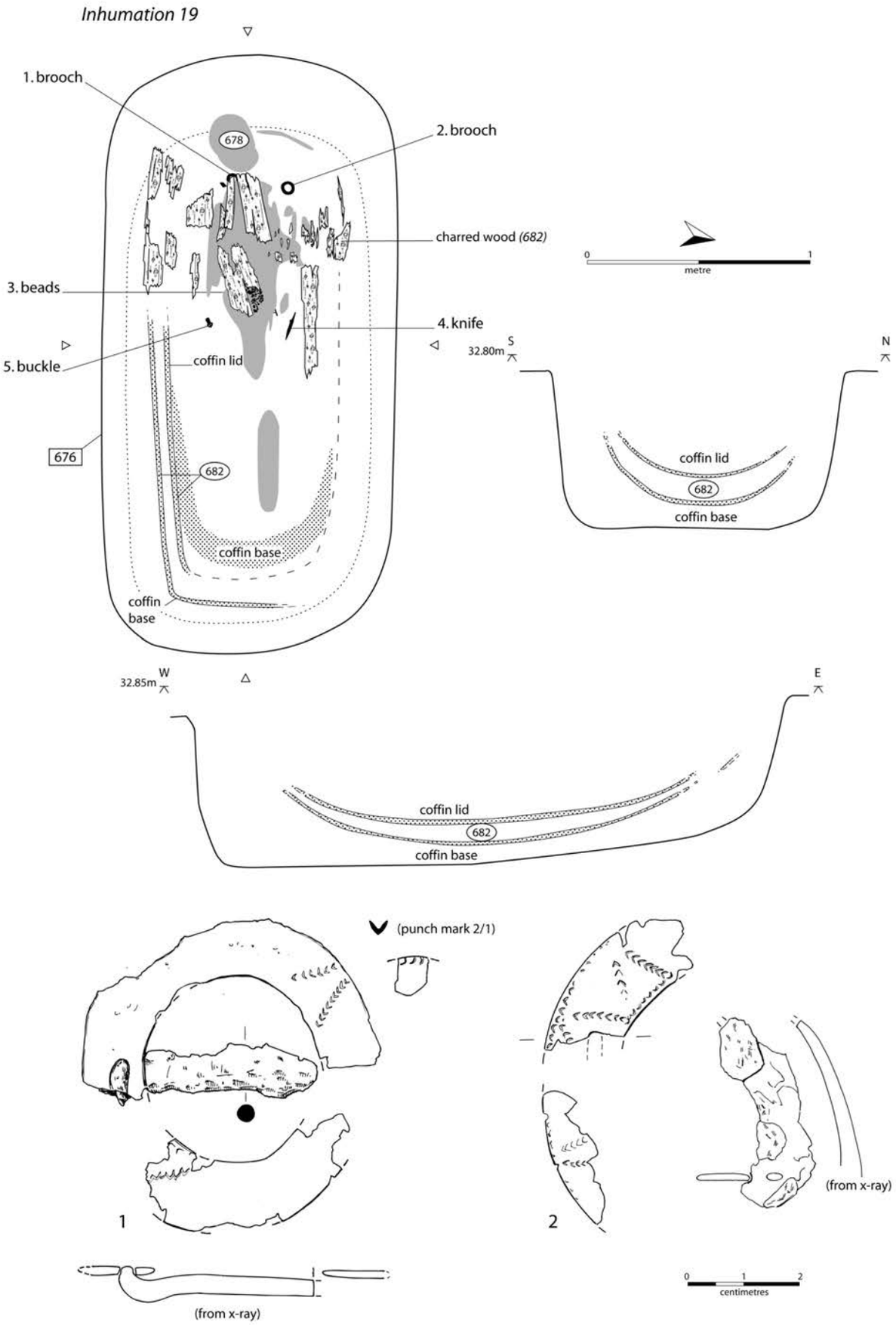


Figure 3.17 Inhumation 19 (scales 2/1, 1/1 and 1/25). By CF (grave) and KM (finds)

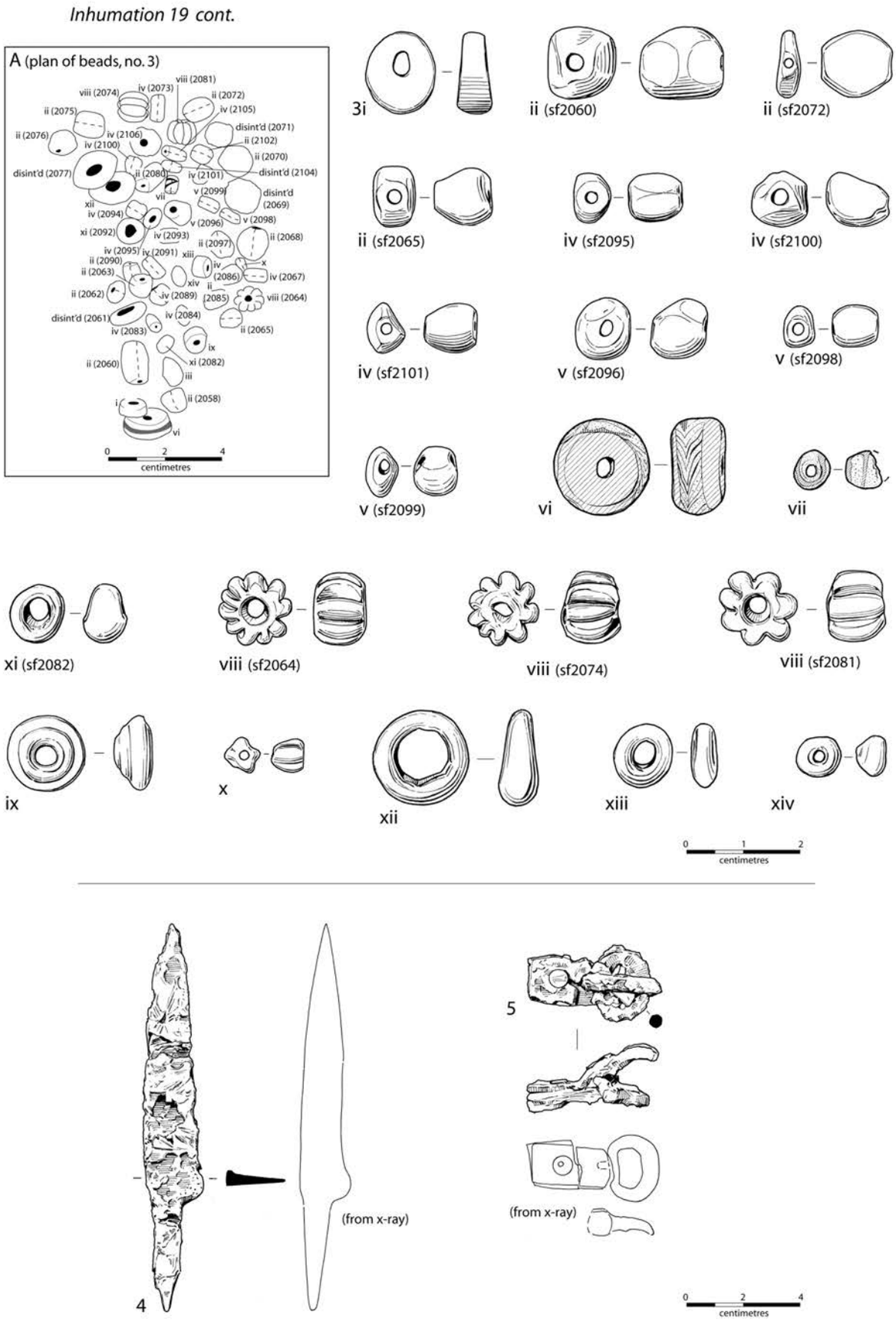


Figure 3.18 Inhumation 19 cont. (scales 1/1 and 1/2). By KM

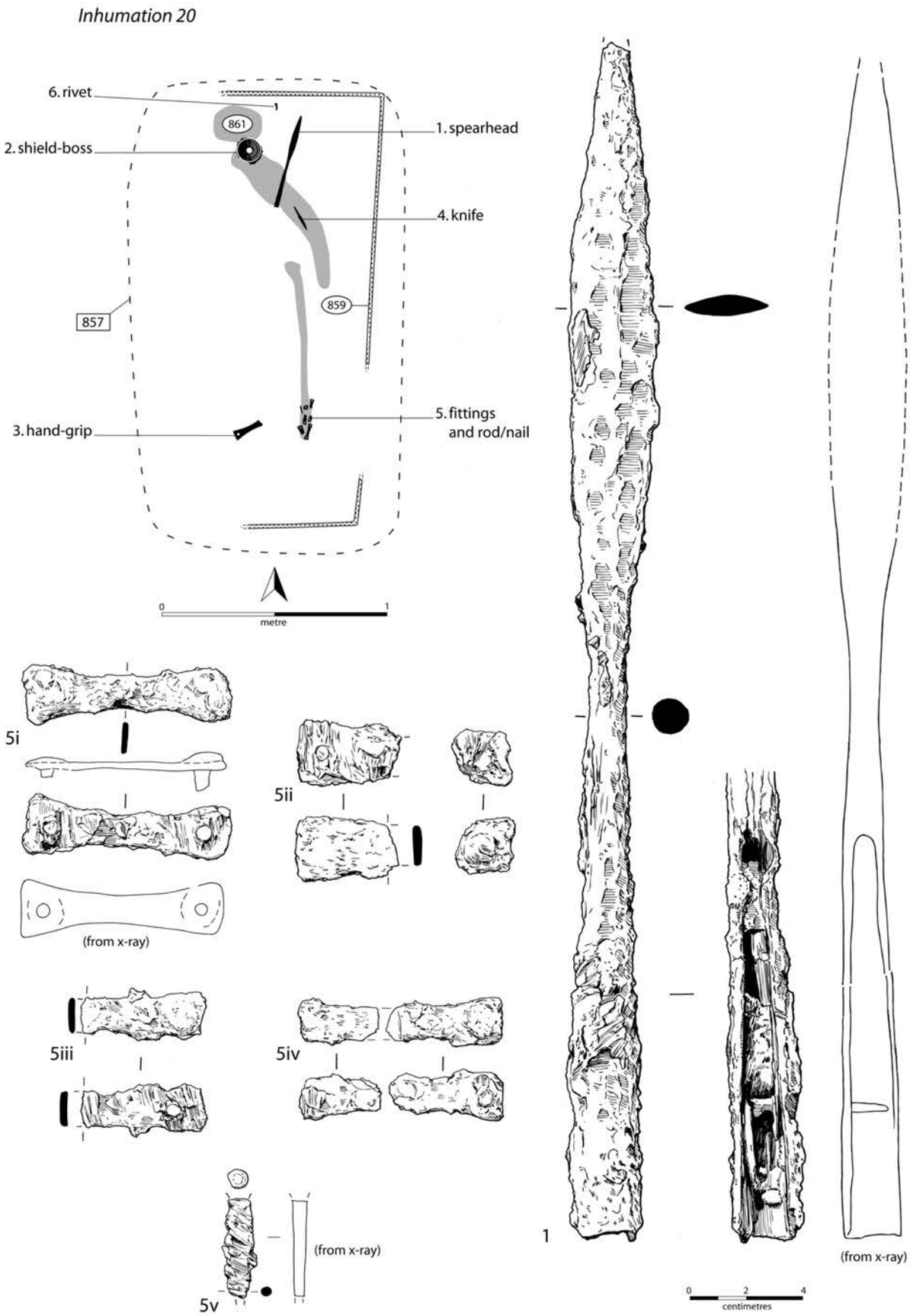


Figure 3.19 Inhumation 20 (scales 1/2 and 1/25). By CF (grave) and KM (finds)

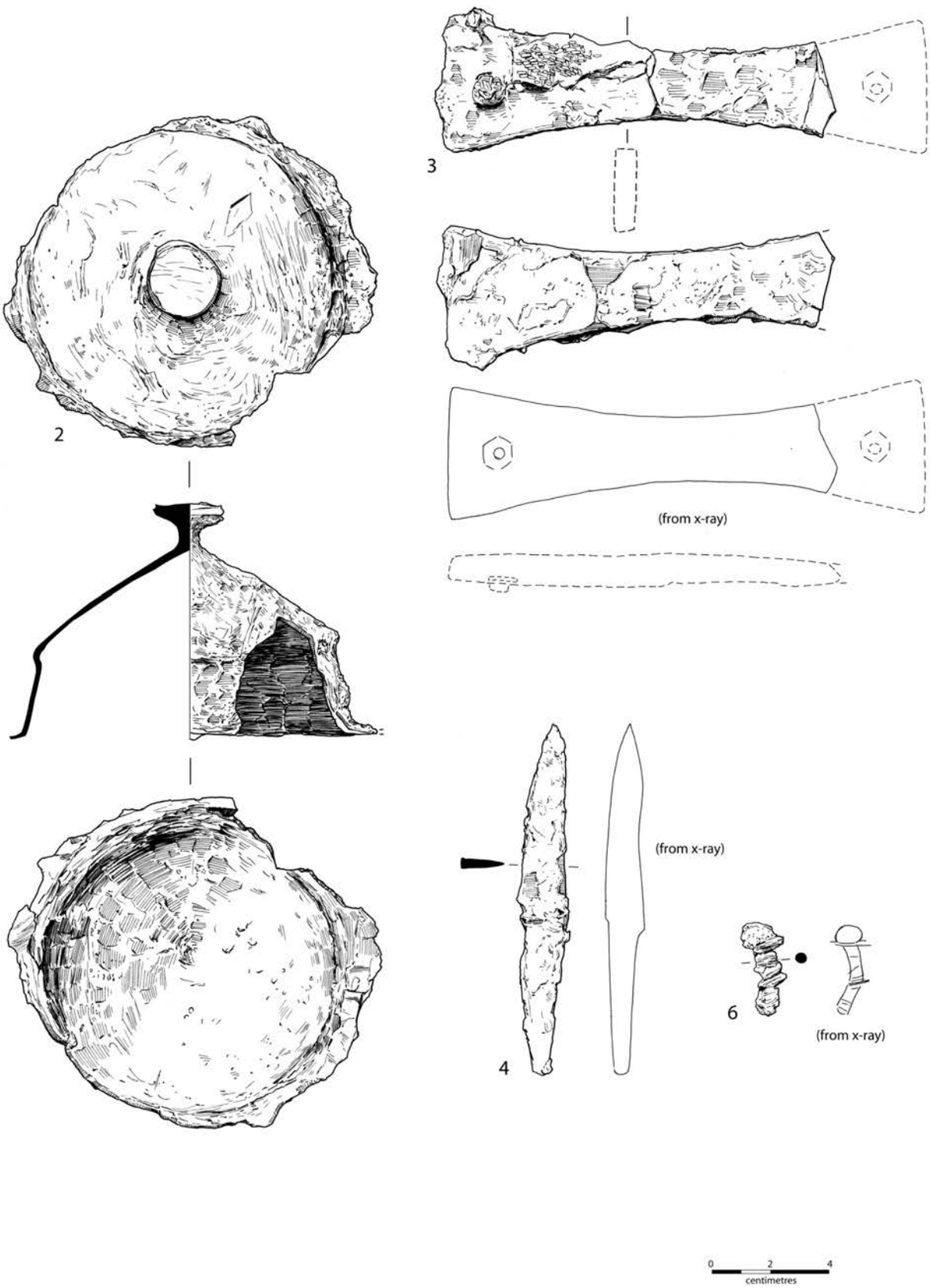


Figure 3.20 Inhumation 20 cont. (scale 1/2). By KM

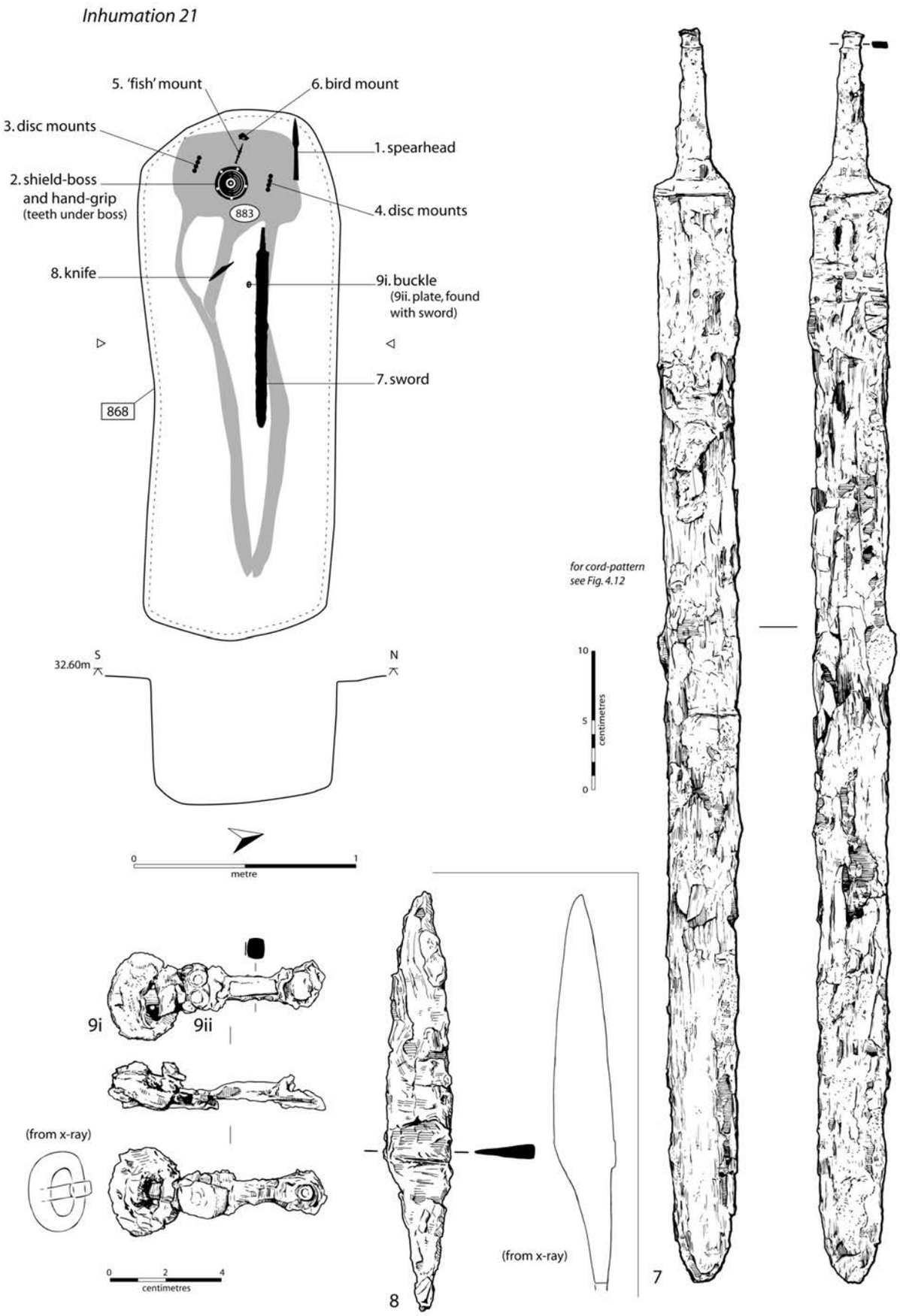


Figure 3.21 Inhumation 21 (scales 1/2, 1/4 and 1/25). By CF (grave) and KM (finds)

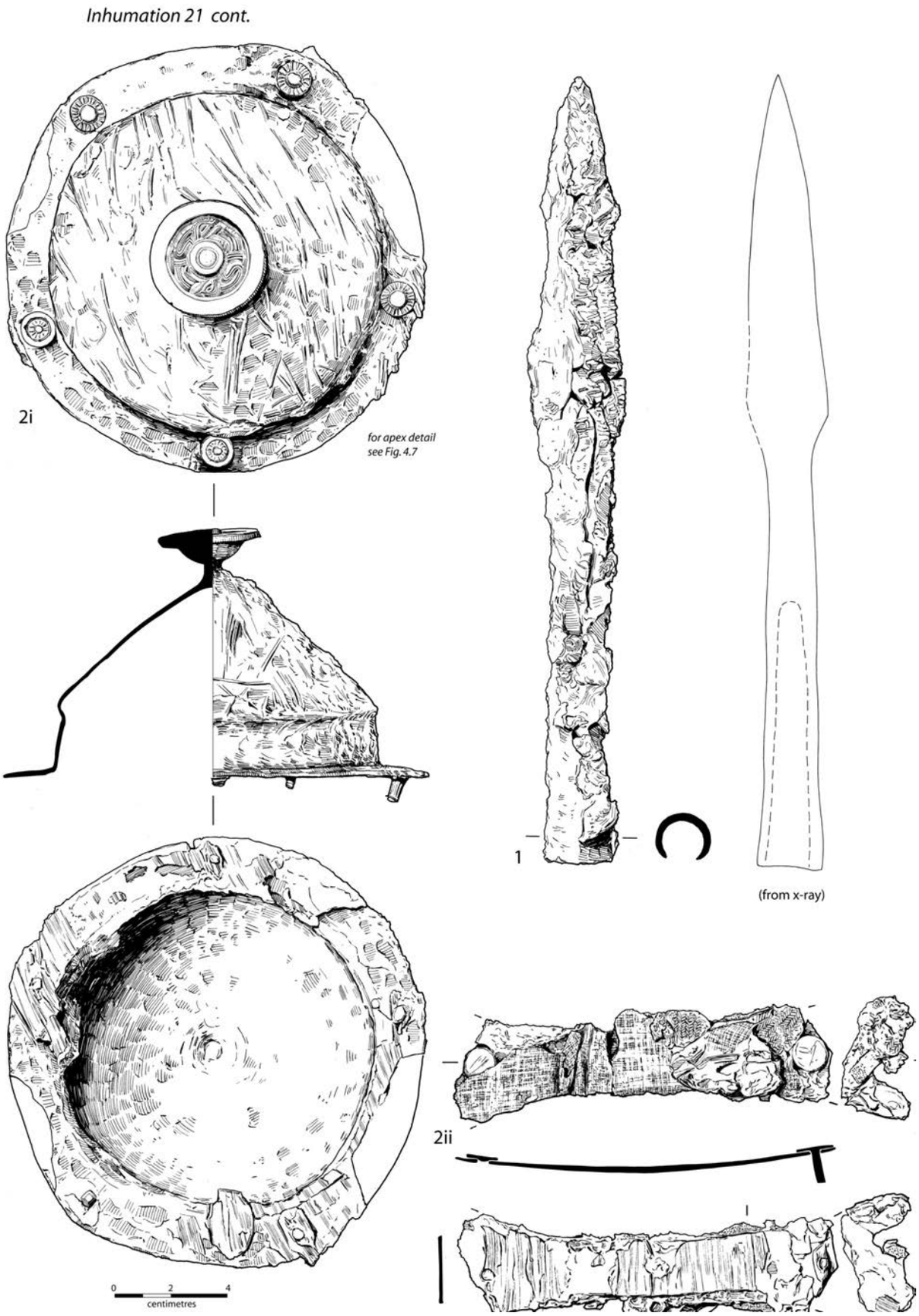


Figure 3.22 Inhumation 21 cont. (scale 1/2). By KM

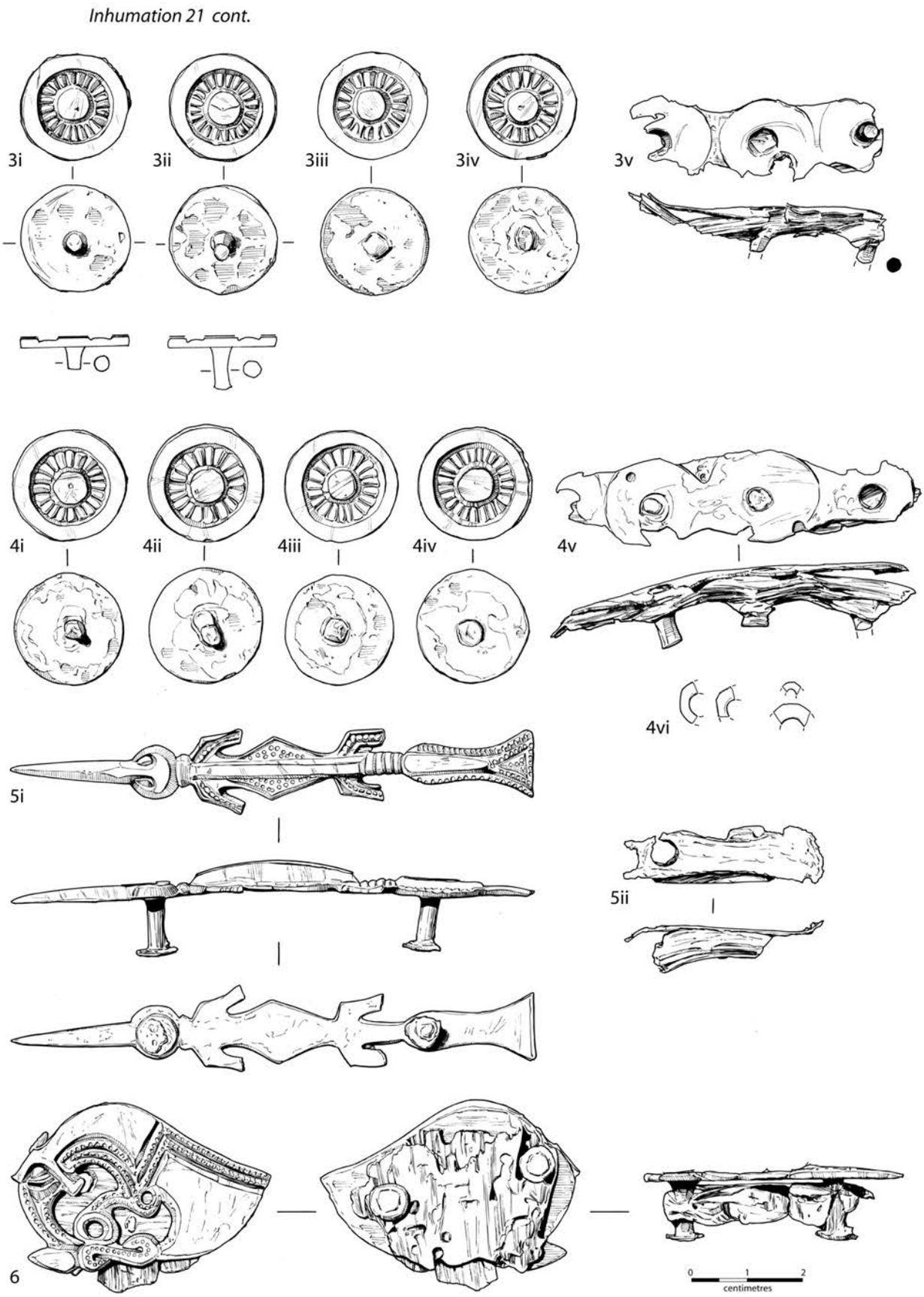


Figure 3.23 Inhumation 21 cont. (scale 1/1). By KM

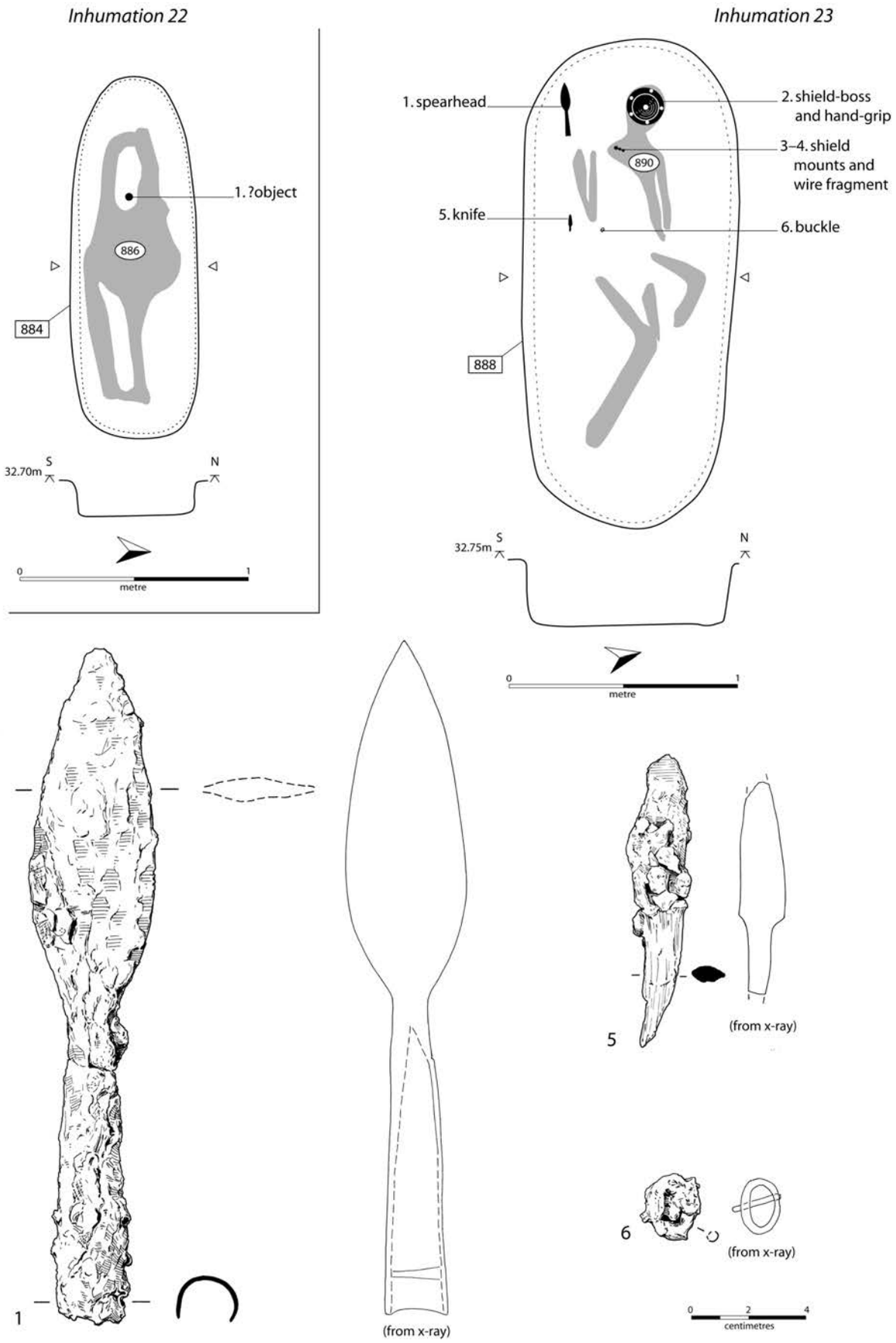


Figure 3.24 Inhumations 22 and 23 (scales 1/2 and 1/25). By CF (graves) and KM (finds)

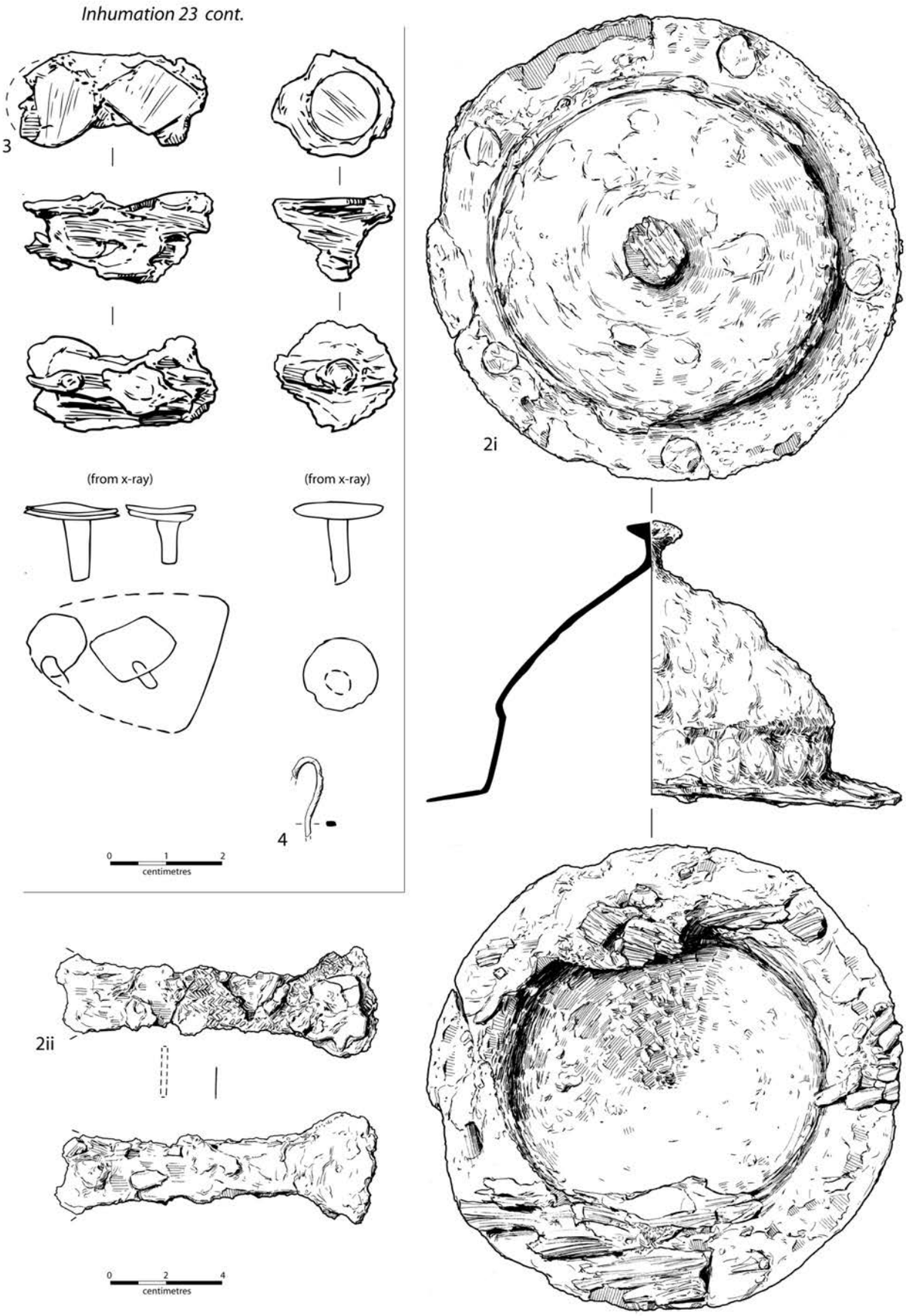


Figure 3.25 Inhumation 23 cont. (scales 1/1 and 1/2). By KM

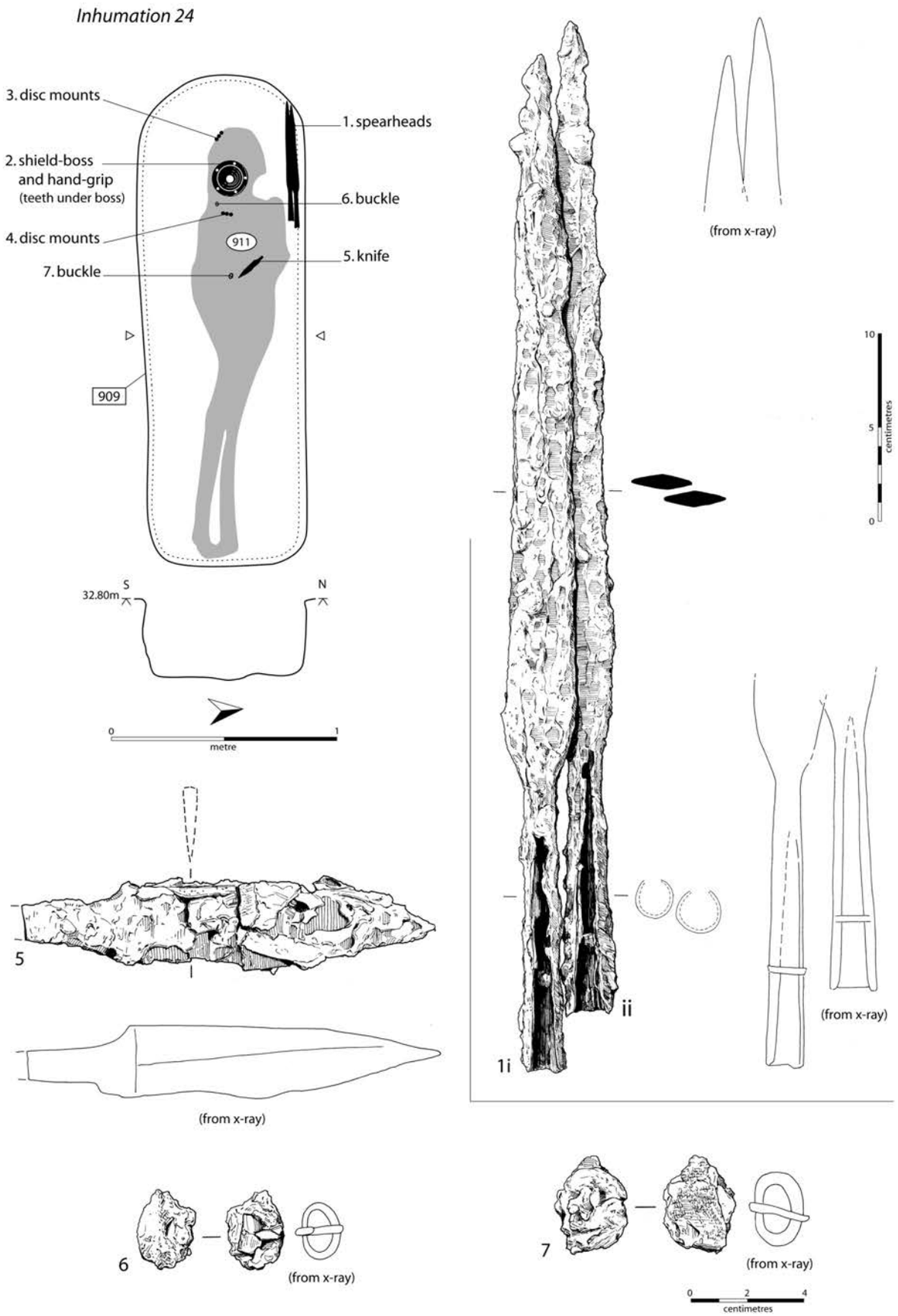


Figure 3.26 Inhumation 24 (scales 1/2, 1/3 and 1/25). By CF (grave) and KM (finds)

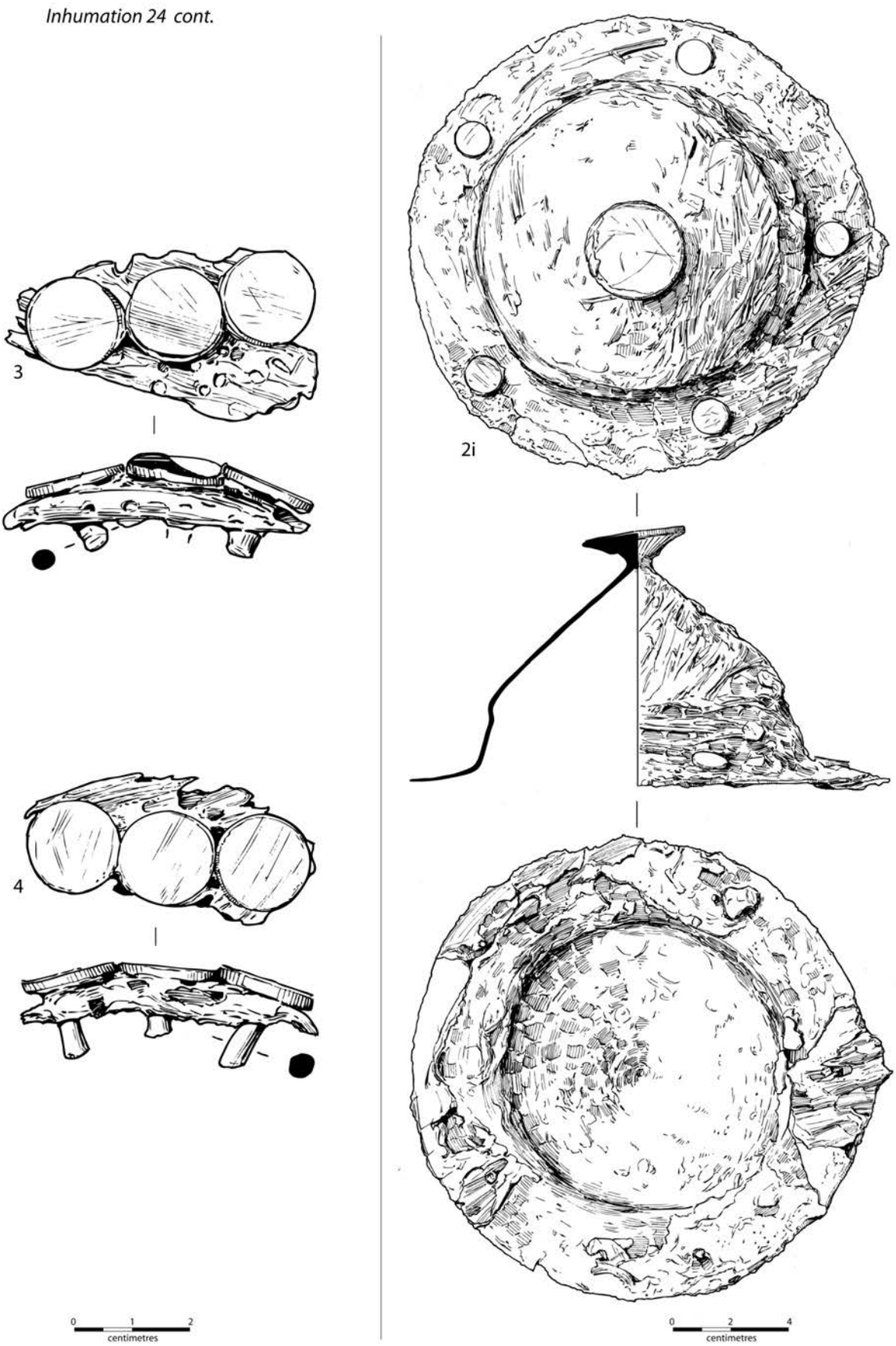


Figure 3.27 Inhumation 24 cont. (scales 1/1 and 1/2). By KM

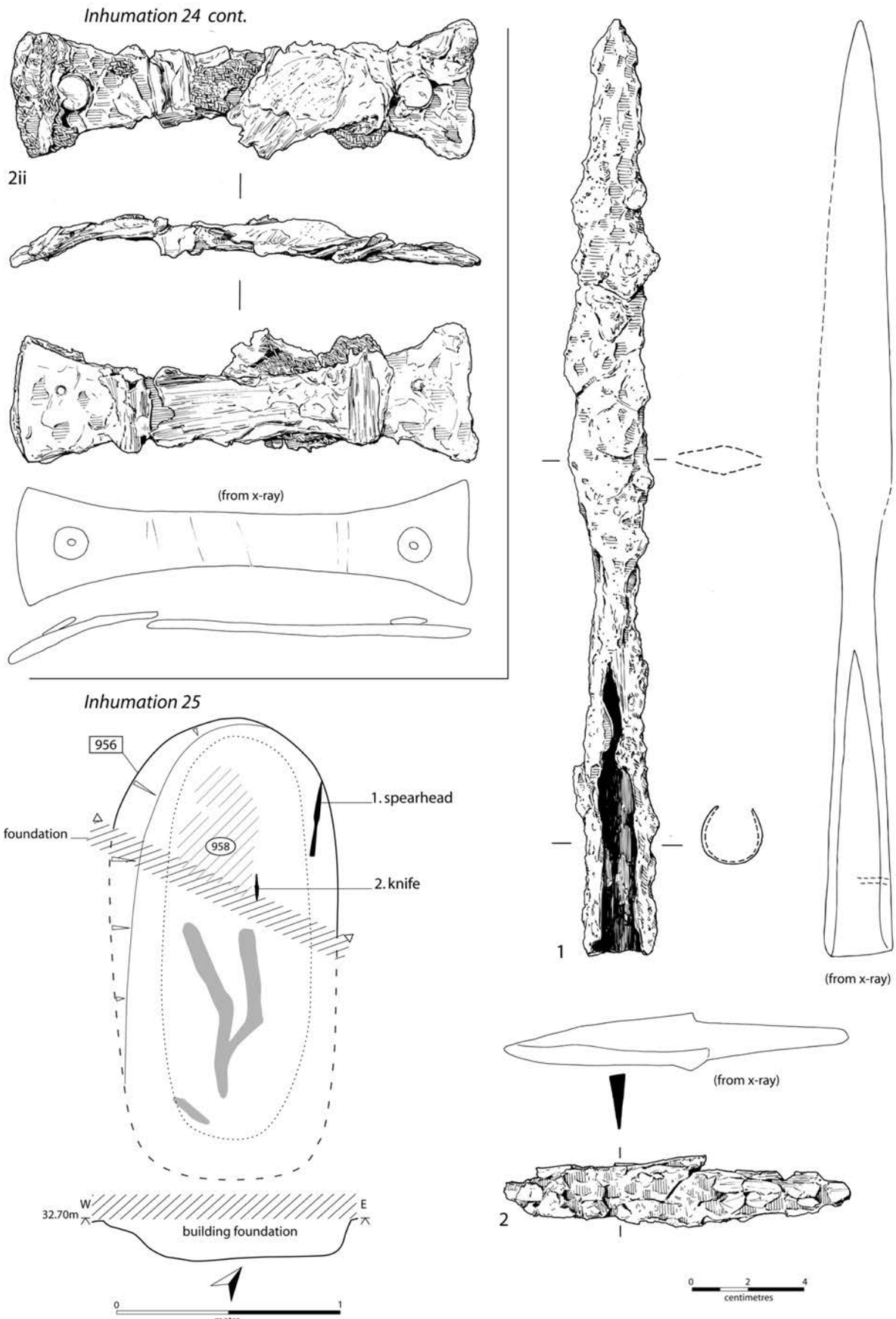


Figure 3.28 Inhumations 24 (cont.) and 25 (scales 1/2 and 1/25). By CF (grave) and KM (finds)

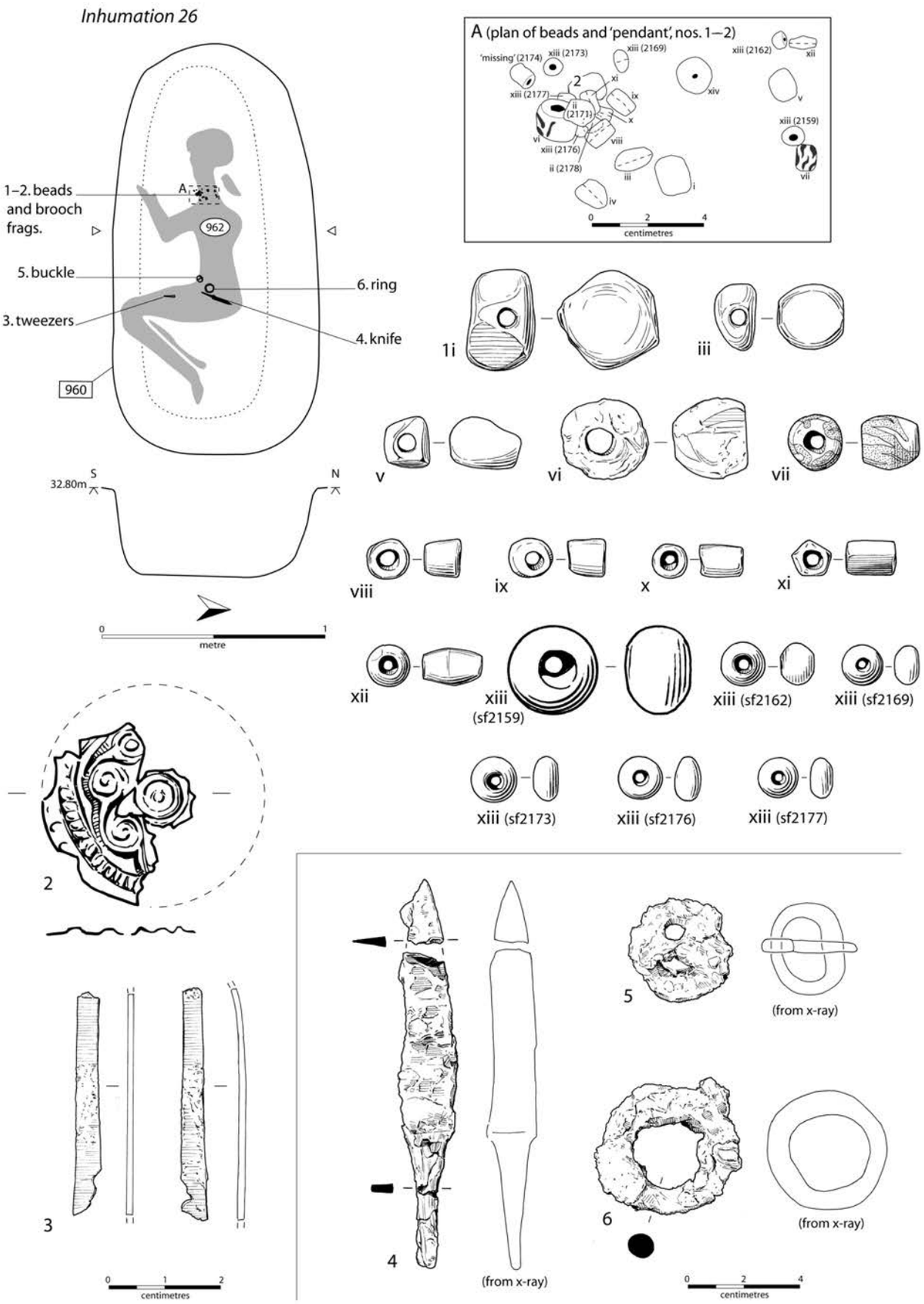


Figure 3.29 Inhumation 26 (scales 1/1, 1/2 and 1/25). By CF (grave) and KM (finds)

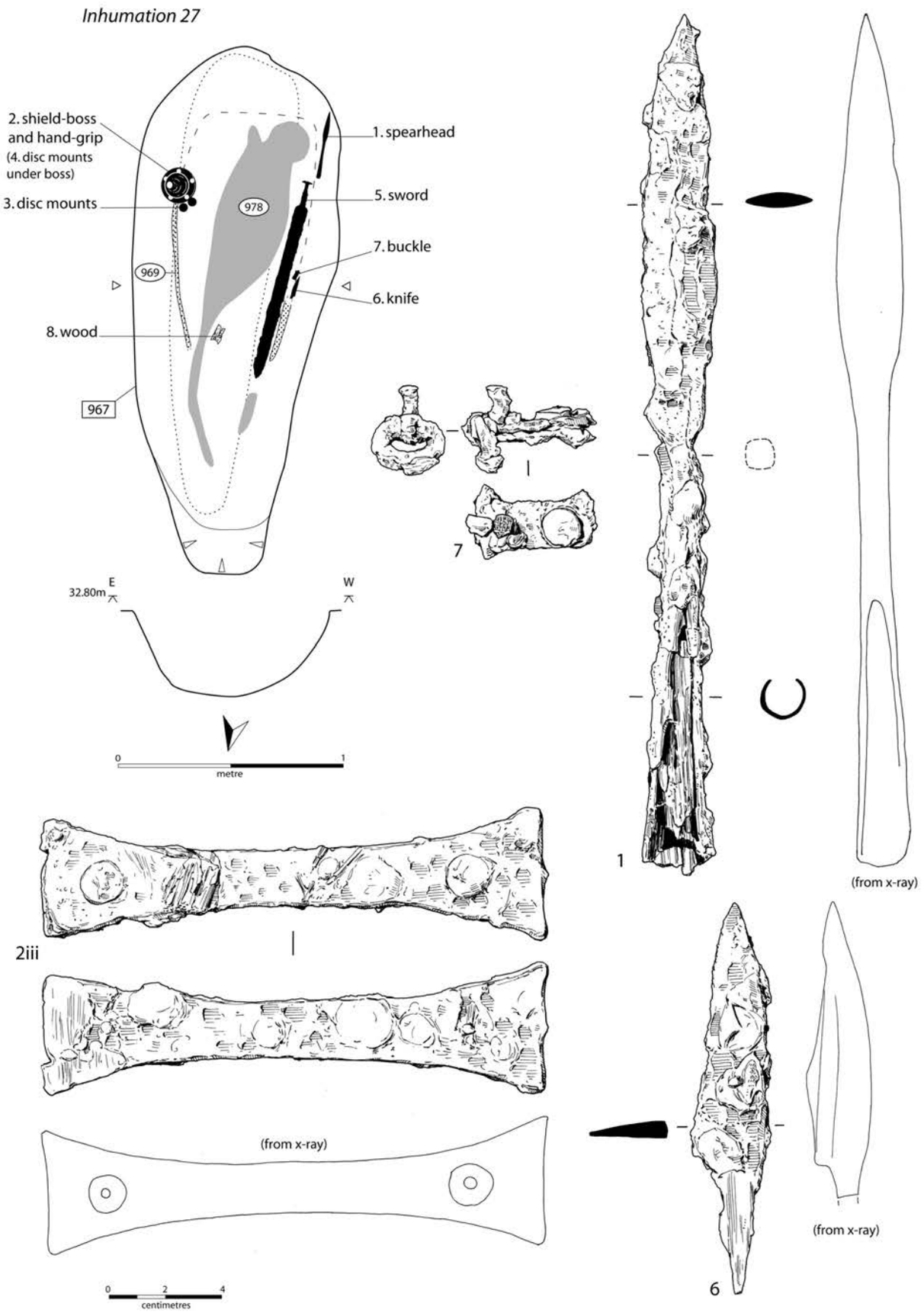


Figure 3.30 Inhumation 27 (scales 1/2 and 1/25). By CF (grave) and KM (finds)

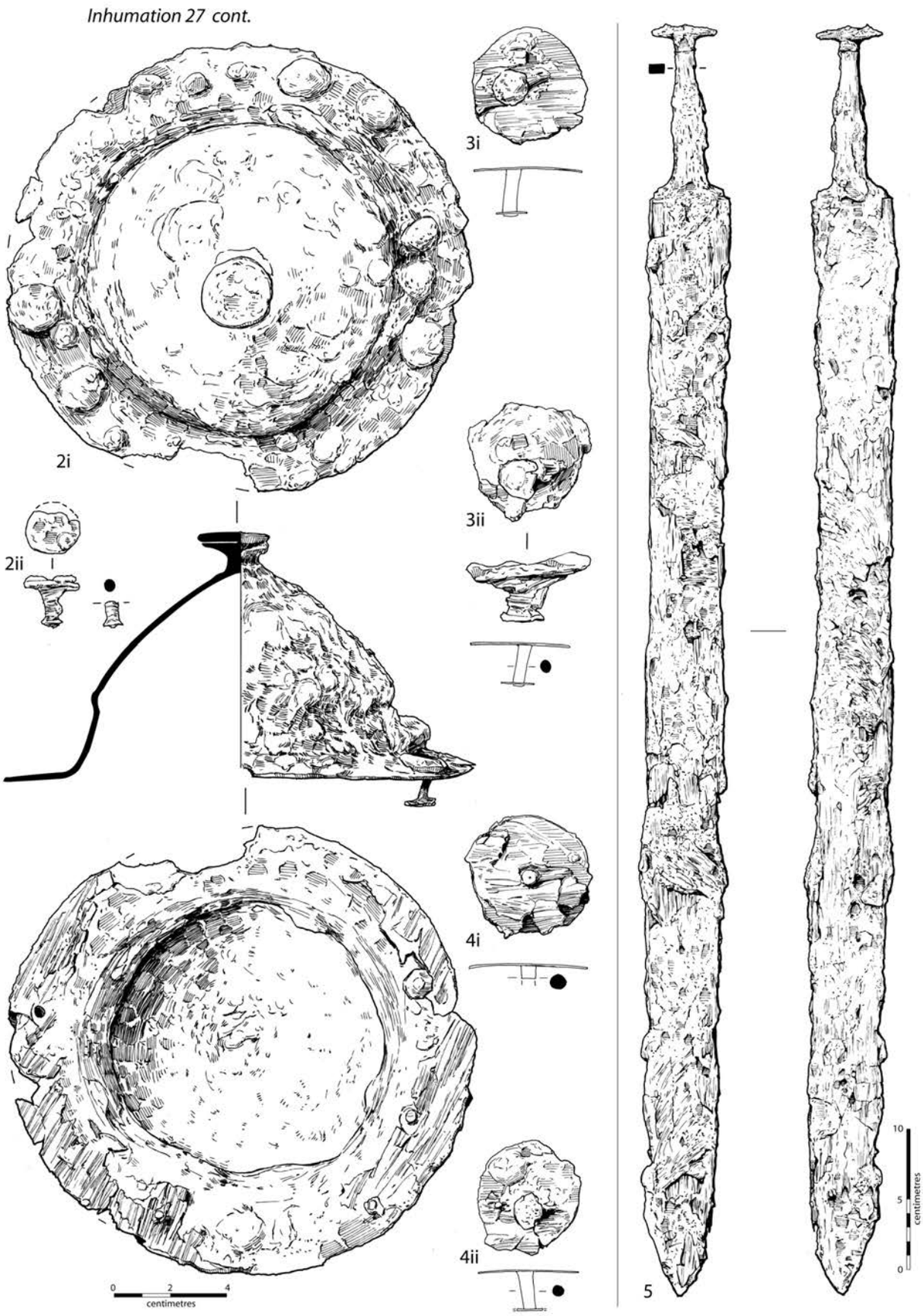


Figure 3.31 Inhumation 27 cont. (scales 1/2 and 1/4). By KM

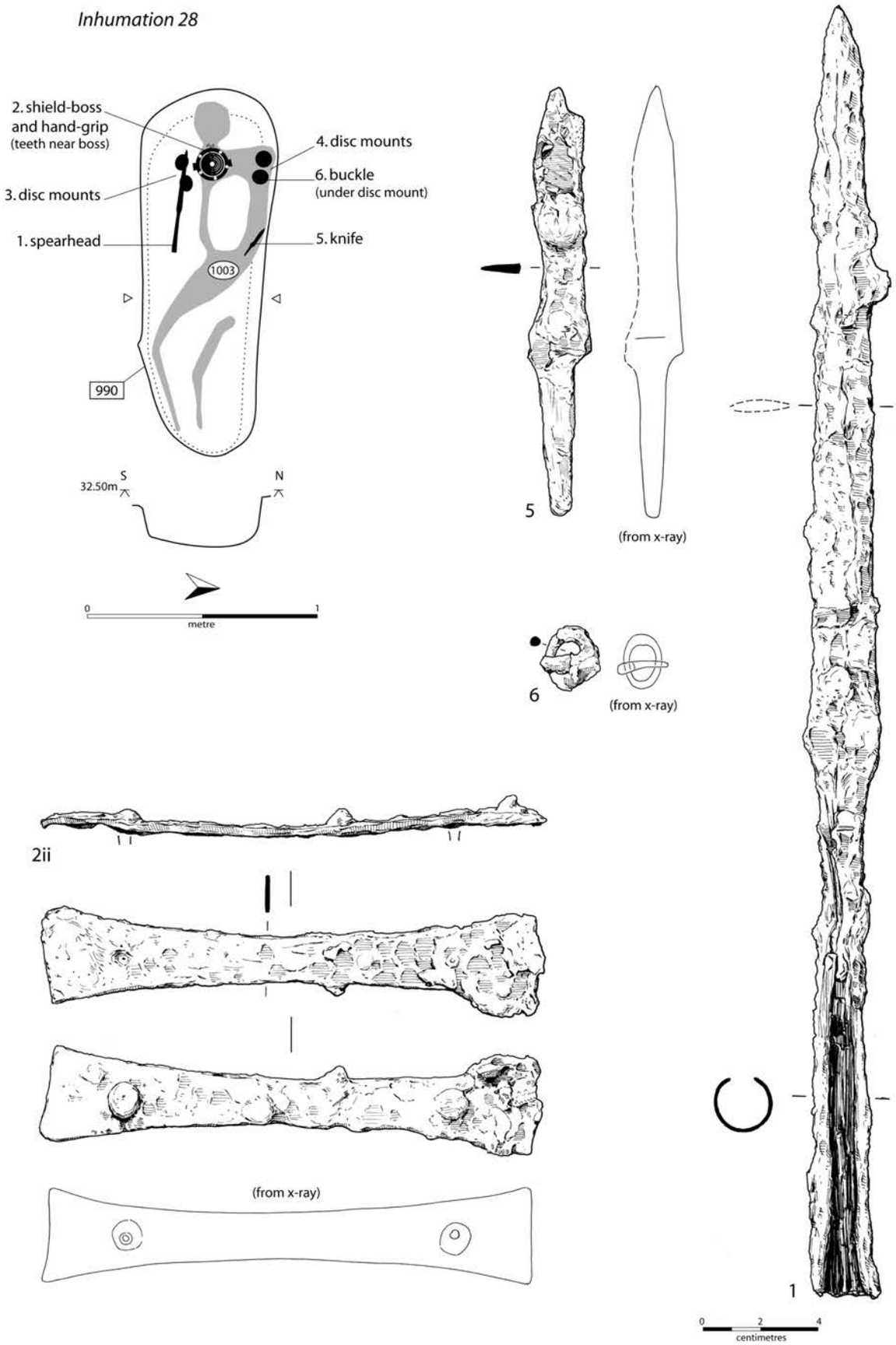


Figure 3.32 Inhumation 28 (scales 1/2 and 1/25). By CF (grave) and KM (finds)

Inhumation 28 cont.

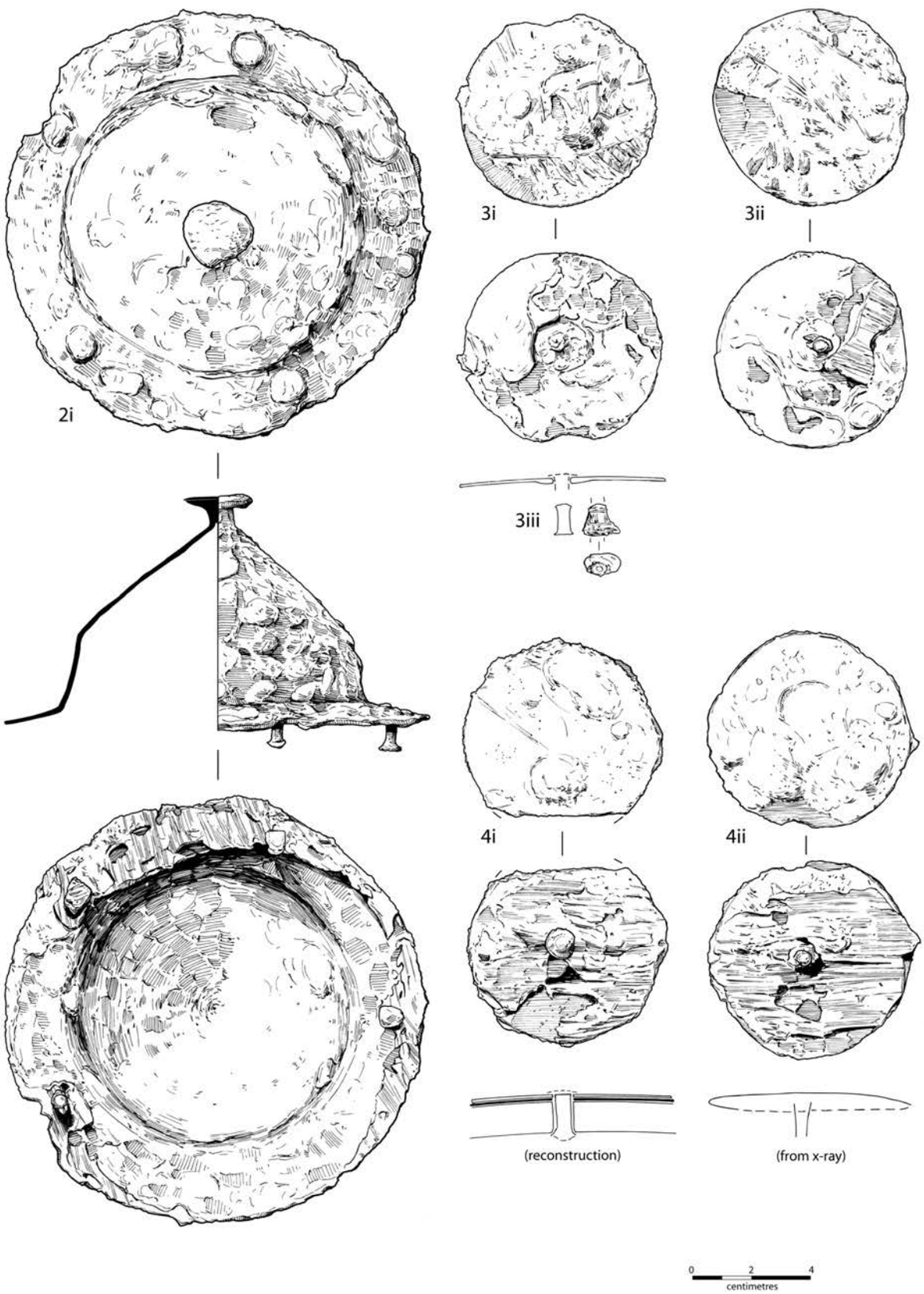


Figure 3.33 Inhumation 28 cont. (scale 1/2). By KM

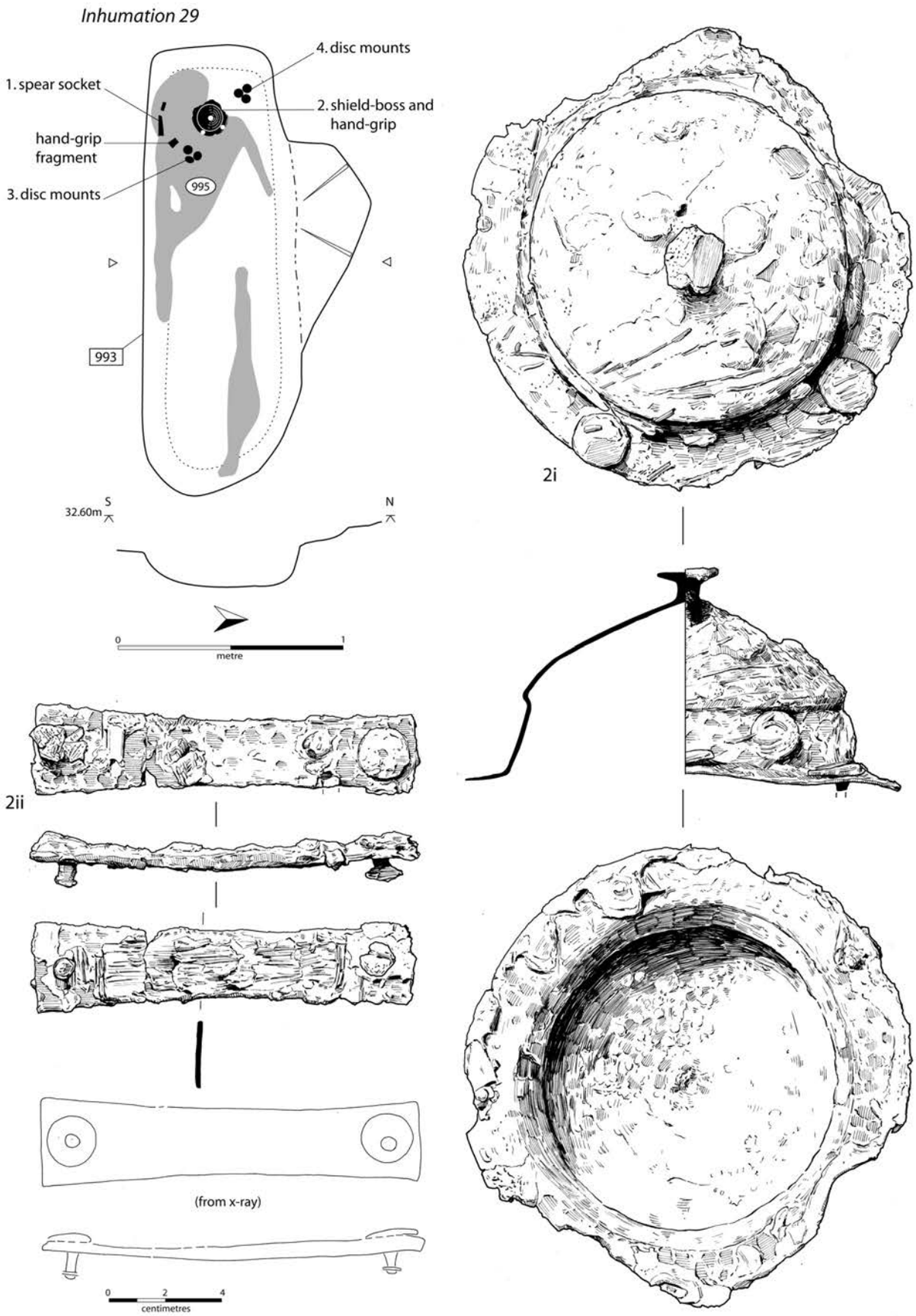


Figure 3.34 Inhumation 29 (scales 1/2 and 1/25). By CF (grave) and KM (finds)

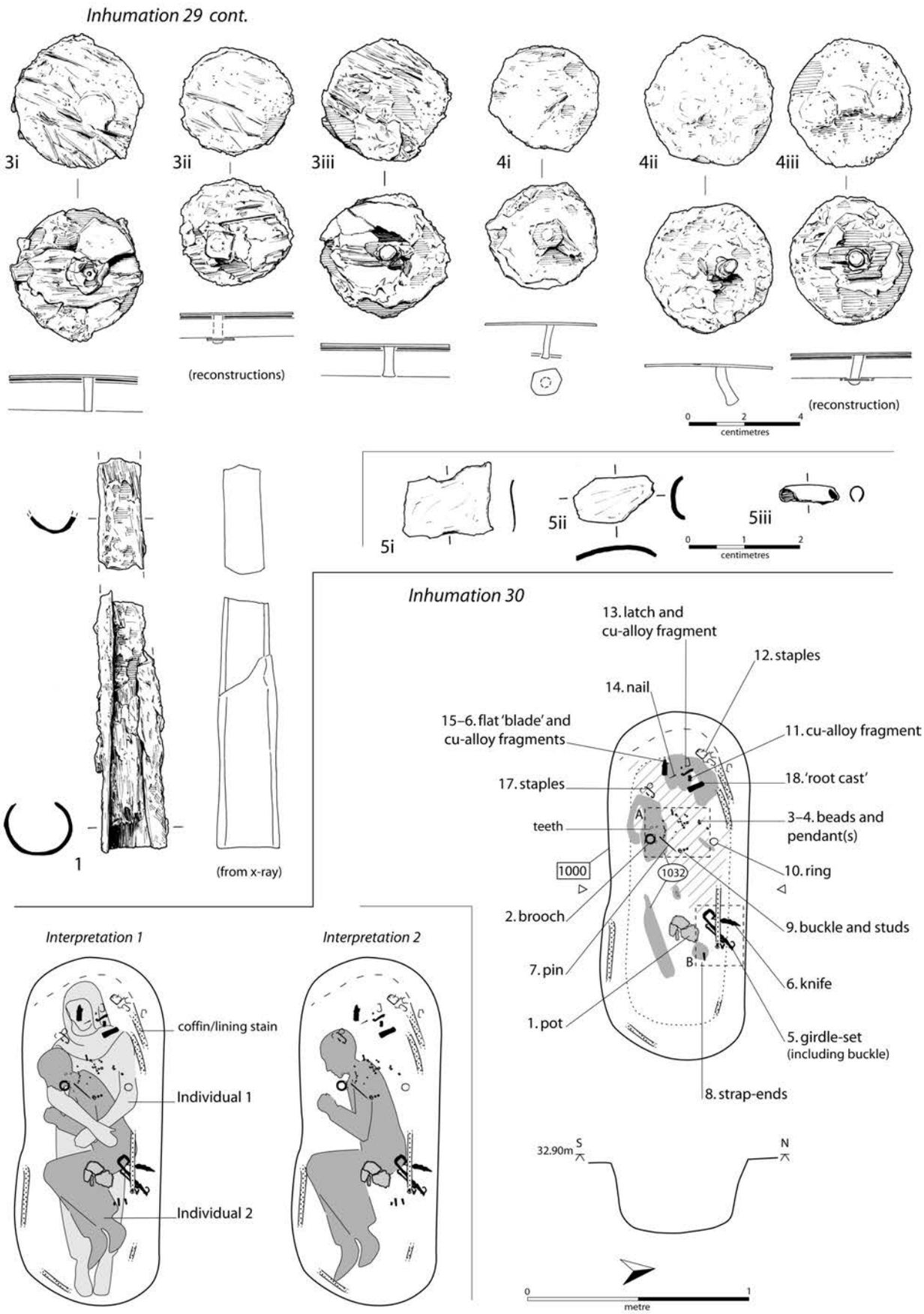


Figure 3.35 Inhumations 29 (cont.) and 30 (scales 1/1, 1/2 and 1/25). By CF (graves) and KM (finds)

Inhumation 30 cont.

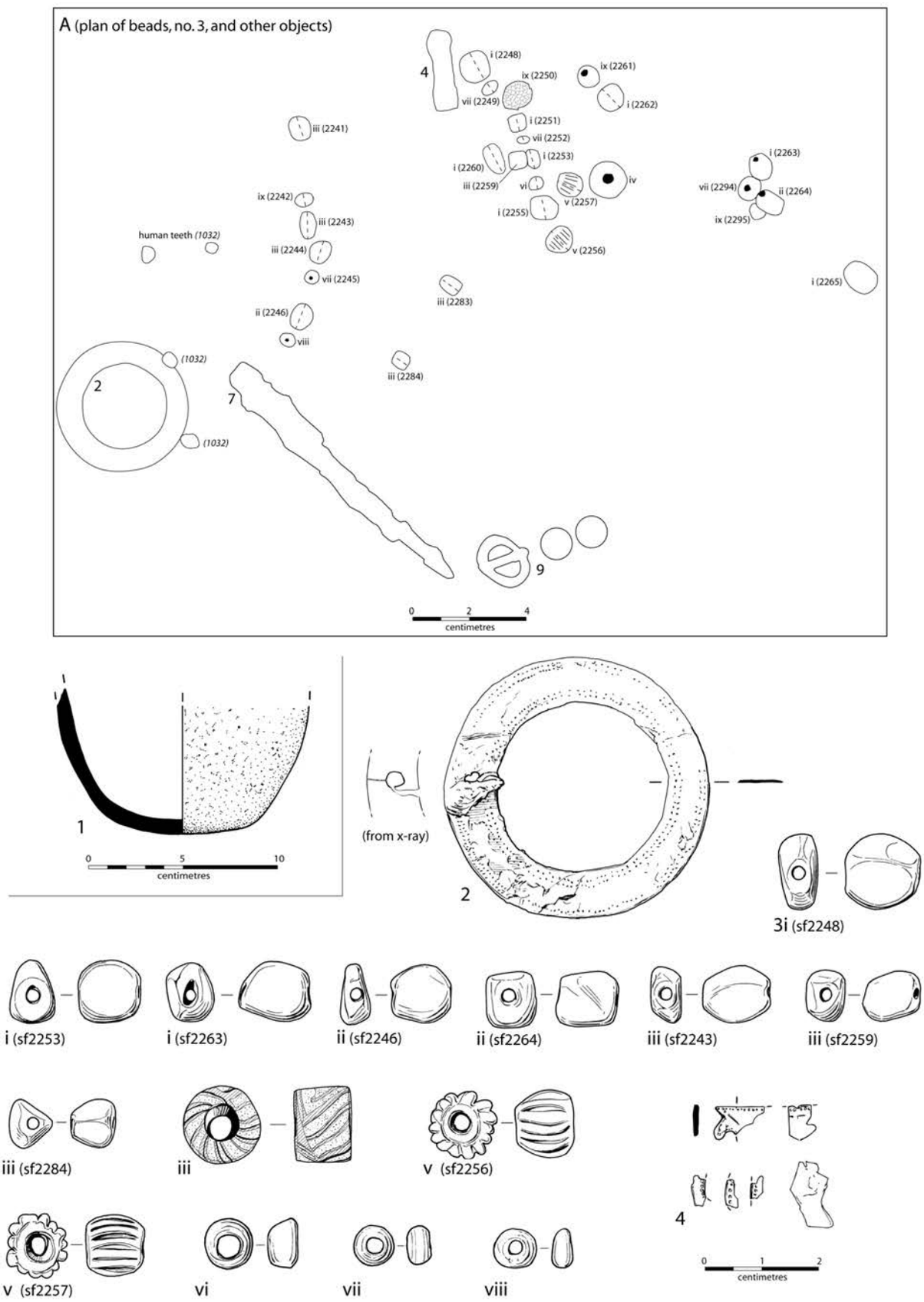


Figure 3.36 Inhumation 30 cont. (scales 1/1, 1/2 and 1/3). By KM

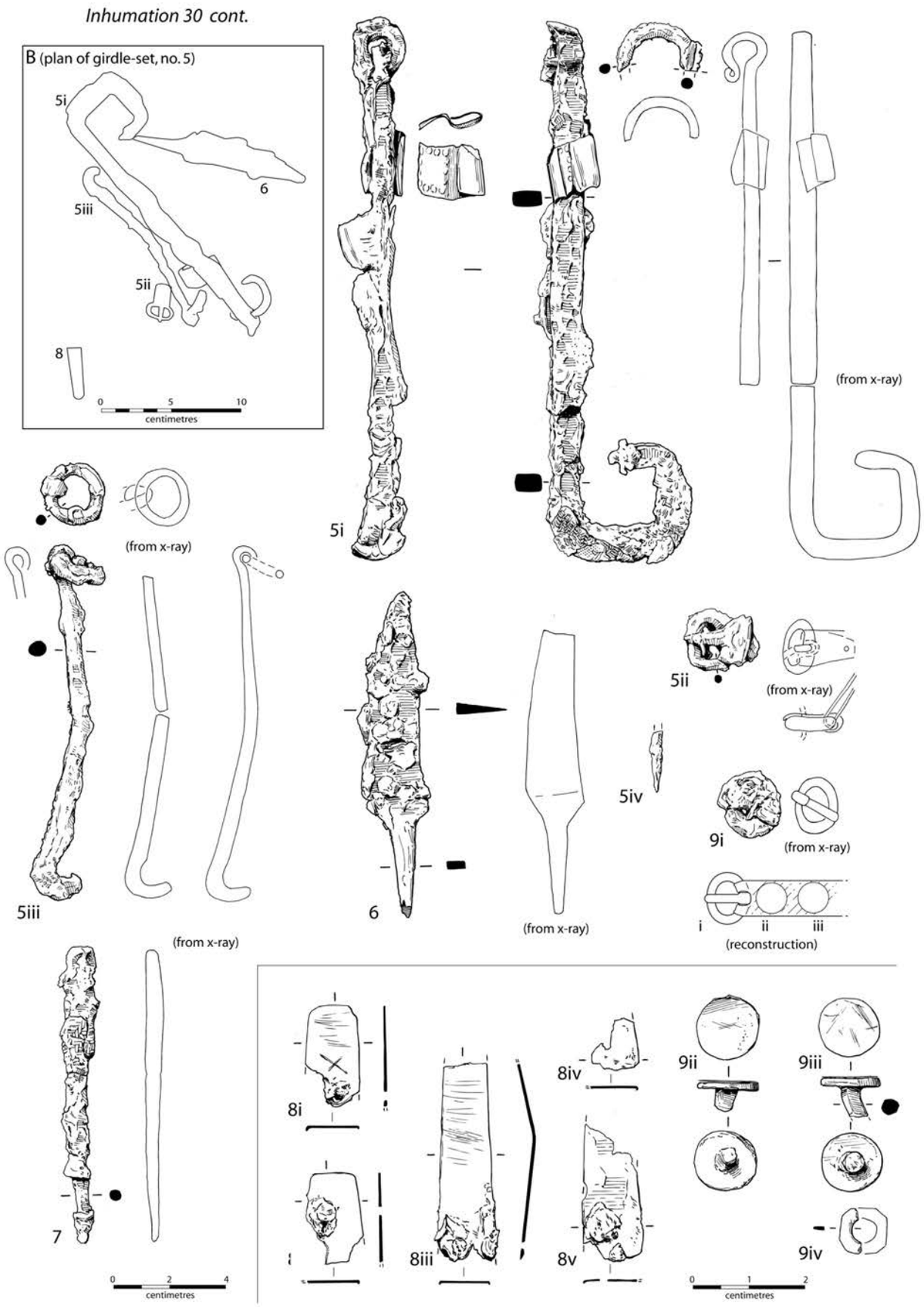


Figure 3.37 Inhumation 30 cont. (scales 1/1, 1/2 and 1/4). By CF (plan and reconstruction) and KM (finds)

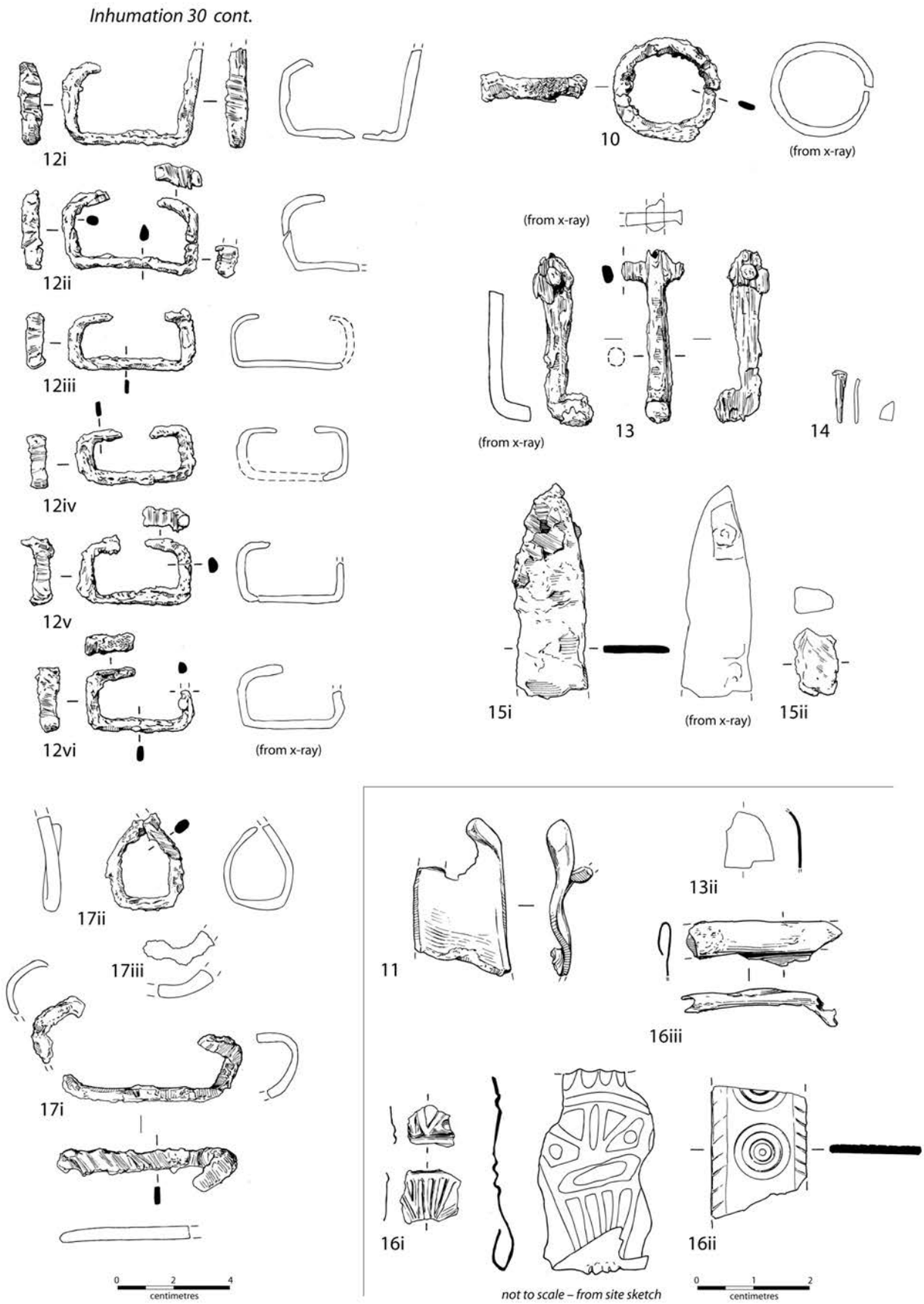


Figure 3.38 Inhumation 30 cont. (scales 1/1 and 1/2). By KM

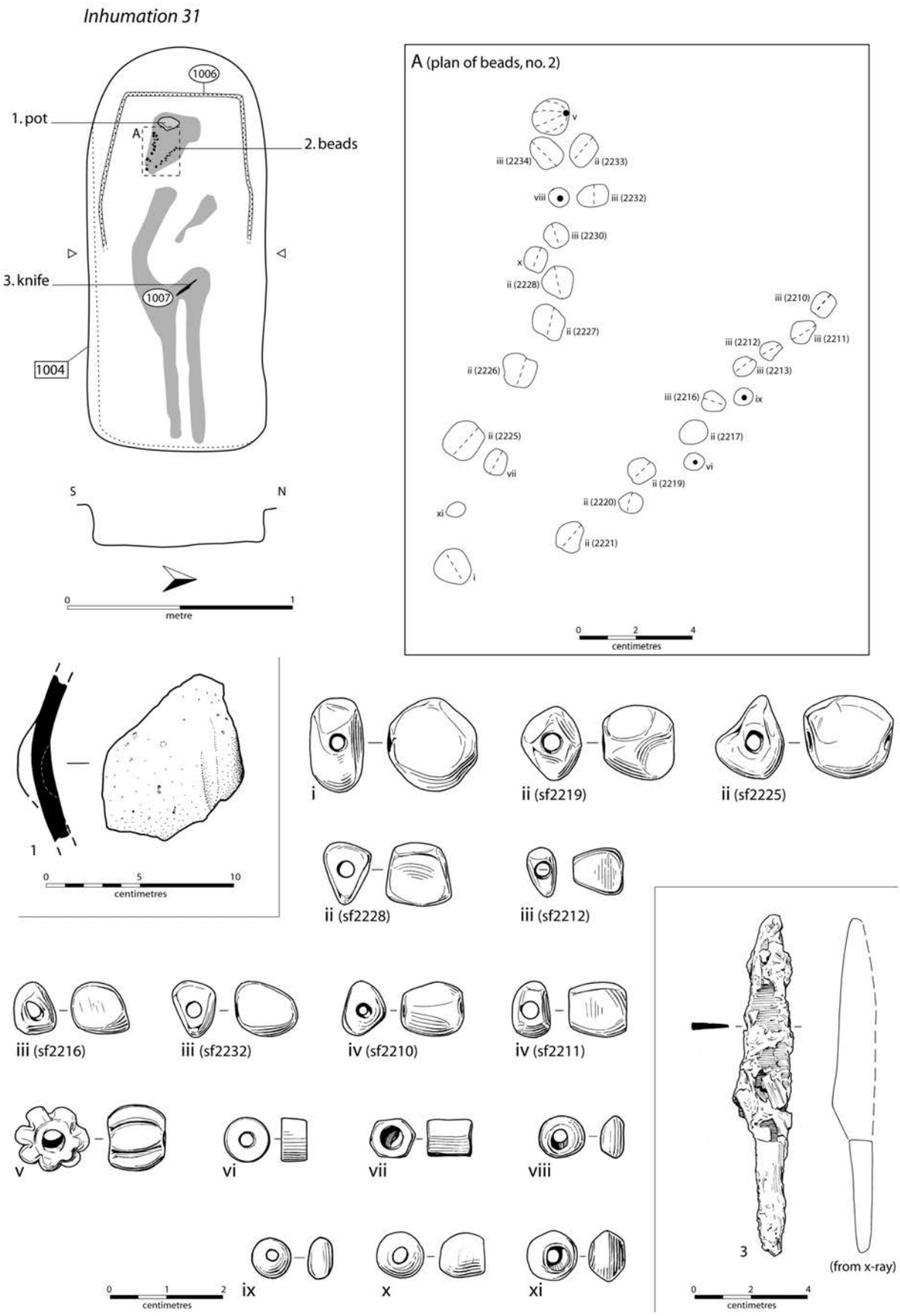


Figure 3.39 Inhumation 31 (scales 1/1, 1/2, 1/3 and 1/25). By CF (grave), KM (finds) and SH (pot)

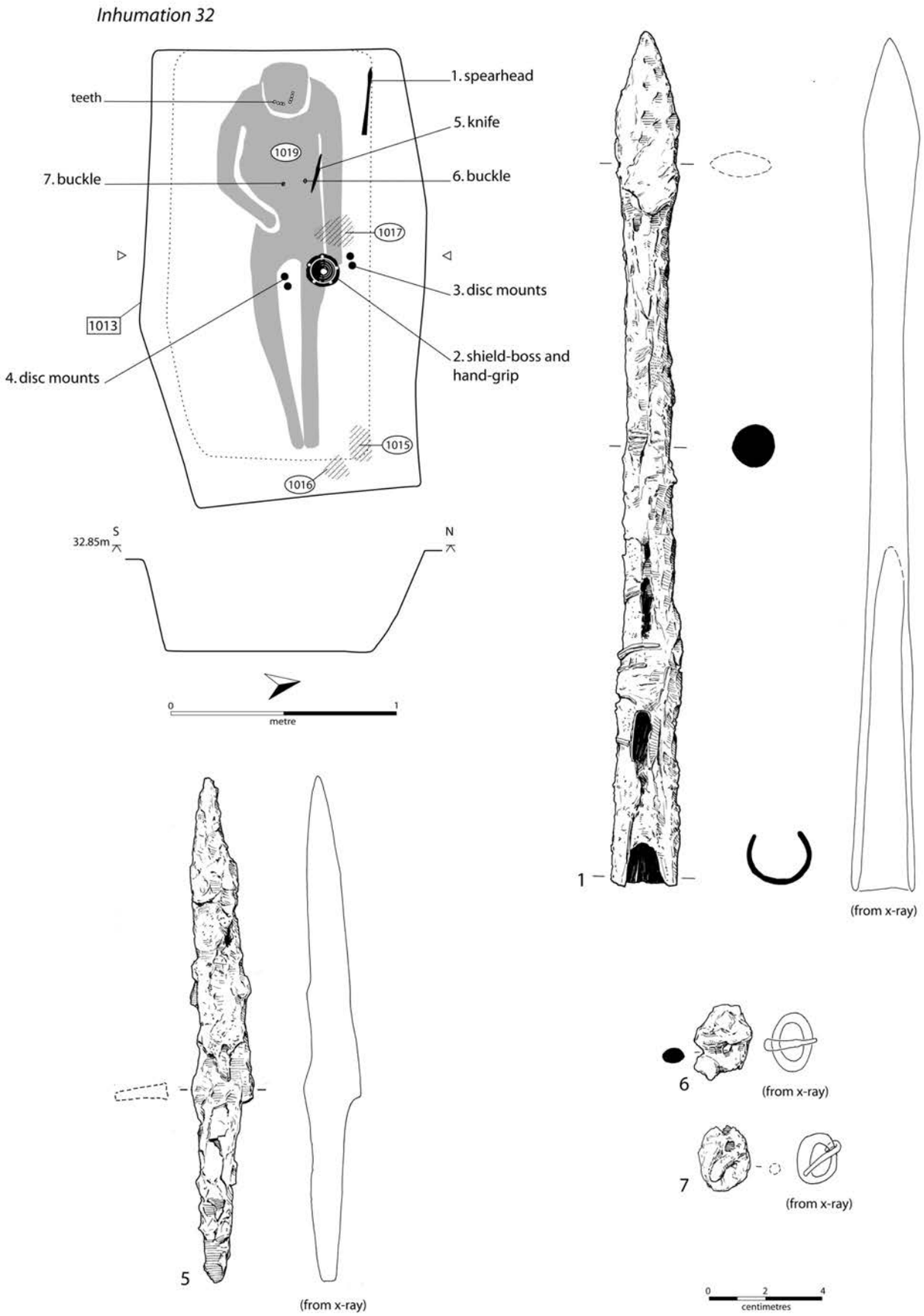


Figure 3.40 Inhumation 32 (scales 1/2 and 1/25). By CF (grave) and KM (finds)

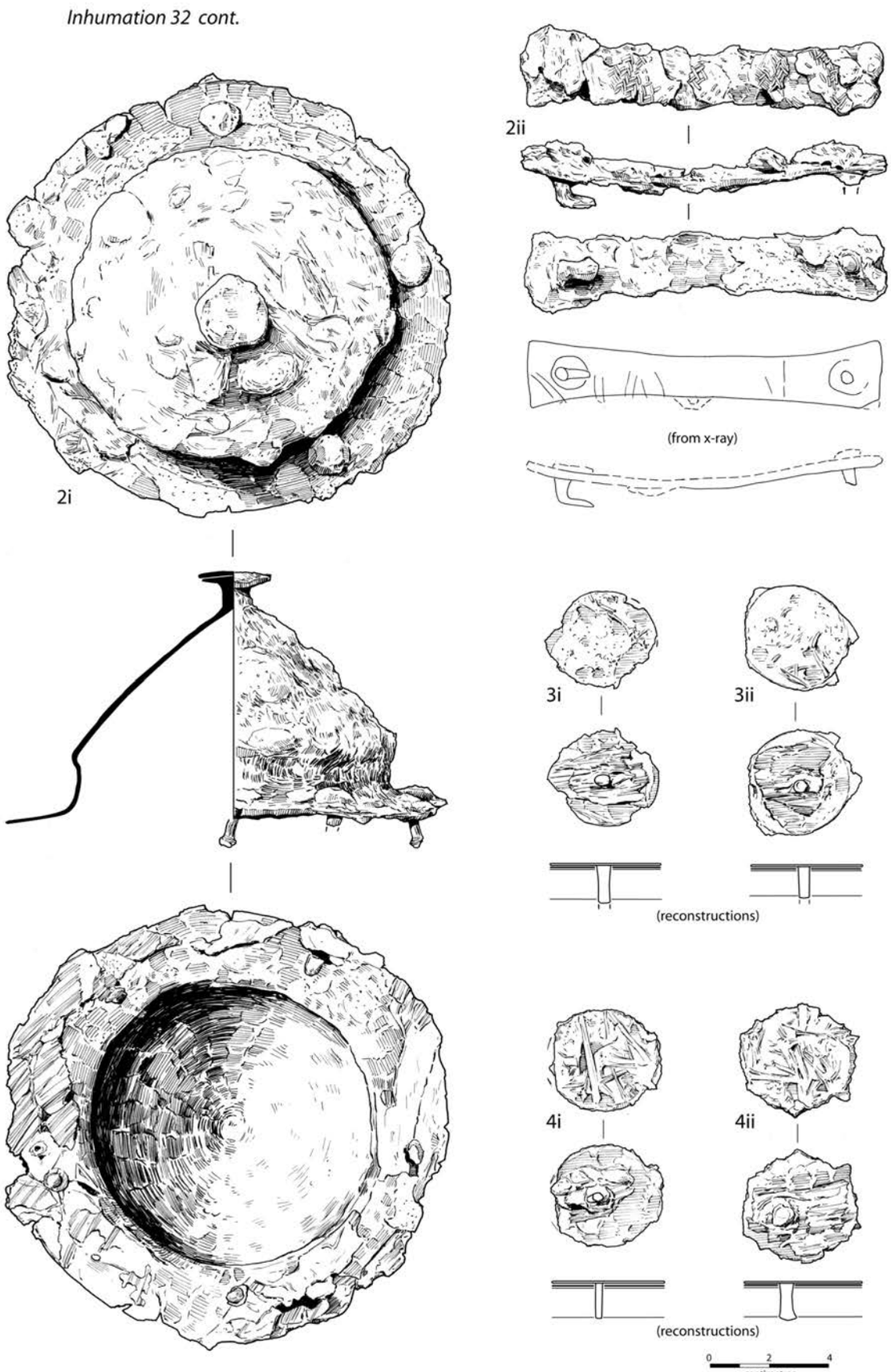


Figure 3.41 Inhumation 32 cont. (scale 1/2). By KM

IV. Unassociated finds

Two finds were found without a definite association to a grave (Fig. 3.42), though plant remains on them strongly suggest they came from burials (see *Chap. 8; Sect. IV*: *Coverings and linings of plant material*). A spear ferrule (no. 1) was a surface find along the line of ditch *[119]*, the 1843–44 boundary. The other is a sword fragment (no. 2) with broken, weathered ends that indicates a duration in the topsoil/ploughsoil. It was found by workmen in 2001, a year after the main excavation, during ground-works that followed the demolition of the greenhouse and boiler-room that had lain just north of the Coach House. Its exact findspot is unknown, but this complex had partly overlain inhumation 25. It is possible, therefore, that the sword was disturbed from this grave, perhaps during the original early 20th-century estate works (Figs 3.1, 3.28). Or both finds might have come from destroyed graves.

1. Iron spear **ferrule** (sf2151). Long. Mineral-preserved wood in socket and plant remains on exterior. L. overall 186mm; L. socket split 90mm; Diam. socket base 22mm
2. Fragment of iron **sword** (sf2300–1). In two pieces (recent fracture). Very corroded; end breaks weathered. Double-sided parallel blade, pattern-welded. Lower part of tang and top-quarter of blade survive. Hilt-guard visible in corrosion. Mineral-preserved horn hilt, scabbard remains of wood (*Fraxinus excelsior*), ?fleece and ?leather, and mineral-preserved plant remains on one side. W. blade 46–52mm; Th. 6mm

V. Other features

Apart from the ring-ditches and post-holes associated with graves, few other features, if any, are of this period. The 1997 evaluation found only one stratified sherd of possible early Anglo-Saxon pot, in a lone post-hole *[20]* (Abbott 1997, app. IV), close to the graves found later (Figs 1.3, 3.1; Abbott 1997, app. IV). In 2000, occasional early Anglo-Saxon potsherds were found in the cemetery area also, but mostly in later contexts (see *Chap. 4; Sect. II: Pottery*).

Hearth *[550]* of *Phase 4iii* (see *Chap. 2*) returned a radiocarbon age of *cal AD 240–540* at 95% confidence (AA–43641; 1670±55 BP), making it possible it represents activity contemporary with the early cemetery, but the 1 sigma calibration of the radiocarbon age makes a date prior to the early Anglo-Saxon period more probable (see *Chap. 2: note 1*).

A small pit *[949]* at the western 'head-end' of inhumation 18 may be tentatively suggested as the grave of a young infant (Fig. 3.1). It had a grave-like shape and shared the same alignment as surrounding burials, and, though it contained no remains or finds, the bones of very immature individuals leave little trace in acidic soil conditions, and infant burials typically have few or no grave-goods (cf. Green *et al.* 1987).

It is possible, of course, that some unphased features and post-holes belong to this period, though many of these were ultimately similar in character to features attributed a recent origin by the modern material found in them, and which most likely relate to trees, vegetation and boundaries present across the site into the late 20th century (see Carver 2005, pl. 63). Exceptions include post-holes *[624]* and *[946]*, for example, which might have held grave markers: the former was close to cremations 10 and 11; the latter was at the centre of Bronze Age ring-ditch *[351]*, a focus for some Anglo-Saxon graves. But in the absence of firm dating evidence both could equally be of prehistoric date (see *Chap. 2; Sects. III–IV*).

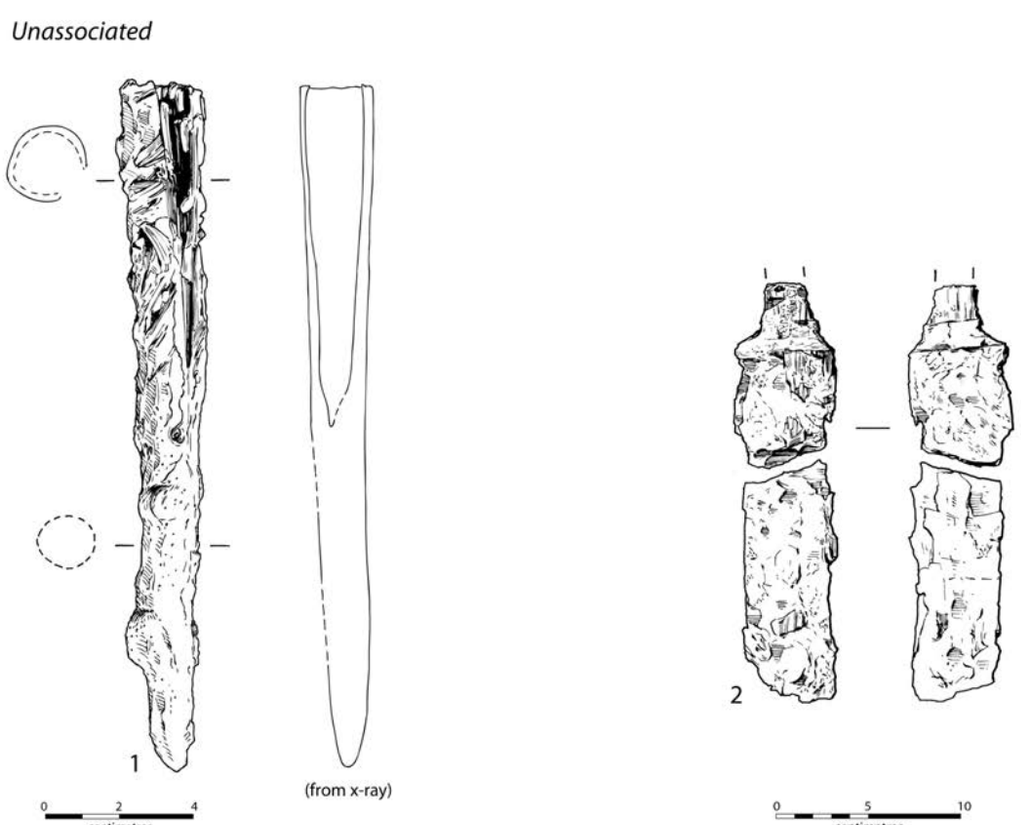


Figure 3.42 Unassociated finds (scales 1/2 and 1/4). By KM

Plate VI Hanging bowl from cremation 8: a) side view with hook-mount no. 1iv; b) view of the interior (scale 1/2).
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Chapter 4. Anglo-Saxon Material Culture

edited by C.J.R. Fern

I. Introduction

The grave-goods from the Anglo-Saxon burials form a key part of the basis for the social and chronological study of the cemetery population. The inhumation burials contained the majority of the artefacts, with certain object types found exclusively with the rite (e.g. weaponry, buckles and knives). Weapon-fittings are especially well represented. Most of the pots were found in the cremation burials, by contrast, and the bronze hanging bowl represents a rare find from a cremation grave.

As the British Museum's curator of the Sutton Hoo collection at the time of the discovery, Angela Evans catalogued the majority of the artefacts, their subsequent study being undertaken with the principal author, British Museum conservators and other scientists (see *Acknowledgements*). To this is added reports by other specialists for certain object types. The evidence for organic remains recorded during conservation is summarised in *Section III*, with the textile findings in *Section IV*. The implications for costume and grave coverings are discussed in *Chapter 8* (*Sect. V*).

II. Artefacts

Hanging bowl
by S.M. Youngs
(Figs 3.4–3.6; Pls VI–VIII)

This bronze bowl was used for the greater part of the bone in cremation 8 (no. 1). It is rare to find cremated remains in metal containers and these vessels were not purpose-made for burial (see *Chap. 8; Sect. III: Metal-vessel burial)*. When in use above ground it was designed to be suspended from three attached hooks with rings — a hanging bowl — a specialised vessel unique to Britain at this period. These high-status items were made by native British societies beyond the core Anglo-Saxon territories. How these bowls were acquired, their dates and places of manufacture, as well as their original uses are matters of debate (Brenan 1991; Bruce-Mitford with Raven 2005; Youngs 2009). We are still largely reliant on the evidence of the burial contexts of furnished inhumations, which makes this decorated bowl with a scientifically-dated cremation of great importance.

Description

There are nine major components together with a separate frame, the metals are bronze with some variation in the alloys (see below, *Scientific examination*). The circular bowl was raised from one sheet of bronze and later distorted into an ellipse by its time in the ground (Pl. VIIe). Both surfaces were lathe polished. Only two short areas of rim edge survive and further impressions remain in the ash-wood (*Fraxinus excelsior*) lid to show a slightly thickened, flat rim, everted above a short curved neck (Figs 3.4–3.5; Pls VI, VIIf). The base of the bowl was recessed with an oblique flat facet supporting a slightly convex inner surface (Pl. VIII). Several repairs were made before burial, mainly at the rim and base, areas most vulnerable to wear, with neat bevelled patches riveted to the rim, and a soldered strip with a rivet on the underside of the base (Fig. 3.6, no. 1viii). In addition, a number of small pieces of copper-alloy sheet were found detached inside the bowl, and in one case at the rim, some of which demonstrate solder, that probably indicate further repairs to the interior (Fig. 3.6, nos 1ix–xii). One rim patch had been added when hook-mount no. 1iii was not in position (Pl. VIIb). Furthermore, one of the three suspension hooks (no. 1ii) is a replacement without a decorated plate (Pl. VIIc). The significance of these repairs is discussed below.

Five cast mounts were soldered onto the bowl. Two hook-mounts [1] (nos 1iii, 1iv) have matching openwork panels, each comprising a diamond-shaped plate with projecting lobes suspended from the tips of a crescent (Fig. 3.4; Pl. VIIa–b). A variety of recessed ornamental cells in both central fields and borders was filled with opaque enamel, some of which survives in a degraded state. The crescent carries a reticulated pattern with an inner border of reserved triangles, the main field being divided by a vertical panel with two recessed ring-and-dot motifs. Bold concentric circles for champlevé enamel fill the six lobes of the lower lozenge, itself defined by a set of inlaid lines. The third hook (no. 1ii) has a curved attachment strip lying roughly parallel to the rim of the bowl (Fig. 3.4; Pl. VIIc). The outline of an original mount can be seen scratched below it, matching the form of the two others. Indeed, all three hook plates have outlines scratched on the bowl's body, something I have not observed on other hanging bowls. They may mark where the mounts were removed for repairs to the bowl and then re-soldered, a process demonstrated by the patch on the rim below mount no. 1iii. Hammer marks were left visible on the outside under the rim. Each hook ends in a simplified animal head with raised brows (though the head of no. 1ii is more compact); the lower jaws lie above and not on the rim, and all the hooks retain a small sturdy ring. The necks and rings on all three hooks show signs of wear on specific areas and fibres on the rings suggest that some sort of cord was attached at burial (see below, *Scientific examination*).

Two cast discs (nos 1v–vi) with fields for champlevé enamel were fixed one above and one below the centre point of the base, possibly with a central rivet (Figs 3.4–3.5; Pl. VIId). Although remains of mineral-preserved textile partly obscure the lower disc, they appear to have identical ornament, comprising a circle of six recessed leaf-shapes defined by concave-sided triangles, with an outer 'x' border derived from or related to the trellis pattern of the hook-mount crescents, inside a flat outer rim. No trace of enamel inlay survives in the upper disc. A detached, thin, upstanding rim from the lower disc survived in part, and was recovered from textile remains under the bowl.

Scientific examination (see below) has shown that tin was not used to embellish the surfaces framing the

Plate VII Hanging bowl from cremation 8:
a) hook-mount no. 1iv; b) hook-mount no. 1iii, over a riveted patch at the rim; c) replacement hook no. 1ii, fitted in antiquity, the scored outline of the original visible; d) exterior basal mount no. 1vi, with covering textile; e) the bowl, still bandaged in its excavation block, showing the bone comb *in situ*; f) wooden lid remains at rim (scale 1/1; except (e), scale 1/4). Copyright Trustees of the British Museum

enamelled areas on any of the applied mounts, a feature of some hanging bowls. The enamel residues appear to be the bright red 'sealing wax' glass well-known in early-medieval Britain and Ireland. This burnished bronze bowl would have been a bright, eye-catching red and golden piece in its original condition.

Comparanda
(Fig. 4.1)
At least one-hundred-and-thirty hanging bowls are known either largely complete or from detached fittings, discounting Viking period finds, and ninety-four of these are enamelled. These figures include metal-detector finds and the excavated bowls from St Martin-in-the-Fields in London, and the Prittlewell chamber grave, Essex, which post-date the compilation of Bruce-Mitford's *Corpus*, and are still increasing (Bruce-Mitford with Raven 2005; Youngs 2009, 206).

The Tranmer House hanging bowl by profile and rim form is part of Bruce-Mitford's Group A, the simple rim having the characteristics of his variations 3 and 5 (Bruce-Mitford with Raven 2005, 10–11, figs b–c). Group A is extensive and includes all the examples of openwork hook-mounts. By diameter and height it is classified as a large bowl, which may well reflect its primary function. The body metal is thin, while the transitions into the rim and raised base are crudely made by comparison with demonstrably later bowls. The form compares with a bowl from Chessel Down, Isle of Wight (*ibid*., no. 32, 156), a vessel dated by associated finds to the 6th century. It is a simple piece compared with the rounded forms and complex folded rims of the Group B bowls that carry Celtic trumpet-spiral ornament (*ibid*., 10–12), an indication of greater age that, in this case, has been confirmed by radiocarbon dating of the contents (see *Chap. 7; Sect. II*).

The decoration on the mounts draws its inspiration from classical motifs originating in Romano-British provincial metalwork, the source of the crescent and lozenge that form the basic elements of the two original hook-mounts. The crescent was widely used on horse-gear and jewellery, from earrings to plate brooches (Johns 1996, 172, fig. 6.4) and remained common into the Byzantine era (Buckton 1994, 97). Lozenge motifs occur on enamelled brooches and seal-box covers in Britain, dating from the 2nd century (Wedlake 1982, fig. 36, 12; Johns 1996, 172, pl. 13), but are infrequent in late Romano-British metalwork. However, these two motifs, whether singly or in combination, are very unusual in the repertoire of hanging-bowl ornament. There is only one parallel, also in openwork, a singleton mount from Eastry (Updown), Kent (Fig. 4.1a) that had been re-modelled for wear as a pendant (Dickinson *et al*. 2011, fig. 25, no. 25, 34–5, 49). The Eastry ornament is cruder in its execution, its trellis-work carelessly drawn, and has the addition of a pair of 'sunburst' motifs, a variant of ring-and-dot, but also a motif that can be read as a ring of triangles with the Tranmer House ornament in mind (Fig. 4.1b).

Figure 4.1 *Comparanda* of hanging-bowl mounts: a) Eastry (Updown) hook-mount, Kent; b) Tranmer House hook-mount (no. 1iv); c) Hindringham basal mount, Norfolk (adapted from Bruce-Mitford with Raven 2005); d) Tranmer House basal mount (no. 1v). By CF (a), KM (b/d) and SY (c)

The combination of trellis with an inner border of triangles is found on the circular hanging-bowl disc found near Hindringham, Norfolk (Fig. 4.1c; Bruce-Mitford with Raven 2005, no. 68). Here the trellis-work has been again reduced to contiguous lozenges, its lines solid, as on the Eastry version. These minor motifs surround a central circular field of six cusped triangles, framing a clear marigold pattern, that makes more coherent the version on the basal discs on the Tranmer House bowl (Fig. 4.1d). Nonetheless, the devil is in the detail: these bowl mounts do not carry the careful, net-like pattern seen on the Tranmer House bowl, formed from disjointed grains. Reticulated patterns of the latter type occur on some uniquely Irish forms of enamelled metalwork, notably a 'latchet' from Dowris, a hooked instrument found at Stoneyford, near Kilkenny, on shield or saddle bindings from the River Shannon and Hillquarter, Co. Meath, and on the terminals of developed Irish penannular brooches (Kilbride-Jones 1980, cat. 73, 76, 78, 100; Youngs 1989, nos 24, 20, 19; Kelly 2001, fig. 24.3). In addition, an Irish latchet from the Newry group and two bracelet terminals carry the core pattern of the Hindringham and Tranmer House discs, showing a common ornamental vocabulary in uniquely Irish metalwork (Smith 1923, fig. 171; Youngs 1989, nos 25–26; Haseloff and Roth 2005, fig. 95). This is not to argue for an Irish origin, a question discussed below, but it suggests we are getting back towards common models from Roman Britain, followed by a period when British and Irish smiths shared developments, but worked with regionally distinct classes of elite object.

Confirmation of the British dimension to this complex idea comes from the enamelled 'bulls-eyes' or 'ring-and-dot', so prominent in the Tranmer House patterns. This simple motif was widely applied to early-medieval artefacts, particularly of bone, with parallels from Celtic and Germanic (including Anglo-Saxon) traditions, and antecedents in Roman crafts, including metalworking (Youngs 2008, 163, fig. 1). In Britain it figures on four other hanging bowls, those found at Baginton, Warks, Barlaston, Staffs, Caistor, Lincs, and Mildenhall, Suffolk and is a dominant element on a hanging bowl from Hildersham, Cambs (Leeds 1935; Bruce-Mitford with Raven 2005, nos 93, 77, 51, 14). In the hanging-bowl tradition, it has been identified as a typically Roman type of ornament by previous commentators, including Bruce-Mitford (Bruce-Mitford with Raven 2005, 114–15). It is a motif hardly attested in Irish metalwork.

Uses at and before burial

The hanging bowl's use as an urn represents a departure from its original function; it contained the ashes of an adult, probably a woman, together with animal remains, as well as burnt and unburnt grave-goods. In addition, it had been fitted with a lid of ash (see below, *Organic remains*) and wrapped in cloth (see below*; Sect. IV* and *Chap. 8; Sect. V*). The use of a metal bowl as a cinerary container was a relatively rare rite (see *Chap. 8; Sect. III: Metal-vessel burial*; Vierck 1972; Dickinson and Speake 1992, 119–20, table 1; Filmer-Sankey and Pestell 2001, 250, fig. 149), and at Sutton Hoo five other cremations were possibly buried in or associated with copper-alloy bowls (Carver and Fern 2005, 285–87). The best evidence for hanging bowls as cremation containers comes from Loveden Hill, Lincs, with two excavated, one 'almost brimful of cremation' (cited by Bruce-Mitford with Raven 2005, 202; Brenan 1991, 51–4; Fennel unpublished).

Dr Brenan's research showed that hanging bowls in an Anglo-Saxon context were prestige items without specific gender association, analysis which also established the ranking of hanging bowls in Anglo-Saxon inhumation burials as significant, but not as prestigious as swords or gold jewellery (Brenan 1991, 83). While this may be broadly true, at Tranmer House the cremated remains of a cow (or steer) and horse with other animals belies the other modest artefacts in the two vessels (see *Chap. 5; Sect. III: Cremated animal bone*). These funeral offerings show the high status of the individual and, by association, the contemporary value of the metal bowl. In the following century three hanging bowls were placed in the great mound 1 ship-burial at Sutton Hoo, one of which is the most technically complex vessel known. Together with a hanging bowl in the 'princely' chamber grave at Prittlewell, Essex, and another buried in a grave that included a helmet at Wollaston, Northants, they demonstrate the high value placed on these luxury items in the succeeding century. We now have evidence that this was also the case in the 6th century for cremation burials as well as inhumations. Hanging bowls used as urns range in diameter from about 247 to 300mm and the latest in terms of manufacturing style is the Group B bowl from Loveden Hill cemetery, apparently taking the use of a hanging bowl as a cremation container as late as the mid 7th century (Bruce-Mitford with Raven 2005, no. 54). Hanging bowls were much more frequently placed as accessories in inhumations, a practice with north German and Scandinavian parallels and much evidenced in 7th-century Anglo-Saxon burials (Carver and Fern 2005, 285–87).

In terms of their unknown original functions, it is certain that hanging bowls were not used over or beside a fire because their solder-fixed mounts and enamel ornament would have been vulnerable to heat damage (Freestone *et al*. 2003, 144). The elaborate folded rims of some bowls and raised hooks makes them unsuitable for drinking from directly, although they probably were intended to hold liquid, such as potent drink, to be dispensed with cups, or alternatively water for cleansing the fingers after eating, the latter use attested in the Viking period (Bruce-Mitford with Raven 2005, 31, 456–57). In 4th-century Roman Britain, a large hanging bowl was a component of a drinking set equipped with a strainer for wine in the Drapers Garden, City of London hoard (Adams 2013). The rich ornament on these luxury vessels would have made them items for the public display of status inside or outside the hall, whether for the commissioning patron or the final owner.

The wear on the rings and hooks, and the many repairs, show that this bowl had been well used when suspended; the wear is consistent with the use of cords fixed tight to one place on the rings. The evidence on all three rings of possible cord is rare evidence for how the bowl was hung up (see below, *Scientific examination*). Cord and leather tags have been found associated with four bowls from inhumations, while there are no associated chains (Brenan 1991, 34–5). There is also evidence that when not in use the bowls were hung from one hook on a wall, as was discovered in the undisturbed Prittlewell burial chamber (MOLAS 2004, 31). This would have displayed the decoration below the base.

The Tranmer House hanging bowl adds to the evidence that worn, damaged and incomplete vessels were buried after some considerable time above ground. Ten others from the known corpus were either patched or had replacement hooks, or both (Bruce-Mitford with Raven 2005, nos 30, 41, 55, 59, 66, 86, 89–90, 93; and Wollaston, Meadows 1997). The thin metal of the base was a point of weakness and had been repaired, as here, on bowls at Loveden Hill, Sleaford, Sutton Hoo mound 1 (no. 2) and Baginton. The latter has a circular plate, riveted and flooded with solder, similar to the Tranmer House base repair (Leeds 1935, 110; cf .Fig. 3.6, no. 1viii). These mended examples, together with the many others that were buried incomplete, suggest that the vessels' final burial was prompted by their condition. This might be thought to diminish the status of the offering, though equally such exotic items perhaps increased in their symbolic value as they were passed down the generations.

Date of manufacture and origin

This bowl has a particular value for understanding the still obscure history of hanging bowls thanks to the radiocarbon dates achieved for the cremated (human and horse) remains from the burial. After mathematical modelling (see *Chap. 7; Sect. II*), *posterior density estimates* of *cal AD 530–580* and *535–585* (95% probability) are given for burial (Table 7.1), with a date after *c*. 550 most probable (Table 7.2). The vessel itself was worn and repaired, and allowing perhaps some two or three generations above ground, this puts manufacture back into the period *c.* 500–530. As ever, such estimates are potentially biased by our views on the object's age at burial and the style of the ornament, but this represents a significant advance in identifying an early enamelled vessel.

Most hanging bowls have been dated by context in Anglo-Saxon burials to the 7th century, with a few exceptions (Geake 1999, over-extends the case for exclusively 7th-century deposition). The bowl from Chessel Down (grave 26) was found associated with weaponry and a copper-alloy Mediterranean pail similar to the example found in the North Field enclosure (see *Chap. 6*), which, allowing for its import and use, suggests a date for burial around or after the mid 6th century (Arnold 1982, 60–1; Mundell Mango *et al*. 1989, 307). That hanging bowls could have a long life above ground is demonstrated by that from Sleaford, Lincs, a vessel of ancient type with four, out-turned hanging loops in the Roman manner, its base completely replaced (Brenan 1991, 85–102; Bruce-Mitford with Raven 2005, no. 59). Bruce-Mitford dates this bowl as early as the end of the 5th century (Bruce-Mitford with Raven 2005, nos 32, 59, fig. 123). Wear and repairs to the Tranmer House bowl too, indicate that it was made some years before burial. It provides critical evidence for the manufacture of a Group A bowl with enamelled mounts in classical tradition, probably in the first third of the 6th century, possibly nearer 500. The simple rim form links this vessel with the early Chessel Down and Sleaford examples.

The origins of these elite items remain contentious, and the label 'Anglo-Saxon hanging bowl' is still used because of their usual find-places and the lack of workshop evidence, but this ignores core evidence from Pictish Scotland (Youngs 2009, 209–13). The techniques used, namely the fine raised bowls, lathe-polishing and champlevé enamel were not part of the contemporary repertoire of smiths making Anglo-Saxon fine metalwork, quite apart from a distinctive range of decorative motifs largely drawn from the indigenous Celtic late La Tène tradition. The improvised nature of most hanging-bowl restorations, as well as the variety found across regions and even within cemeteries, as in mound 1 at Sutton Hoo, argues strongly against the suggestion that the bowls were commissioned locally from British craftsmen, an idea that has been taken up quite widely but does not stand up to more recent evidence (Scull 1985; Youngs 2008; 2009). Some 7th-century hanging bowls certainly show the influence of Germanic taste and new techniques: for example a band-bowl from Mildenhall, Suffolk, and a bowl buried at Lullingstone, Kent (Bruce-Mitford with Raven 2005, nos 87, 43). The former has profiled heads of birds of prey on its hook-mounts, which also bear multi-strand interlace. In addition, the garnets on the largest bowl, and disc ornament on the middle-sized bowl from mound 1, Sutton Hoo, as well as the gilded interlace on one from Hadleigh Road (Ipswich), all show influence from the new dominant culture and markets in east Britain (Bruce-Mitford with Raven 2005, nos 88–89, 86, 92). But, overall, positive and negative evidence indicates that hanging-bowl design, manufacture and stylistic development took place outside the core Anglo-Saxon territories.

The use of final phase La Tène ornament with enamel persuaded some earlier commentators that enamelled vessels were made in Ireland, where the style and technique are well evidenced on other kinds of fine metalwork, notably 'latchets' and brooches. Nevertheless, similar bowls and mounts are largely lacking in this context (Bruce-Mitford 1987; Youngs 2009). What is clear is that, while there were exchanges of motifs, materials and styles between workshops in Britain and Ireland, these could be used on types of metalwork unique to each region (Ó Floinn 2001; Laing 2005; Youngs 2007). Other finds show that Ireland did not have to be the source of enamel work found in early-medieval Britain. Trading patterns for the period independently argue against Ireland as the main source (Proudfoot and Aliaga-Kelly 1996; Harris 2003, 64–9; Campbell 2007, 129–34). There was later Irish manufacture of hanging bowls, but there is a critical lack of evidence for the period of the Tranmer House bowl. By default, therefore, we must look to the British kingdoms of the north and west. The appearance in the midlands and East Anglia of distinctive bowl fittings associated with a workshop near Inverness, in Pictland, indicates the distances such vessels could travel (Bruce-Mitford with Raven 2005, 20–2; Youngs 2009, 209–13).

In conclusion, the appearance of this bowl's ornament is Romano-British, recalling the motifs of provincial enamelled metalwork. Other examples showing classical influences include vessel mounts from Kent, at Old Park, Dover, a set with dolphins and Latin cross found at Faversham, and the singleton from Eastry (Bruce-Mitford with Raven 2005, no. 37; Parfitt and Dickinson 2007, 119–23; Youngs 2011, 4–6; Dickinson *et al*. 2011, fig. 25, no. 25, 34–5). The visual impact and lasting influence of classical and Christian tradition on post-Roman metalwork in Britain and Ireland has been gaining recognition (Laing 2005; Gavin and Newman 2007; Youngs 2011, 209–13). It may be that this taste reflected

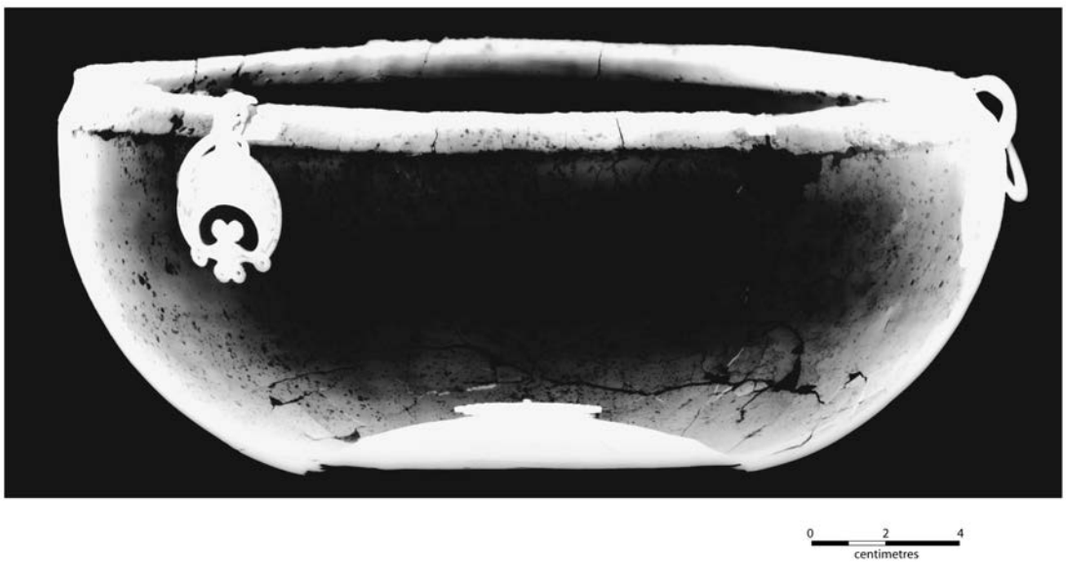

Plate VIII X-radiograph of the hanging bowl (scale 1/2). Copyright Trustees of the British Museum

the traditions of the estates and towns of southern Britain and former *Britannia Prima* to the west, before the grand Celticising phase of the 7th-century Group B bowls with their trumpet spiral decoration, a response to irreversible Anglo-Saxon advances (White 2007).

There remains the unanswerable question of how the hanging bowl in the Tranmer House cemetery and the other bowls manufactured in Celtic regions came into the economy of the Anglo-Saxon territories, whether by trade, inheritance, gift-exchange (including bride-prices), tribute or booty. Their use in burials should be broadly equated with the use of other imports acquired by the early Anglo-Saxons, vessels ultimately used as grave-goods. These include bowls of Mediterranean and Frankish origin, such as the Byzantine 'Bromeswell bucket' discovered in the North Field enclosure (see *Chap. 6*; Richards 1980; Mundell Mango *et al*. 1989; Mundell Mango 2001; Harris 2003, 64–9). Ultimately, the Tranmer House find, an early vessel that reflects a Romano-British inheritance, may have made an important claim about the status of its final owner and her family.

Scientific examination of the metal of the bowl and its enamel inlay
by S. La Niece and S. Röhrs

Optical microscopic examination and X-radiography confirms that the bowl was raised from a single piece of metal (Pl. VIII). Circular striations show that it had been polished on a lathe to finish the surfaces and probably also to true the in-turned rim. All the mounts and suspension rings were made by casting. The hook-mounts were attached with soft solder. This was identified by XRF as mainly tin, but with some lead, requiring an application temperature of between 183ºC and 230ºC. Although not conclusively confirmed by X-radiography, the circular basal mounts were probably secured by a central rivet.

The bowl and its metal components were also analysed by XRF. Cleaning was not possible, so the results are qualitative only, expressed generally. The body of the vessel is bronze, an alloy of copper with tin, with about 1% lead and trace impurities of zinc. The mounts and suspension rings are also bronze, but with several percent of lead, as would be expected of castings. They also contain slightly more than 1% zinc. The three suspension rings and the rim mount for the exterior basal mount contain several percent of zinc. There was no evidence of tinning of the mounts. Unsurprisingly, the replacement hook is not of identical composition to the originals, but it is of the same alloy type; whereas, the rings are similar enough in composition and form to suggest they are all original.

The ancient repair patches of sheet metal (see *Chap. 3; Sect. II: Cremation 8)* have a slightly different composition again. Of those examined, several are copper alloys, with tin and lead, but unlike the bowl all contain several percent of zinc. A few percent of zinc can indicate recycling of scrap metal rather than deliberate alloying and is consistent with the lack of sophistication in the repair work carried out on the bowl.

Opaque red material in the recessed cells of the mounts was analysed by XRF, after cleaning, but was found to be heavily corroded. In broad terms, the composition was high in copper, lead and silicon, accompanied by small amounts of aluminium, calcium, titanium and tin, with traces of zinc and iron. British and Irish artefacts of the 6th/7th century are often decorated with red enamel made from high-lead, high-copper red glass. In such enamels dendritic cuprite crystals form in a lead-silica glassy matrix, and are the source of the colour and the opacity of the material. The composition of these enamels has been found to constitute (Stapleton *et al*. 1999): lead (30–70%), copper (9–42%), silicon dioxide (13–32%), tin oxide (<0.1–17%), and calcium and potassium oxide (*c*. 1%). The opaque red material on the Tranmer House mounts, therefore, appears to be made from this type of glass. Small differences in this case, such as the absence of potassium, can be explained by the enamel's corroded state.

Organic remains with the bowl
by H. Bullock and C.R. Cartwright

The fragmented remains of a wooden lid were recorded about 10mm below the interior rim and beside replacement hook no. 1ii (Pl. VIIf). Although in poor condition, this has been identified as ash (*Fraxinus excelsior*). Some edge pieces appeared shaped to match the bowl rim and were stained by copper corrosion. They were very thin and warped, approximately 1–3mm thick, probably due to shrinkage. All had round holes or depressions, 1–2mm in diameter, some penetrating the wood, but these were much deteriorated with no surviving tooling. Nevertheless, their arrangement and uniformity suggested they were not the result of insects, but were functional or decorative. It is possible they represent evidence for construction or the means of attachment of the lid to the bowl, though there was no cord or fibres. Furthermore, the fragment near the hook had two strips of wood at right angles, either side of the mount, which may be further evidence of the lid's construction.

Also, there are traces of unwoven and fibrous organic remains on all three suspension rings, possibly from cord, but the material has not been identified. Conceivably, this relates to a system of suspension. In addition, textile remains were found (see below*; Sect. IV* and *Chap. 8; Sect. V*).

Copper-alloy fragments
by A.C. Evans and C.J.R. Fern
(Figs 3.6, 3.36, 3.35, 3.38, 4.2)
Fragments of copper-alloy sheet, some burnt, together with melted globules were found in cremation 8 and three other graves (inhumations 14, 29 and 30). Such remains occur quite frequently in cremation burials, as at the Spong Hill cemetery, Norfolk, and whilst some certainly derive from metal bowls or buckets burnt on the pyre, most cannot be identified with certainty (Hills 1977, 26; Hills et al. 1994, 18, 32–3; Hills and Lucy 2013, 83–90; see also Davison et al. 1993, fig. 41).

In cremation 8, fragments and globules were distributed between the bone containers and surrounding 'post-holes' (Figs 3.4, 3.6). Two pieces (nos 7iv, 10) of thick sheet may be from metal bowls, with no. 7iv possibly a fragment of rim; for comparison, the hemispherical bowl from the mound 17 grave at Sutton Hoo has a rim of similar thickness (Evans 2005, 246, no. 18, fig. 107). The majority of the sheet is thinner (nos 3, 7i–iii, 11, 14–17, 19). Three fragments have matching punch marks (nos 3, 13, 16) and one has line ornament also (no. 3), and they are probably from one object. Another has a neat hole (no. 17). A composite fragment (no. 7v) is from the rim of a vessel, potentially a cup, drinking horn or bucket. However its size and curvature fit best with the 'top hoop' fittings of small wooden-stave buckets, and this is true also of the punch decoration on the three fragments (nos 3, 13, 16) (cf. Cook 2004, 35–41, figs 1–2). The combination of punched triforms and annulets they show is rare in East Anglia though, and known only on other object types; for example, on a great square-headed brooch from Kenninghall, Norfolk (Hines 1997, pl. 53a), and on a wrist-clasp from Lakenheath, Suffolk (West 1998, fig. 110.11).

Figure 4.2 shows a reconstruction of the possible bucket. Decorated strip no. 13 and possibly strip no. 11 are suggested as 'upright' fittings, as in Cook's corpus (2004, 37, figs 1–2, cf. figs 8, 10, 12, 17). The two triangular pieces (nos 3, 16) could be 'appliqués' (ibid., 40–1, figs 1–2), albeit neither has evidence for attachment. The form and placement of the larger (no. 3) is not directly paralleled in the bucket corpus, though the form of Y-shaped uprights on a small number of buckets may be analogous (Cook Type D: 2004, 37, figs 3d, 8a; see also grave 34, Wakerley, Northants: Adams and Jackson 1988/89, fig. 33). Buckets with copper-alloy fittings have been mostly found in graves of 6th-century date, with adults, and were probably status items (Stoodley 1999, 33, fig. 33; Cook 2004, 43–4).

The copper-alloy fragments (nos 11, 13ii, 16i–iii) in inhumation 30 were perhaps part of a curated collection placed at the head of the grave. A possible bucket mount (no. 16i) is suggested by an original site sketch (Fig. 3.38), though the find is now in fragments. Its abstract *Pressblech* design might have been based on the motif of a bearded face known from other triangular bucket and drinking-horn mounts (Cook 2004, fig. 17d–e). One of two thicker strip fragments (nos 11, 16ii) has ring-and-dot decoration. Both may be tentatively suggested as bucket fittings, too (cf. *ibid*., 37, fig. 2), and as they have been heat-affected probably derive from a cremation, like the very small fragments and globule from inhumation 29 (see Chap. 8; Sect. IV: Backfills).

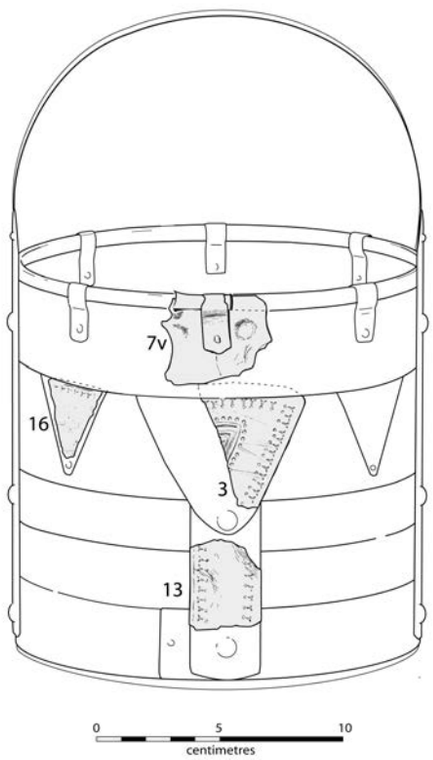

Figure 4.2 Conjectured reconstruction of the possible bucket remains from cremation 8, from the principal surviving fragments (scale 1/3). By CF and KM

Brooches and pendants
by A.C. Evans and C.J.R. Fern
(Figs 3.17, 3.29, 3.36; Pl. IX)
Three graves (inhumations 19, 26 and 30) contained a total of three or four brooches, a small number, even given the limited cemetery sample (for costume see Table 8.5 and *Chap. 8; Sect. V*). This includes a fragmentary roundel from inhumation 26 (Fig. 3.29, no. 2; Pl. IX) that is most likely from a brooch, but was probably worn as a pendant. Inhumation 30 also had the remains of at least one pendant. Brooches and pendants were typically female-gender accessories in the period (Stoodley 1999, 33–5, 42–3, fig. 34).

Three of the brooches are flat annular types with punch decoration. A fragmentary, matching pair was found at the shoulders in inhumation 19 (Fig. 3.17, nos 1, 2), and a smaller singleton from inhumation 30 (no. 2) was part of a costume with an iron pin and possibly beads. The punch decoration on them is consistent with other examples from East Anglia (e.g. West 1998, figs 26.2, 30.8, 33.3, 34.4; Filmer-Sankey and Pestell 2001, 43, figs 79d, 80e). The inhumation 19 examples have iron pins, housed in slot-shaped perforations. One (no. 1) is possibly a replacement as it was attached on the wrong side, meaning the decorated surface would have faced inwards when fastened. The inhumation 30 brooch (Fig. 3.36, no. 2) has a round perforation for the pin (visible in x-ray). All are examples of Leeds' 'large flat' Type G (1945, 46–9). Scull (2009, 87) dates examples at the Boss Hall cemetery, Ipswich, to the first three-quarters of the 6th century. At Tranmer House the associated beads in both graves indicate the same period: Brugmann's Bead Phase A2b (*c*. 530–580; see below).

Plate IX Silver-sheet brooch/pendant from inhumation 26 (scale 1/1). Copyright Trustees of the British Museum

The fragmentary silver-sheet appliqué from inhumation 26 bears a motif of running spirals around a central collared roundel. It may be the front-plate from an applied saucer brooch but no back-plate or pin were found to indicate a whole brooch was buried. It could have been worn with the beads as a pendant, therefore. The applied saucer-brooch form originated on the Continent in the 3rd to 4th centuries (Evison 1978 pt I, fig. 3; pt II, 270). In England, it has a distribution focused on the Upper Thames Region and South Midlands (Lucy 2000, 135–39, fig. 5.6b), though twenty-seven examples from the Mucking II cemetery, in Essex, indicate a significant presence outside these regions (Hirst and Clark 2009, 481–82). Like the related cast saucer-brooch form it has strong 'Saxon' associations and is a rare type in East Anglia (*ibid*., 684–87; Dickinson 2010, 183, figs 8–9). Running-spiral (or scroll) designs, though common on cast saucer brooches, with five spirals the norm, are rarer on applied brooches (Evison 1978, pt II, 264; Dickinson 1991). A continental applied brooch with eight spirals is that from Andernach, Germany (Evison 1978, pt I, pl. XLIb, grave 14), though more similar to the Tranmer House example is a ten-spiral brooch from Mucking, for which a 5th-century date has been suggested (Hirst and Clark 2009, 36, 482, figs 19, 251, grave 355). Most significant in this case is the piece's manufacture in silver, as front-plates of silver have been suggested as 'characteristic of the continental stage of development' and are rare in England (Evison 1978 pt II, 263). An early date is at odds with the associated beads from the grave, however, of Brugmann's Bead Phase B2 (*c*. 580–650; see below). In sum, then, the roundel could represent the last remnants of an early Saxon import, or just possibly it was made later as a pendant from an old die. Certainly, it was being worn long after the main fashion for such brooches had ended.

The original 'bead plan' for inhumation 30 shows a sub-rectangular object, 27mm x 8mm (Fig. 3.36, no. 4), that was most likely one or more pendants. Only fragments of silver and copper-alloy sheet now survive. The silver are punch decorated with possibly part of a hole for suspension. Simple sheet-metal pendants are relatively common with bead collections, including examples from graves at Snape (Filmer-Sankey and Pestell 2001, 44, 71, figs 89, 99, graves 11, 27).

Toilet items

by A.C. Evans and C.J.R. Fern

(Fig. 3.29)

A pair of plain copper-alloy tweezers was found at the left 'thigh' of the sand body in inhumation 26 (no. 3), a female-gender burial. Linen cord was found between the damaged arms (see below *Sect. IV*; Table 8.5).

Tweezers are relatively common grave-goods. The East Anglian cemeteries of Morning Thorpe, Spong Hill and Westgarth Gardens combined have produced seventeen pairs from inhumation burials, that in the 'Four Cemeteries' study mostly occur in graves of Phase MA2 (c. 510–560/70; Penn and Brugmann 2007, 36). They have been found predominantly in male burials, though can form part of female equipment (Evison 1987, 118; MacGregor and Bolick 1993, 220–25).

Buckles and belt-fittings

by A.C. Evans and C.J.R. Fern

(Figs 3.11–3.12, 3.14–3.15, 3.18, 3.21, 3.24, 3.26, 3.29–3.30, 3.32, 3.37, 3.40)

Seventeen iron buckles were found in fourteen inhumation burials; three burials contained two each (Table 4.1; inhumations 24, 30 and 32). Most of the buckles are small, oval or D-shaped forms, Types I.10 and I.11 in Marzinzik's classification (2003, 29–34, 54, maps 8–12). These types were common in the period. Five others have rectangular metal belt-plates (Table 4.1; inhumations 17, 19, 21, 27 and 30), and are examples of Marzinzik's Types II.19a and II.20 (2003, 46–7). More unusually, the buckle from inhumation 24 (no. 7) was possibly backed by a yew wood strip (see *Chap. 8; Sect. V*). They came from three female-gender and ten male-gender burials, mostly the graves of adults or subadults based on the body stains/sand bodies, with two exceptions (inhumations 15 and 18), probably the graves of immature individuals.

In East Anglia, buckles with iron plates mainly date to the 6th or early 7th centuries (Penn and Brugmann 2007, 32; Marzinzik 2003, 46–8). Those from inhumations 19 (no. 5) and 27 (no. 7) have single copper-alloy, disc-headed studs riveted through their iron plates. A parallel for the example from inhumation 27 is that from Edix Hill, grave 36, Cambs (Malim and Hines 1998, fig. 3.47.7; Marzinzik 2003, pl. 119.2). The buckle from inhumation 21 with its bridge-shaped plate is a rare form. It was associated with the sword in the grave and its parallels are also from weapon-burials. One is that from grave 112 at Lechlade, Glos (Boyle et al. 1998, fig. 5.79, no. 3). Another comes from grave 264 at Buckland II (Dover), Kent, a burial that also contained a sword, and which has been dated to around the middle of the 6th century (Parfitt and Anderson 2012, 405, fig. 10.20d, table 8.18). The Buckland buckle has silver sheet on the middle-section of its plate, and the inhumation 21 buckle has silver corrosion and an impression in the same location, suggesting it too was originally decorated with silver sheet.

Inhumation 30 included one buckle with damaged iron plates (no. 5ii), and a second (no. 9) associated with two disc-headed belt-studs decorated with silver sheet (Fig. 3.36, plan A; for a reconstruction see Fig. 3.37). A heat-affected stud (Fig. 3.9, no. 5) from ring-ditch *[597]* may be from a belt, too, though given the horse remains from the associated grave (cremation 13), it could also

Grave	*Marzinzik (2003)*	*Plate*	*Comment*	*Position in grave*
Inhum. 14	*Type I.11c*		closed	centre ?waist
Inhum. 15	*Type I.11a-i*		closed	?waist
Inhum. 16	?*Type I.11b*		closed	centre waist
Inhum. 17	*Type II.19a*	rectangular	pointing left; closed	centre waist
Inhum. 18	*Type I.10b-i*			?waist
Inhum. 19	*Type II.19a*	rectangular	small disc rivet; open	right of ?waist
Inhum. 21	*Type II.19a*	narrow, bridge-shaped, square section	three rivets; closed	centre waist; originally with sword
Inhum. 23	*Type I.11a-i*		closed	right waist
Inhum. 24	*Type I.10b-i*	yew wood adhering (plate?)	closed	centre waist
	Type I.10a-i		shield-strap buckle; closed	neck; with shield
Inhum. 26	*Type I.11b*		closed	waist
Inhum. 27	*Type II.20*	rectangular	large silvered disc rivet; open	with sword/knife
Inhum. 28	*Type I.11a-i*		shield-strap buckle; closed	under shield
Inhum. 30	*Type II.19a*	rectangular	closed	with girdle-set
	Type I.11a-i		two large silvered disc rivets; pointing right; closed	centre ?waist
Inhum. 32	*Type I.11a-i*		two belts, or buckle from shield carrying-strap; both closed	left waist
	Type I.11b			centre waist

Table 4.1 Details of buckles

have come from horse-harness, or a shield-fitting is possible (Dickinson and Härke 1992, 27; Fern 2005, 53, figs 5.10–5.11). Buckle no. 5ii from inhumation 30 was found close to a girdle-set and fragments from two or three copper-alloy strap-ends (Fig. 3.35–3.36, no. 8). Similar strap-ends are well paralleled, and in East Anglia their fashion has been dated predominantly to the first half of the 6th century (Penn and Brugmann 2007, 32). They might have terminated straps that fastened the girdle-set to the belt or fulfilled a purely decorative role (Marzinzik 2003, 64; Walton Rogers 2007, 125, fig. 4.16).

Most of the buckles had probably fastened belts at the waist given their positions, and that most were found closed and with probable leather remains (i.e. 'skin product'). The orientation of only two of these could be established from the records, the inhumation 17 buckle pointed left (based on its belt-plates); the inhumation 30 buckle pointed right (based on its associated silvered studs). In inhumation 32, two buckles were found at the waist, a rare occurrence (Marzinzik 2003, 59–60). This may indicate two belts worn with different layers of clothing, though alternatively one could have come from a shield carrying-strap, given the position of the shield-fittings in the grave, like the examples in inhumations 24 and 28 (see below, *Shield construction*).

Several other buckles probably also served non-costume functions. The buckle in inhumation 19, a female-gender burial, was at the side of the body and like that in inhumation 30 might have been with girdle equipment, but in this case perhaps of entirely perishable material (Figs 3.17, 3.35–3.36). In inhumations 21 and 27, the buckles were probably from unworn swords with sword-belts. The buckle-tongue of the inhumation 27 example is corroded in the open position, and the inhumation 21 buckle has remains on its underside from a strap running at right angles; in both instances the sword-belt had possibly been wrapped around the scabbard, as was the case in the mound 17 burial at Sutton Hoo (Evans 2005, 215, fig. 101).

Knives

by A.C. Evans and C.J.R. Fern

(Figs 3.10, 3.12–3.13, 3.15 3.18, 3.20–3.21, 3.24, 3.26, 3.28–3.30, 3.32, 3.37–3.40)

Knives are the most common grave-good in early Anglo-Saxon cemeteries. Sixteen were found at the site (Table 4.2). Of the three inhumation burials without one, two were probably the graves of immature individuals (inhumations 15 and 22). In addition, a second 'blade' fragment (no. 15i) was found in inhumation 30. It resembles the tip of a broad knife, but it has no cutting edge and a flat cross-section, so cannot have functioned as such; nor is it from a weaving batten (P. Walton Rogers pers. comm.).

The knives can be allocated to four of the six blade forms (Fig. 4.3: Types 1–4) proposed by Evison (1987, 113–16). The predominant form at Tranmer House is Type 1 (knife with a curved back and cutting-edge). Another five examples are of Type 3 (angled back, curved cutting-edge); two are of Type 4 (curved back, straight cutting-edge); one is a Type 2 (straight back, curved cutting-edge).

Evison's typology was based on her analysis of the Kentish cemetery of Buckland I (Dover), but it has since proved generally applicable to the East Anglian region also (Penn 2000, 55–7; Penn and Brugmann 2007, 34; Scull 2009, 107–8). Types 1 and 2 were current from the 5th century onwards, with the Type 3 blade-form in use from the start of the 6th century. Evison dated the Type 4 blade-form to the 7th century, though the newer findings from Buckland II recorded an example in an earlier grave, possibly of the later 6th century (Riddler 2012a, 165). Also, at Mucking II, Essex, the type was thought to occur from the early 6th century (Hirst and Clark 2009, 546–48).

Härke's (1989) study of knives demonstrated a correlation between blade size and the status of the buried individual, according to age and sex/gender. For Tranmer House, blade-length range is 55–113mm, equating with knives of his Class 1 (small: 45–99mm) and Class 2 (medium: 100–29mm). The sample in this case appears to reflect the trend, observed by Härke, of longer knives with

Grave	*Evison (1987)*	*Härke (1989)*	*Blade length (mm)*	*Gender*	*Position in grave*
Inhum. 14	*Type 1*	1	94	male	left of buckle, ?waist
Inhum. 16	*Type 3*	2	105	male (immature)	lower chest, left of buckle
Inhum. 17	*Type 1*	1	90	male	lower chest, left of buckle
Inhum. 18	*Type 1*	1	55	male (?immature)	left of buckle, ?waist
Inhum. 19	*Type 1*	1	96	female	left waist
Inhum. 20	*Type 1*	1	70	male	lower chest (no buckle)
Inhum. 21	*Type 2*	2	104	male	right waist
Inhum. 23	?*Type 1*	incomplete		male	right of body
Inhum. 24	*Type 3*	2	108	male	waist, left of buckle
Inhum. 25	*Type 3*	1	70	male	left waist (no buckle)
Inhum. 26	*Type 1*	broken		female	waist, left of buckle
Inhum. 27	*Type 4*	1	90	male	left of chest, with sword
Inhum. 28	*Type 3*	1	94	male	left waist (no buckle)
Inhum. 30	*Type 4*	1	80	female	with girdle-set, left of ?upper leg
Inhum. 31	*Type 2*	1	75	female	left waist (no buckle)
Inhum. 32	*Type 1*	2	113	male	lower chest, left of buckle

Table 4.2 Details of knives

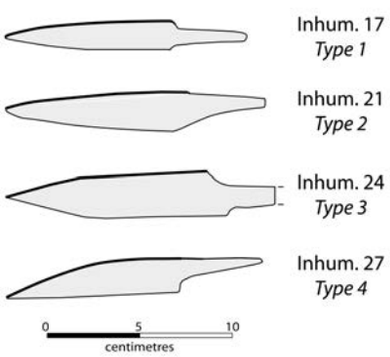

Figure 4.3 Knife forms at the cemetery. Types after Evison 1987 (scale 1/4). By CF

mature adults. The four Class 2 knives were all with 'males' as indicated by grave-goods, and based on teeth remains three of these were mature/older adults (inhumations 21, 24 and 32). However, the fourth was found with a probable older juvenile, in inhumation 16. Of the Class 1 examples, smaller blades (70–80mm) were found with both 'males' (inhumations 20 and 25) and 'females' (inhumations 30 and 31), but the longest example (96mm) was from a grave with female costume (inhumation 19). The smallest knife was found with a probable infant/juvenile (inhumation 18).

Mainly the knives occurred in the waist or lower chest region, some close to buckles, and predominantly on the left side. This suggests they were either attached to belts or tucked into a cummerbund or similar (see *Chap. 8. Sect. V*; Walton Rogers 2007, 220). However, in inhumations 27 and 30 the knives might have been with an unworn sword-belt and girdle-set, respectively. Most had mineral-preserved evidence for sheaths, probably of leather (i.e. 'skin product': see below, *Sect. III*), and horn handles (Table 4.14).

Girdle accessories

by A.C. Evans and C.J.R. Fern

(Fig. 3.37)

Iron rings were found in inhumations 26 (no. 6) and 30 (no. 10), one in each grave. These are frequent finds in the graves of adult females, normally occurring at the left waist, as was the case here (Marzinzik 2003, 65). Both have traces of possible leather, and perhaps served as belt-rings for the suspension of objects.

In inhumation 30 a girdle-set (no. 5) was unworn, found in the region of the left upper leg. It included a combination of items, as is common, with two keys (or 'latch-lifters'), a knife (no. 6), a buckle (no. 5ii), and several strap-ends (no. 8). Girdle-sets occur in similar positions at other cemeteries, for example at Edix Hill, Cambs (Malim and Hines 1998, figs 3.78, 3.80, 3.84, graves 69, 79, 106; Meaney 1998). The larger key has a C-shaped, finger-crooked ward and a curlicued terminal; the smaller key has a simpler curved ward and bowed shaft. These are simple forms in contrast with some multi-pronged keys from Suffolk (see West 1998 figs 77.20, 78.1, 78.2, 113.5). Close parallels locally for the larger key are provided by examples from Boss Hall, Ipswich, graves 94 and 97 (Scull 2009, 18, 103, fig. 2.22, 2.27). Both have probable leather remains (i.e. 'skin product') on their suspension rings, presumably from a belt or other strap-work.

It has been suggested such keys were for chests or boxes rather than doors (Hirst and Clark 2009, 545–46), and their association with adult females, typically in burials with other grave-goods indicative of status, has been interpreted as signifying a 'head of household' role (Stoodley 1999, 111; Marzinzik 2003, 66; Hirst and Clark 2009, 750). However, others have argued most keys in this period were probably non-functional, being instead symbolic (see Leahy 2007, 202–3). A certain rank, regardless, may be inferred for inhumation 30 (see also *Chap. 8; Sect. IV: Multiple burials*). In East Anglia, iron keys in burials largely date to the first half of the 6th century (Penn and Brugmann 2007, 30).

Iron fittings
by A.C. Evans, C.J.R. Fern, J. Hood and H. Bullock
(Figs 3.2, 3.19, 3.38)
Eight iron staples (nos 12i–vi, 17i–iii) were found at the head-end of inhumation 30. Comparable examples have been found in inhumation and cremation burials at other sites (Hills 1977, fig. 125; Hills *et al*. 1987, fig. 102; Hills *et al*. 1994, fig. 117; Filmer-Sankey and Pestell 2001, 88, figs 62–3; Hirst and Clark 2009, 43, 138, 375 fig. 22, 72, 196). The staples' short arms are mostly hammered over, flush. Wood evidence (*Fraxinus excelsior*) on interior and exterior surfaces (the short sides), the grain at right angles, strongly suggests they were originally arranged along a plank, despite their scattered distribution in the grave (Fig. 3.35). However, their proportions are not uniform, and they suggest a variable thickness (10–20mm). In addition, one has an unflattened tip on which the wood-grain direction changes, perhaps evidence that it had also penetrated a backing, bracing timber. At Snape a related, better-preserved instance was found in grave 37, of six staples arranged along a 'tapering' stain over the burial's foot-end, that was interpreted as the remains of staple-joined boards (Filmer-Sankey and Pestell 2001, 88, fig. 105). Similarly, at Mucking II in grave 497 up to five staples had 'possibly…repair[ed] a split in a plank' (Hirst and Clark 2009, 43). The iron fittings (no. 5) from inhumation 20 have wood preserved on their underneaths also, showing they too ran along the grain of a wooden object, and it is possible they also represent a repaired piece of wood. The evidence from both graves, then, could indicate the reuse of old timber in coffin or grave-lining construction, or perhaps more likely for planked covers, with the disordered layout of the fittings in both cases the result of the eventual collapse of the suspended mantle.

Ash wood (*Fraxinus excelsior*) on one side of a 'latch' (no. 13i) also from inhumation 30 shows that it had rested flat against a wooden object. It possibly, with the nail (no. 14) associated, came from a box without other metal fittings, a container perhaps for the grave's scrap objects (nos 11, 15, 16). However, its form is not paralleled by known box furniture of the period (cf. Watson and Edwards 1990, 104–5, fig. 3). Furthermore, the same wood type was preserved on one side of the 'blade' fragment (no. 15i) from the grave, which might indicate this object was contained in the 'box' (though it also had textile on it), or alternatively that both objects had rested on a wooden grave-base lining.

Pins
by A.C. Evans and C.J.R. Fern
(Figs 3.13, 3.37)
An iron pin (no. 5ii) with a scrolled head (or coiled head) was found in inhumation 16, the weapon-burial of a juvenile. It was corroded to a knife at the lower chest and possibly had been originally tucked with it into a cummerbund or similar (see *Chap. 8. Sect. V*; Walton Rogers 2007, 220). A specific fashion for scroll-headed pins in male burials is apparent locally and elsewhere, that is contrary to the predominant association of pins with female costume in the period (Stoodley 1999, 34, fig. 34; Walton Rogers 2007, 59). Two were recorded at the Boss Hall cemetery, Ipswich (Scull 2009, 91). A function as cloak pins has been proposed, though they are typically found out of position, as in this case, i.e. not at the neck or upper chest (*ibid*., 91). An alternative explanation, offered by Walton Rogers (2007, 126), is that their frequent association with knives in burials means they may represent an item of 'cutlery' (see also *Chap. 8; Sect. V*).

A garment pin (no. 7) was found in inhumation 30 close to an annular brooch and human teeth (Fig. 3.35–3.36). Its length falls in the mid range for pins of the period, of which there are many types, and it is possible its head was originally looped, curled or knopped (Walton Rogers 2007, 126, fig. 4.17a). In addition, a tip fragment (no. 5iv) of a possible second iron example was found in the same grave, but as it was part of a girdle-set a different interpretion as a cutlery pin or awl is possible.

Shields
(Figs 3.11, 3.14–3.16, 3.20, 3.22–3.23, 3.25, 3.27–3.28, 3.30–3.35, 3.41)
Shield remains were found in eleven of the fifteen 'male' inhumation burials (Table 4.3). The metal components comprise bosses, hand-grips, board mounts, strap-fittings and buckles. They have been studied using the typology of Dickinson and Härke (1992), as well as by that more recently proposed by Høilund Nielsen (in Penn and Brugmann 2007, 22–3). In addition, aspects of their manufacture are reported and discussed below in two separate studies (see *Metallurgical analysis* and *Shield Construction*).

The shield-bosses are illustrated together in Figure 4.5. The majority are examples of Dickinson/Härke Type 3 (inhumations 16, 20, 23, 27, 29 and 32: inhumation 20, no. 2; all others, no. 2i). Key features of the type include convex cones, straight walls (sloped or vertical) with overhanging carinations, disc-headed flange rivets, and apices topped by discs (Fig. 4.4; Dickinson and Härke 1992, 15, fig. 10). In the East Anglian 'Four Cemeteries' study (Penn and Brugmann 2007, 22–3), Høilund Nielsen's analysis further divided the Type 3 category into 'Convex Sloped' (COS) or 'Convex Vertical' (COV) forms, on the basis of a sloping or vertical wall, both of which she dates to Phase MA2 (*c*. 510–560/70). These forms were succeeded by bosses of Dickinson/Härke Type 6 (1992, 20, fig. 14; Høilund Nielsen equivalents CAS/SOS). This type is not truly represented amongst the Tranmer House bosses, but an example was found in the grave under mound 17 at Sutton Hoo (Fig. 4.5; Carver 2005, 245, fig. 104). Given the proximity of the two cemeteries, the date of the Sutton Hoo Type 6 boss can be said to provide a local *terminus ante quem* for the typologically earlier Tranmer House shield-bosses, therefore, with the mound 17 grave thought likely to date from *c*. 610 on current evidence.[2]

However, four bosses (inhumations 14, 21, 24 and 28: all, no. 2i) may be suggested as intermediate forms ('Type 3*' in Table 4.3), as they demonstrate similarities to the later Type 6 form, but retain characteristics of Type 3

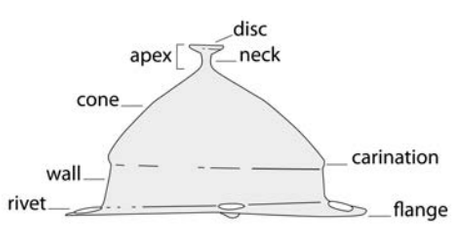

Figure 4.4 Shield-boss terminology (after Dickinson and Härke 1992) (scale 1/4). By CF

Grave	Bosses		Decoration	Board mounts	Position in grave
	Dickinson / Härke (1992)	*Høilund Nielsen (in Penn and Brugmann 2007)*			
Inhum. 14	*Type 3**	*unclassified*	trace remains on apical disc: ?silver sheet	2 x 2 discs	upper ?chest/neck (inside burial-container)
Inhum. 16	*Type 3*	*COS*		2 x 2 discs	right shoulder
Inhum. 17	*Type 1/3*	*COS*	silver sheet on apical disc	2 x 2 discs; 3 copper-alloy strips, on ?reverse	left chest
Inhum. 20	*Type 3*	*COS*	silver sheet on apical disc		neck/head
Inhum. 21	*Type 3**	*COV*	copper-alloy apical disc and flange rivets with gilding and silver sheet (Bichrome style); Style I on disc	2 x 4 copper-alloy discs; 1 bird & 1 'fish' in Style I/II; all Bichrome style	neck/head
Inhum. 23	*Type 3*	*COS*	trace remains on apical disc: ?silver sheet	2 copper-alloy discs and central lozenge with silver sheet	head
Inhum. 24	*Type 3**	*unclassified*	silver sheet on apical disc and rivets	2 x copper-alloy triple discs with silver sheet	neck/head
Inhum. 27	*Type 3*	*COS*		2 x 2 discs	Right shoulder (at an angle; on container-lid or set vertical)
Inhum. 28	*Type 3**	*unclassified*		2 x 2 discs (large)	upper chest/neck
Inhum. 29	*Type 3*	*COS*		2 x 3 discs	upper chest/neck
Inhum. 32	*Type 3*	*COV*	silver sheet on apical disc	2 x 2 discs	left upper leg
Sutton Hoo md 17	*Type 6*	*SOS*		2 x 2 discs	left shoulder

Table 4.3 Details of shield-bosses and other fittings (fittings are iron unless indicated)

bosses also. All have straight-sided cones with large apical discs, smaller than normal flange rivets (*c*. 12mm), that on the inhumation 21 boss are of copper-alloy and set on a narrow flange, and two have slight overhanging carinations (inhumations 21 and 24). In particular, three bosses have profiles that appear antecedent of the mound 17 boss (inhumations 14, 24 and 28), and like it also the boss from inhumation 14 has only four rivets instead of the usual five, two of which were used to fasten the hand-grip (see below, *Shield construction*). The unusual, hybrid Style I/II animal art (see below) that decorated the inhumation 21 shield implies a date for burial after the mid 6th century, and a similar date seems likely for the other three graves with this boss form based on the spearheads associated (see below). Furthermore, bosses of comparable form from East Anglia and other regions appear to have been buried around the same period.[3]

The earliest boss from the cemetery is probably that from inhumation 17 (no. 3i), as its squat, concave wall suggests derivation or influence from Dickinson/Härke Type 1 bosses (1992, 10–13; cf. Høilund Nielsen SOC3: Penn and Brugmann 2007, 22–3, fig. 5.26), though it also has the convex cone of a Type 3.

Four bosses (inhumations 17, 20, 24 and 32) have remains of silver sheet overlays (or appliqués) on their apical discs. In addition, silver or solder traces on the apices of two others (inhumations 14 and 23) indicates they probably had sheet decoration originally (see below).

Disc mounts of iron from the shield-board were found in seven cases (inhumations 14, 16, 17, 27, 28, 29 and 32). Most had been arranged in two pairs, edge-to-edge, either side of the boss (or above and below); but the inhumation 29 shield had two sets of three (Fig. 3.34). Those from inhumation 28 are of large type (Dickinson and Härke 1992, 27, fig. 18).

Silver-decorated copper-alloy mounts were found in inhumations 23 and 24: in the latter case they form a suite with the boss' silvered apical disc and rivets (Fig. 4.9). In both cases they had been set in rows, along the grain of the board wood (inhumation 23) or at a slight angle to it (inhumation 24). The higher quality of the inhumation 21 shield ornament sets it apart (see below).

In inhumation 17 three rectangles of copper-alloy sheet (no. 8) were found with the shield-fitting complex (Fig. 3.15), with wood and possibly leather attached. One at least was probably riveted to the shield-board, and so might have fastened a carrying-strap to the board, but no buckle for one was associated, as in inhumations 24 and 28 (see below), and possibly inhumation 32.

All of the shield hand-grips are Dickinson/Härke Type Ia1 forms (1992, 24–6). They are flat or have a slight curvature, and have expanded terminals.

The shield remains were in the region of the head and upper body in most cases, and as found suggest shields laid horizontal, the front surface outermost (Fig. 8.6). In several cases teeth fragments were found below the bosses or attached to hand-grips (inhumations 20, 21 and 24). In Dickinson and Härke (1992, 64–7, table 17), a shield laid over the head or chest was found to be most popular in 'Anglian' areas (East Anglia), whereas in 'Saxon' cemeteries (Upper Thames Region) shields were predominantly set over the stomach or upper legs. At the local sites of Boss Hall and Hadleigh Road (Ipswich) most weapon-burials followed the Anglian fashion (Layard 1907; Scull 2009). This also seems to have been true at Tranmer House. Exceptions to this custom were inhumations 27 and 32. In the former grave, the boss was found tilted at the edge of the coffin/burial-container stain (Fig. 3.30) and wood traces on the underside of the hand-grip suggest the shield might have been set on the

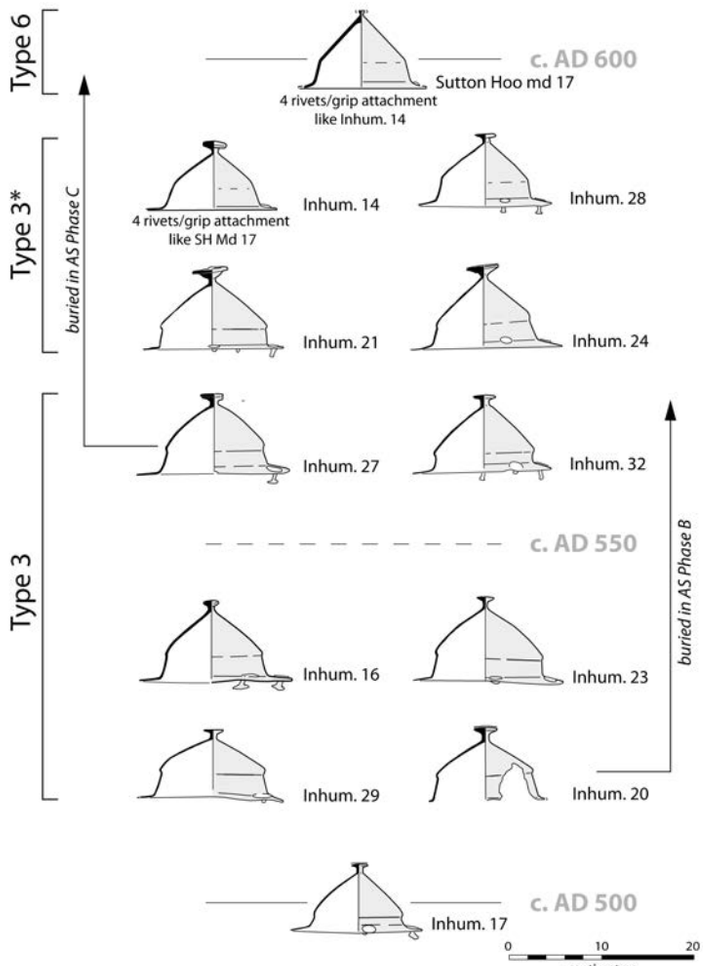

Figure 4.5 The shield-bosses from Tranmer House and the boss from mound 17, Sutton Hoo, arranged by typology (after Dickinson and Härke 1992) (scale 1/8). By CF

container's lid, or perhaps was placed vertically between the burial-container and grave edge. In inhumation 32, the shield was at the left upper leg in the 'Saxon' position (Fig. 3.40).

As shields predominantly occur in graves of adult males, and only rarely with infants and children, it has been argued they probably served as a symbol of social status (Dickinson and Härke 1992, 68–9; table 19). At Tranmer House only one was found with a non-adult in inhumation 16 (Fig. 3.13). Notably, the shield-board in this case very likely had a small diameter (see below, *Shield construction*), perhaps indicating it had been made more lightweight for the grave's juvenile occupant.

Shield from inhumation 21
by C.J.R. Fern
(Figs 3.22–3.23; Pls X, XVa)
The shield from inhumation 21 represents a high-status item on account of its suite of decorative fittings (Pl. X), including zoomorphic mounts fashioned in so-called Bichrome Style (Vierck 1977), with combination gilding and silver-sheet overlays. The position of the fittings in the grave suggest the shield's original appearance (Fig. 4.6a; cf. Fig. 3.21): the two rows of four disc mounts (nos 3–4) were aligned with the grain of the board, with the bird-of-prey (no. 6) and 'fish' (no. 5) mounts placed off-centre, projecting from the boss. Despite its rich decoration, there is no reason to think the shield would not have been fully functional. Dickinson included the animal-art fittings in her study of early Anglo-Saxon shield art (2005: site 'Sutton Hoo 018').

The apical disc (Fig. 4.7) has cast, recessed and gilded, animal ornament of Style I (c. 475–550/75: Haseloff 1981; Leigh 1984). Dickinson allocated the design to her Type B (2005, 120–3). Multiple 'readings' are possible of the deliberately ambiguous, abstract pattern. The circular field holds two quadrupeds, shown in profile, framed by raised collars mounted with sheet silver. Each has a triple-banded body and an eyed head that abuts the rear leg of the creature it pursues. An unusual detail is the combining of the forelimb with the body; when reversed with the head, the beaked head of a bird is formed. By contrast, the hind leg has a well-defined pear-shaped hip, ending in a triple-toed foot. The creatures' heads are shown 'helmeted', as is common, which may indicate they were meant to be understood as 'animal-men' (Leigh 1984). In addition, the further motif of a swastika is hidden in the composition. The deliberate mutability of Style I art has led some to suggest a potential link to cosmological, shape-changing beliefs (ibid., 40; Dickinson 2005, 149–60). Indeed, the bird, human head, swastika and quadruped (perhaps originally based on the horse) were the core motifs of the

Plate X Shield-boss and zoomorphic mounts from inhumation 21: a) iron boss with bichrome decorated rivets, and apical disc with Style I animal art; plant stems are mineral preserved in the iron corrosion; b) bird-of-prey mount; c) 'fish' mount (scale 1/1). Copyright Trustees of the British Museum

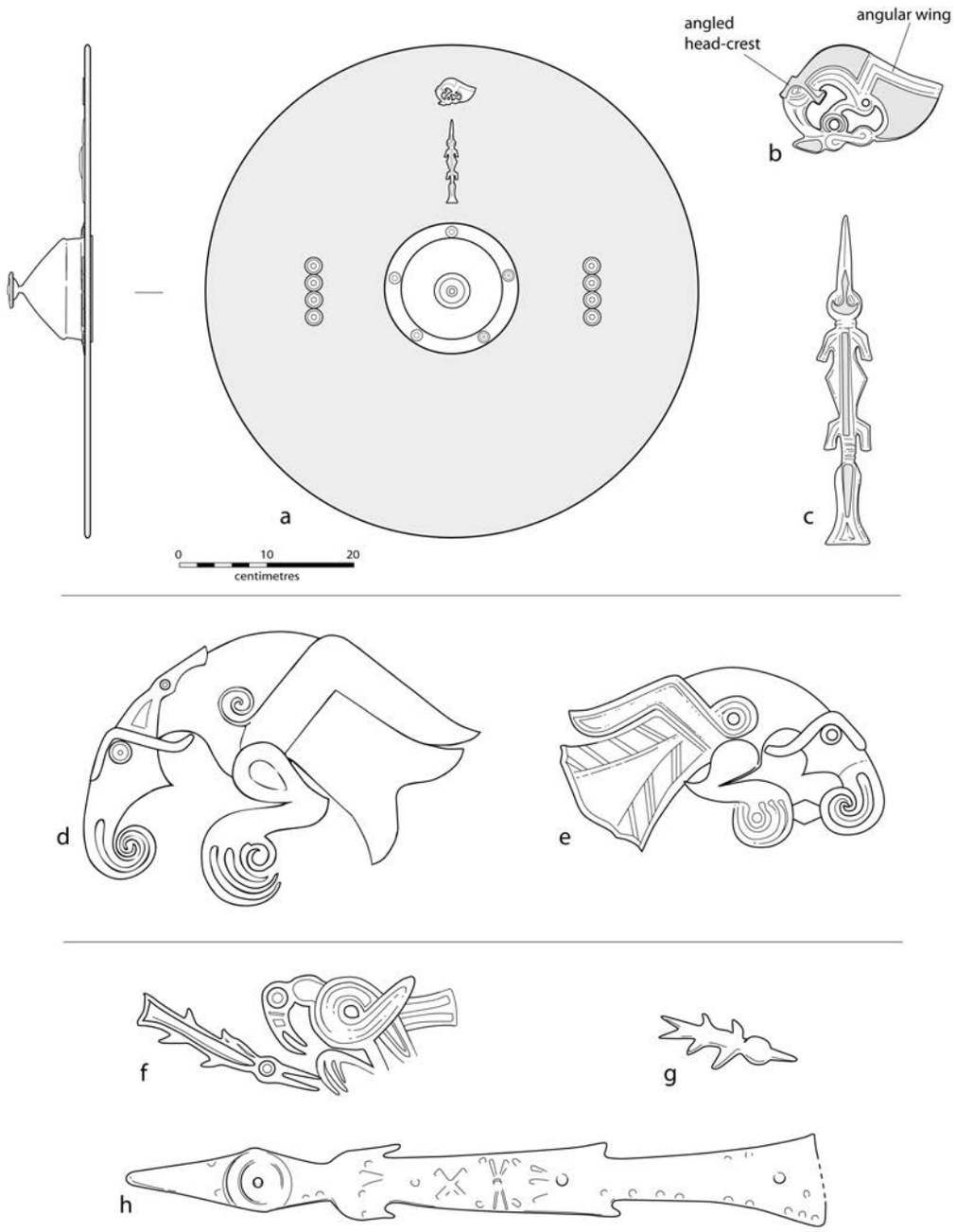

Figure 4.6 The inhumation 21 shield and select *comparanda*: a) reconstruction of the shield; b) bird-of-prey mount; c) 'fish' mount; d) bird-of-prey shield mount from Sutton Hoo (after Speake 1980); e) bird-of-prey saddle mount from Vallstenarum, Sweden (after Speake 1980); f) enlarged detail from a bracteate in the British Museum (after Dickinson 2005); g) enlarged detail from a bracteate from Zagórzyn, Poland (after Dickinson 2005); h) shield mount from grave 347 Park Lane, Croydon (after McKinley 2003)
(scales 3/1, f–g; 1/1, h; 1/2, b–c, e; 1/4, d; 1/8, a). By CF and KM

contemporary C-bracteate art of Scandinavia, the place of origin for Style I and later Style II, and are considered by some to be symbols of Odinic religion (Gaimster 1998, 25–32).

The figural bird and 'fish' mounts were undoubtedly the main display elements (Fig. 4.6b–c; Pl. Xb–c). The crouching bird of prey clutches a snake with a figure-of-eight body that it pecks with its curved beak. The head-crest (surrounding the eye), axe-shaped tail, claw and snake's head are decorated with silver sheet; for contrast the body, wing, leg and beak are gilded. These last parts have notching also, whilst the body of the snake is covered with punched annulets. Dickinson allocated the mount to her Type IIb: Bichrome birds (2005, 133–35, fig. 12). She observed particularly the significance of its 'classic Style II…Z-angled head crest', in a suite that is otherwise demonstrative of the art and technology of preceding Style I (Dickinson 2005, 135). Indeed, the bird is highly relevant to the question of the first introduction of the new animal art of Style II locally and in England, especially since Sutton Hoo demonstrates a further key example, the bird mounted on the shield from mound 1,

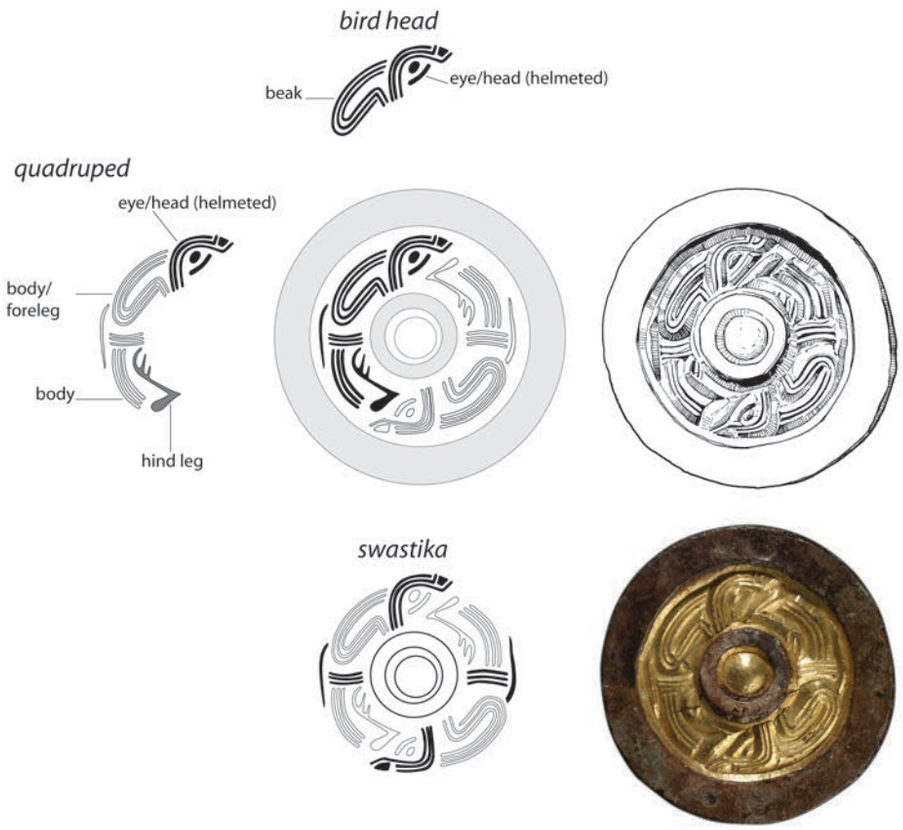

Figure 4.7 The Style I animal art on the apical disc of the shield-boss from inhumation 21. The design incorporates a bird's head, a quadruped creature with helmeted-head detail, and a swastika. By CF and KM.
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which represents an import from Scandinavia of c. 550 (Bruce-Mitford 1978, esp. 91–9; Speake 1980, 31–3, 94). In fact, Dickinson (2005, 135) has shown that the Tranmer House bird shares a distinctive feature with the Sutton Hoo bird, the angular form of its wing, a trait seen also on other Scandinavian bird mounts (Fig. 4.6b, d–e; cf. Bruce-Mitford 1978, fig. 44). Ultimately, given the immediacy of the two finds, the conclusion was drawn that the Tranmer House bird 'could have been inspired…directly by the already-imported Scandinavian [mound 1] shield' (Dickinson 2005, 157). Thus, the Tranmer House bird has claim to be amongst the earliest Style II-influenced creations of Anglo-Saxon England.

The other mount has been suggested as a stylised pike or other aquatic creature, of Dickinson Type Ib (2005, 130–33, 152–57 figs 9–10). It is amongst the most abstract and least fish-like of its group, however, with a long sword-like jaw emanating from a rounded head with oval eyes, whilst at the other end is a fantail. The bichrome effect of its combination silver sheet (now missing at the tail) and gilding, with punched annulets and notching also, is instantly reminiscent of the bird of prey. In this case, too, Scandinavian influence is possible. The 'dragon' on the imported Sutton Hoo shield might be a relation, though more alike are rare creatures occasionally depicted on Scandinavian bracteates, with the arrangement of bird and fish on an example in the British Museum to an extent analogous with the placement of the shield mounts (Fig. 4.6f–g; Dickinson 2005, 154–57, fig. 17b, e–f). The best early Anglo-Saxon parallel, albeit baser, is the shield mount from Park Lane, Croydon, Surrey (Fig. 4.6h; McKinley 2003, 73–74, fig. 40, grave 347; Dickinson 2011, 657). It too had been mounted on its board pointing outwards from the boss.

The boss rivets and board disc mounts were probably all originally fully matching, with gilded 'sunburst' decoration and silver sheet, but at some point three of the boss rivets were replaced, suggesting a repair. The replacements have a similar design, but lack the outer silvered border. In addition, some of the silver sheet overlays may be replacements (see below, Metallurgical analysis).

Finally, mention must be made of a closely-related shield from the Mill Hill (Deal) cemetery, Kent, found in grave 81 (Parfitt and Brugmann 1997, 147–48, fig. 43). The boss is similar in form (i.e. 'Type 3*: see above, Shields), and originally it too had flange rivets of 'sunburst' type. Moreover, the three bichrome bird mounts from the board are another rare example of hybrid Style I/II workmanship (Dickinson 2005, 133). Brugmann has dated the grave to 'around the third quarter of the sixth century AD' (Parfitt and Brugmann 1997, 88, fig. 23, table 11). The same horizon seems reasonable for inhumation 21 (see Chap. 7; Sects. IV–V).

Grave	*Description*	*Find no.*	*Ag*	*Cu*	*Pb*	*Au*	*Zn*	*Sn*
Inhum. 17	boss, apical disc	3i	95.8	1.8	0.2	1.7	0.2	
Inhum. 20	boss, apical disc	2	95.1	3.4	0.2	1.0	0.1	
Inhum. 21	boss, apical disc: inner band	2i (Fig. 4.8)	86.2	8.5	0.4	1.6	3.3	
	boss, apical disc: outer band		73.8	20.1	0.7	1.8	3.0	0.6
	flange rivet A		58.3	40.6	0.4	0.6		
	flange rivet B		94.4	3.6	0.2	0.7		
	flange rivet C		93.6	5.3	0.3	0.8		
	flange rivet D: centre		81.4	10.1	0.5	2.3	0.5	5.2*
	flange rivet D: outer band		93.0	5.8	0.2	0.9		
	flange rivet E: centre		93.2	4.1	0.2	2.3		
	flange rivet E: outer band		93.6	4.3	0.3	0.8		1.0
	disc-headed mount	3i	95.3	3.7	0.3	0.7		
	disc-headed mount	4iv	95.4	3.8	0.2	0.5		
	'fish' mount	5	95.1	3.8	0.2	0.6		
	bird mount	6	95.1	3.9	0.3	0.6		
Inhum. 24	boss, apical disc	2i	92.5	6.3	0.3	0.8		
Inhum. 32	boss, apical disc	2i	96.4	2.8	0.8	<0.1		

*probably solder contamination

Table 4.4 XRF analysis of the silver-sheet decoration on shield apices, flange rivets and board mounts

Metallurgical analysis of the shield-bosses and associated fittings
by J. Lang and Q. Wang

The bosses were examined by X-radiography and low-powered microscopy. There was no evidence of welds or repairs, and no inserted apices were detected as have been found elsewhere (Dickinson and Härke 1992, 32).

Visual examination and X-radiography also showed that the overhanging carinations had been made by punching on the inside of the cone. Tool marks were observed on the interior of most of the boss cones, although partly obscured by the extensive corrosion. In at least nine cases, the X-radiographs indicated some striations and unevenness in the neck, formed during the making of the apex. A metallurgical cross-section of the apex neck of the boss from inhumation 17 (no. 3i), which had become detached in the grave, showed cavities deep within it, probably formed when the cone was extended by forging to make the apex (disc). The X-radiographs, and a micro-section examination undertaken, suggest that the boss had been raised from a single metal disc (Härke and Salter 1984).

The non-ferrous elements of the shields were investigated using XRF (and in one case SEM-EDX) analysis (Table 4.4). Since this was carried out on uncleaned surfaces the results cannot be regarded as fully quantitative. The surviving sheet-metal appliqués on the boss apical discs in inhumations 17 (no. 3i), 20 (no. 2), 24 (no. 2i) and 32 (no. 2i) are all silver-copper (Ag-Cu) alloys, with lead (Pb) and gold (Au) present as impurities. In addition, the now plain apical disc of the inhumation 14 boss (no. 2i) showed traces of silver and copper, suggesting that it too probably originally had an appliqué. As the decorative sheet-metal on the apical disc of the inhumation 17 boss had become detached, this enabled the underlying surface to be examined: lead and tin (Sn) were identified, with traces of copper and silver, indicating the use of soft-solder. Similar traces were found on the plain disc of the boss from inhumation 23 (no. 2i), suggesting that like the boss from inhumation 14 it too was originally ornamented with silver-copper sheet.

The rivets, apical disc and mounts of the inhumation 21 shield suite (nos 2–6) are all decorated with a layer of gilding, overlain with thin silver-copper sheet in places, soft-soldered into position. Significant traces of mercury with the gold (Fig. 4.8a) on the sampled disc mount (no. 3i) indicates the technique of mercury gilding (see Coatsworth and Pinder 2002, 129). The detection of copper and tin, from the underlying metal base, implies the gilding is thin. Traces of a tin-lead solder (identified by SEM-EDX) were found over the gilding on the edge of the same mount (no. 3i), and continued under the silver sheet. This indicates the sequence: gilding — solder — sheet. The compositions of the silver-copper appliqués of the flange rivets and apical disc of the boss are similar but not identical (Fig. 4.8b; Table 4.4). The main differences are that, rivet A and the outer band on the apical disc contain significantly more copper (>20%), and slightly more than trace amounts of zinc (3.0%) are present in the composition of the apex-disc bands, not seen elsewhere. Of the three rivets (A–C) suggested as replacements (see above, *Shield from inhumation 21*), only the composition of the appliqué on rivet A is substantially different. However, this could represent replacement of the silver sheet, as might have been the case for the outer band of the apical disc.

The bird and 'fish' mounts (nos 5, 6) were consistent with the rest of the set. The substrate metal of the latter was analysed, and although corrosion made it impossible to quantify the composition, it appears to be an alloy of copper and tin, with small quantities of lead and zinc, and traces of gold and silver. This alloy is similar to that used for the rivets of the shield hand-grip from mound 1, Sutton Hoo (Bruce-Mitford 1983, 950). Soft-solder was again used to attach the silver-sheet overlays (Thickett 2001).

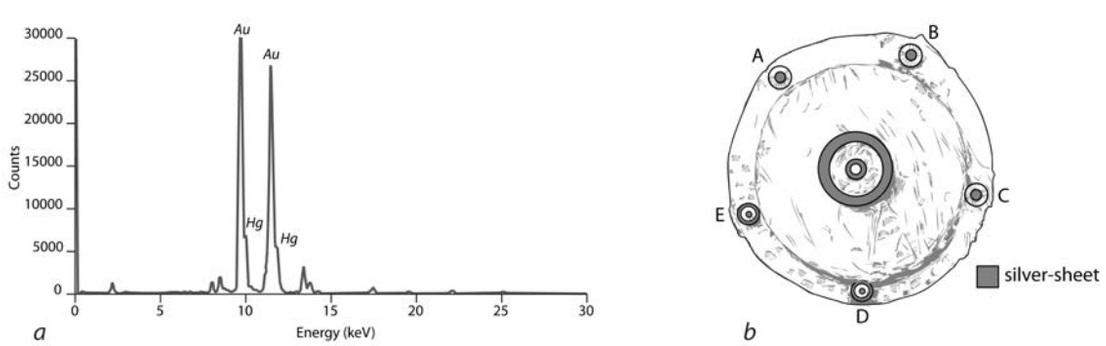

Figure 4.8 Non-ferrous analysis of the inhumation 21 shield: a) XRF spectrum of the gilt layer on disc-mount no. 3i, showing the presence of mercury (Hg); b) Locations of XRF analysis of the silver-sheet appliqués on the apical disc and flange rivets, as per Table 4.4. By CF, JL and QW

Grave	Board					Handle				Carrying-strap	
	Diam (mm)		Th. (mm)	Wood	?Coating	Type	Size (mm)		Off	Buckle	Board
	min.	max.					W.	L.	centre		fittings
Inhum. 14	475	690	10			D2	23	-	•		
Inhum. 16		460	7			A1	-	83			
Inhum. 17	380	470	6–10	*Fraxinus excelsior*		A1	22	-	•		?•
Inhum. 20		470	-			A1	-	-	•		
Inhum. 21	565	590	8–9	*Fraxinus excelsior*	•	C1	20	75	•		
Inhum. 23	440	560	10	*Fraxinus excelsior*		-	-	-	•		
Inhum. 24	440	630	7.5	*Fraxinus excelsior/ Alnus glutinosa*	•	A1	-	73		•	
Inhum. 27			8–10	*Quercus* sp.		-	-	-	•		
Inhum. 28	500	530	8	*Fraxinus excelsior*		-	-	-		•	
Inhum. 29	440	530	7–8	*Fraxinus excelsior*		A1	-	80			
Inhum. 32	380	690	7	*Fraxinus excelsior*		-	-	-		?•	

Table 4.5 Details of shield manufacture

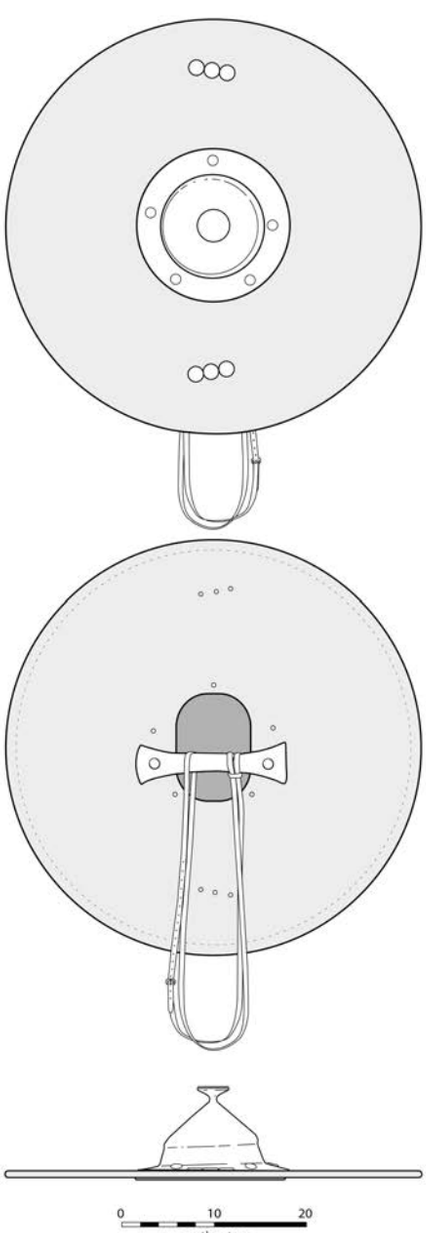

Figure 4.9 Reconstruction of the shield from inhumation 24. The stitching on the reverse of the board cover and the strap holes are conjectured (scale 1/8). By CF and KM

Shield construction

by A. Baldwin, H. Bullock, C.R. Cartwright, C.J.R. Fern and J. Hood

Frequent mineral-preserved organic remains were recorded on the shield-fittings during conservation at the British Museum (Table 4.5). As per Dickinson and Härke (1992, 31–54, apps. 5, 6), and Watson (1994) these are informative about the construction and use of the objects. A number of specific differences in manufacture were observed, though the stages of assembly they suggest seem largely consistent. Reconstructions of the inhumation 21 and 24 shields are shown in Figures 4.6a and 4.9. This report is based on the fuller study published by Bullock *et al*. (2011).

Species identifications from wood remains indicate six boards of ash (*Fraxinus excelsior*) and one of oak (*Quercus* sp.; see *Chap. 5; Sect. IV: Wood remains on metalwork*). The shield from inhumation 24 (nos 2–4) was unusual: one set of disc-headed mounts and the shield-boss were attached to alder (*Alnus glutinosa*) (Pl. XVIIa), whilst three other mounts were attached to ash (Pl. XVIIb). This implies a plank-constructed shield of different wood types, which might have resulted from a repaired board. The popularity of ash wood seen in this instance is not normal; Watson's (1994, table 1) national study showed that willow/poplar (*Salix/Populus*) and lime (*Tilia*) were most favoured for shield manufacture, with ash identified in only 9% of cases. The general unpopularity of ash might have been due to it being a heavier timber, though as a wood it has high strength and is resistant to splitting (Dickinson and Härke 1992, 48–9, table 14), which might explain its selection in this case. Rivet lengths indicate board thicknesses of 6–10mm, though in some cases a discrepancy in rivet length between fittings from the same board was seen.

The size of the shield-boards can be estimated based on several factors (Fig. 4.10). A minimum board diameter can be suggested from the position of any board mounts present in the grave, and a maximum diameter is indicated by the grave cut. In addition, in some graves the soil stains recorded possibly included board outlines (inhumations 14, 21 and 29). Combined this suggests a range of 380–690mm at Tranmer House (Table 4.5), indicating shields of 'medium' size as defined by Härke (Dickinson and Härke 1992, 44–5). The grave cuts of inhumations 16 and 17 imply the smallest shields. However, shields of the period were not necessarily uniformly flat; possibly some were slightly convex. The argument for curved boards is based on the slight downward angularity of some shield-boss flanges, and the curvature of hand-grips (*ibid*., 35), traits which a number of the Tranmer House shields exhibit.

All the shield-boards had been covered with a skin product, front and back, 0.5–1mm in thickness. This was probably leather, as is commonly identified at other sites (Dickinson and Härke 1992, 51; Watson 1994, 37, table 1). On the animal mounts from inhumation 21, the remains were preserved over, not under, the washers of the flange rivets. This indicates that the back cover was applied after the mounts were fixed, thus hiding the rivet heads on the reverse. The opposite was found for the other shields; their mounts were riveted through both the front and back covers. This may suggest a higher-quality finish to the inhumation 21 shield, in keeping with its lavish character generally. Also, a whitish calcite (aluminosilicate and beeswax) compound was found on the backs of the mounts from the inhumation 21 and 24 shields, i.e. over the front cover (Thickett 2001). This could be a packing material, or it might represent a preparation layer for a painted surface.

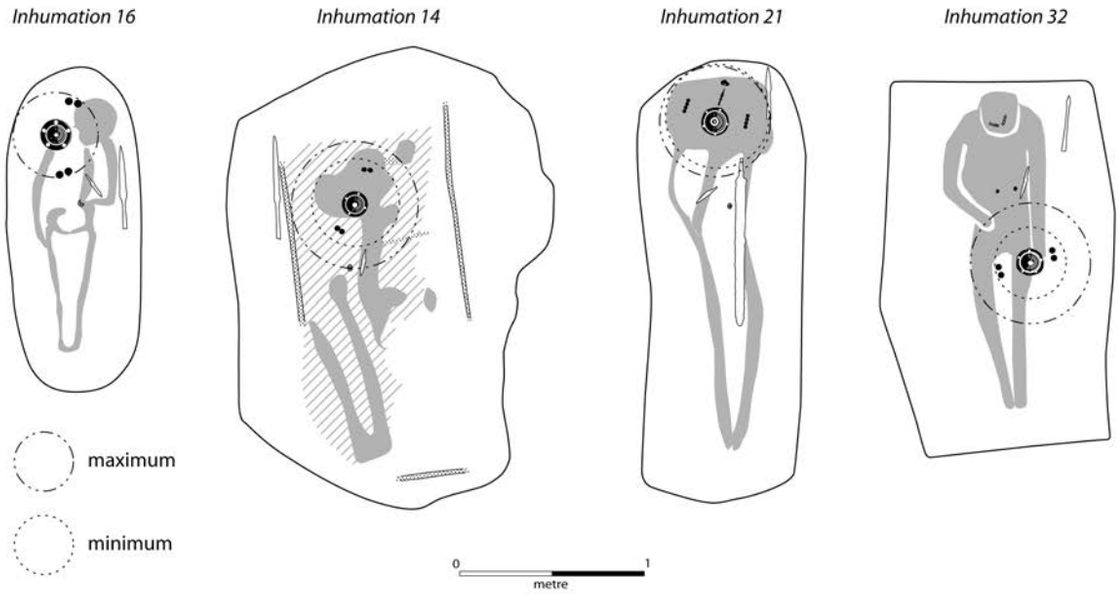

Figure 4.10 Examples of the shield-board estimates (scale 1/40). By CF

Wood remains also indicate the forms of the hand-hole cut in the centre of the boards, and the different types of wooden handle used. This evidence comes from the metal surfaces that had contacted the board and handle, i.e. the underside of the boss flange and the front side of the hand-grip. The hand-holes were either D-form or a flat-sided oval shape, and their size was broadly equivalent to the inner proportions of the boss.

The construction of the wooden handle could be established in seven cases (this bridged the hand-hole and fronted the metal grip). All conform to Dickinson/Härke Group II (1992, 35–42, fig. 24). The majority (inhumations 16, 17, 20, 24 and 29) were of Type A1. For strength, the handle was inserted into recesses cut in the board planks at right angles to the grain, with the metal grip then riveted through the joint. On the iron grip from inhumation 17 the preservation is exceptional: the board wood at the recessed joint was 3mm thick and the handle was 4mm (combined 7mm). For the inhumation 14 shield, handle Type D2 was used: an integral handle shaped out of the central board plank, the wood grain at right angles to the length. In this case, the hand-grip had been fastened by two of the four boss rivets, rather than separately. There are few parallels for this, though notably both the shields from Sutton Hoo, from mounds 1 and 17, show the same method of grip attachment (Bruce-Mitford 1978, 66; Dickinson and Härke 1992, 42; Evans 2005, 245, fig. 104.12a). The handle in inhumation 21 was of Type C1.

A fairly consistent handle size is suggested by the remains, with a width of 20–23mm and length of 73–83mm. This is small, by the standards of a modern male hand. The preservation in two cases (inhumations 17 and 21) indicates handles of sub-rectangular section with straight, parallel sides. Also, in multiple cases the handle had been located off-centre, probably to allow for the hand knuckles (cf. Dickinson and Härke 1992, 41, fig. 30).

In six cases remains of the back cover are present between the iron grip and wooden handle, with the skin product appearing to wrap around the handle. This establishes that the board was covered after the wooden handle was inserted, but before the metal hand-grip was attached; the back cover must then have been trimmed either side of the handle to open the hand-hole. The resulting loose flaps it seems were then wrapped around the handle (there was no evidence for other types of grip binding). Lastly, the boss was fastened over the aperture.

In addition, the hand-grips (both, no. 2ii) from inhumations 24 and 28 had remains probably from carrying-straps, with associated buckles found close by (both, no. 6). Three strips of skin product (probably leather) are preserved around the grip from inhumation 24; a strap of the same dimensions (W. 14mm, Th. 4mm) is preserved on the axis of the buckle (Fig. 4.9). This method of strap attachment is paralleled at other sites (Dickinson and Härke 1992, fig. 43, app. 6).

Observed construction sequence:
1. Board constructed of planks;
2. Hand-hole cut (integral handle Type D2 formed);
3. Handle inserted into hand-hole — Type A1 (joint) or Type C1 (no joint);
4. Front of board covered with ?leather (decorative mounts attached, inhumation 21 only);
5. Back of board covered with ?leather (mounts attached after, not inhumation 21);
6. Hand-grip riveted to back of board (through handle joint, Type A1 only);
7. Back cover trimmed to open hand-hole; flaps wrapped around handle;
8. Shield-boss riveted to front of board (hand-grip fastened, inhumation 14 only).

Spears

by A.C. Evans and C.J.R. Fern

(Figs 3.10, 3.12–3.13, 3.15, 3.19, 3.22, 3.24, 3.26, 3.28, 3.30, 3.32, 3.35, 3.40, 3.42)

Thirteen spearheads and one socket (without a blade) came from thirteen inhumation burials (Fig. 4.11; Table 4.6). In addition, a ferrule was found unassociated, the only one from the site and a large example (Fig. 3.42, no. 1). Only one grave had more than one spear: two spearheads were found corroded together at the left of the head in inhumation 24 (Fig. 3.26).

The spearheads comprise a range of different angular and leaf-shaped forms; all have split sockets. They have been classified according to both Swanton's typology (1973) and Høilund Nielsen's newer system for East Anglia (in Penn and Brugmann 2007, 17–22). Most have parallels locally.

Six are large, long-bladed spearheads (inhumations 14, 16, 20, 24 (x 2) and 28). Four of these are Swanton Types E3 and E4 (inhumations 14, 24 and 28; all, no. 1), forms which developed in the 6th century but in Swanton's opinion 'established favour during the 7th' (1973, 85, 87). The Høilund Nielsen equivalents are her *Concave Long 1a* (*CoLo1a*) and *Parallel Long 2* (*PaLo2*) (see Table 4.6). The former she has dated before *c*. 560/70, the latter to a following phase (560/70–?650), adjusting Swanton's dating somewhat (Penn and Brugmann 2007, 20–1, figs 5.1c–5.2c, 5.20). Locally, multiple comparable spearheads

Grave	*Swanton (1973)*	*Høilund Nielsen (in Penn and Brugmann 2007)*	*Total length (mm)*	*Blade length (mm)*	*Wood*	*Position in grave*
Inhum. 14	*Type E3*	*CoLo1a*	552	360		right head-end (outside of grave-lining or on top of lid)
Inhum. 16	*Type E3/H3*	*CoLo1a*	445	294		left arm
Inhum. 17	*Type D1*	*AnMed1*	250	104		left head-end (slightly elevated)
Inhum. 18	*Type E1*	*AnMed1*	245	145		left ?head-end
Inhum. 20	*Type D2*	*unclassified*	424	190		left upper chest, diagonal (?inside grave-lining)
Inhum. 21	*Type F1*	*AnMed1*	280	130	*Fraxinus excelsior*	left head-end
Inhum. 23	*Type D1*	*unclassified*	234	120	*Fraxinus excelsior*	right head-end
Inhum. 24	*Type E3*	*CoLo1a*	542	390	*Fraxinus excelsior*	left head-end
	Type E4	*PaLo2*	530	390		
Inhum. 25	*Type E2*	*AnMed2b*	334	190		left head-end
Inhum. 27	*Type D2*	*unclassified*	302	130		left head-end (outside of container/lining or on top of lid)
Inhum. 28	*Type E4*	*PaLo2*	448	264		right arm
Inhum. 29	socket only					right head-end
Inhum. 32	*Type D3*	*unclassified*	303	65	*Fraxinus excelsior*	left head-end (slightly elevated)

Table 4.6 Details of spearheads

were found at the Hadleigh Road cemetery in Ipswich (West 1998, 56–7, figs 73–6), but in particular the two examples from inhumation 24 resemble spear no. 6 from the Sutton Hoo, mound 1 ship-burial (Bruce-Mitford 1978, 254–7, fig. 194). A contemporary parallel for the inhumation 24 double-spear burial is grave 12 at Edix Hill, Cambs, which contained two Type E4 spearheads, and is a burial of the late 6th or early 7th centuries (Malim and Hines 1998, 288). The spearhead from inhumation 16 (no. 1) has slightly concave blade edges, and so can be considered to have some relationship to the ogival-bladed forms (Type H) of the 5th/6th centuries (Swanton 1973, 101–3, 143), though its shape anticipates too the form of later Type E3 spearheads (Fig. 4.11, cf. inhumation 14 and 24 spearheads).

The smaller Type E spearheads (inhumations 18 and 25) are more difficult to date, partly as neither was associated with a shield. The Type E2 in inhumation 25 (no. 1) is equivalent to Høilund Nielsen's *Angular Medium 2b* (*AnMed2b*), which she has attributed to the first half of the 6th century (Penn and Brugmann 2007, 20). However, a later date has been proposed for the form at Mucking, Essex, of the late 6th to early 7th centuries (Hirst and Clark 2009, 711, fig. 395).

The two slender, leaf-shaped blades (inhumations 20 and 27: both, no. 1) with sockets at least half their total length are Type D2 spearheads (Swanton 1973, 67–71). The form is probably continental in origin and in the Lower Rhine region has been dated to *c*. 565–610/20 (Müssemeier *et al*. 2003, 48, Abb. 7: Type S–Lan1.3A). Locally, the currency of similar leaf-shaped forms in

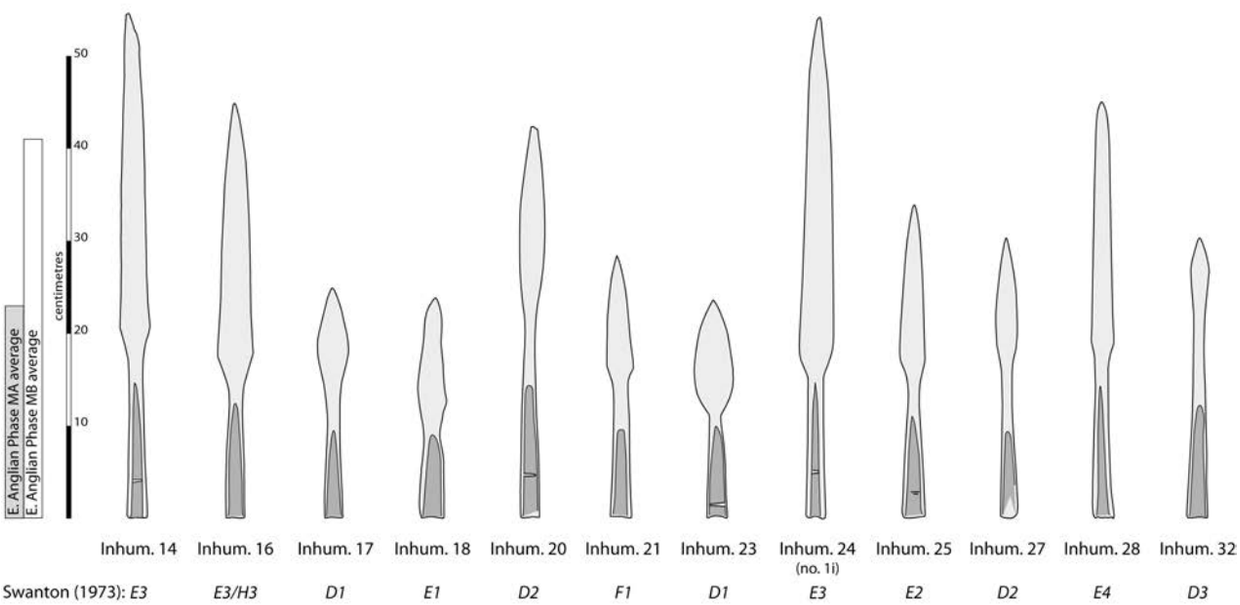

Figure 4.11 Spearhead forms at the cemetery (scale 1/8). By CF

Grave	*Sample*	*WI*	*PWI*	*LCI*	*S (%C)*	*carb*	*layers*	*ht*	*Comment*	*$HV_{0\cdot1}$ (av. 4)*
Inhum. 18	SN1057	y							corroded; ?WI, oxides, slag	
Inhum. 20	SN1059	y	y	y	0.3–0.4		y	n	mid band, C 0.3–0.4%; other bands WI, PWI, LCI; welds	edge 283; core 208
Inhum. 23	SN1061	y		y			y	n	WI, LCI; welds	edge 164; core 170
Inhum. 24 (no. 1i)	SN1058	y	y			?	1	n	WI, tr. carb surface, slag	edge 184; core 152
Inhum. 25	SN1062								completely corroded	
Inhum. 27	SN1060	y	y				1	n	WI/PWI, needle ppts	edge 218; core 226
Inhum. 28	SN1063			y			1	n	LCS, little slag	edge 137; core 125

Table 4.7 Metallurgical evidence for the construction and treatment of spearheads

approximately the same period is shown by examples from Snape and Sutton Hoo, mounds 1 and 17 (Bruce-Mitford 1978, 254, fig. 196, nos 2, 5; Filmer-Sankey and Pestell 2001, figs 106–7, graves 45, 47; Carver 2005, fig. 104). In addition, a well-dated parallel for the inhumation 20 spearhead is that from grave 264 at Buckland II (Dover), Kent, a burial of around the mid 6th century, based on a radiocarbon date and stratigraphic evidence (Parfitt and Anderson 2012, 405, table 8.18). Of the seven spearheads subject to metal analysis, that from inhumation 20 was the best manufactured (see below, *Metallurgical analysis*).

Both the Type D1 spearheads (inhumations 17 and 23; nos 2 and 1, respectively) came from graves that probably date to the first half of the 6th century (see above, *Shields*; and *Chap. 7; Sect. IV*). The Type D3 with a very long socket from inhumation 32 is a rare form nationally, but has parallels locally from later graves, again at Snape (grave 36) and Sutton Hoo (Filmer-Sankey and Pestell 2001, fig. 104; Carver 2005, fig. 104). By contrast, the blade shape of the Type F1 from inhumation 21 is not easily paralleled in Suffolk or elsewhere; it is closest to an example from Brooke, Norfolk (Swanton (1973, 91–3, fig. 31b).

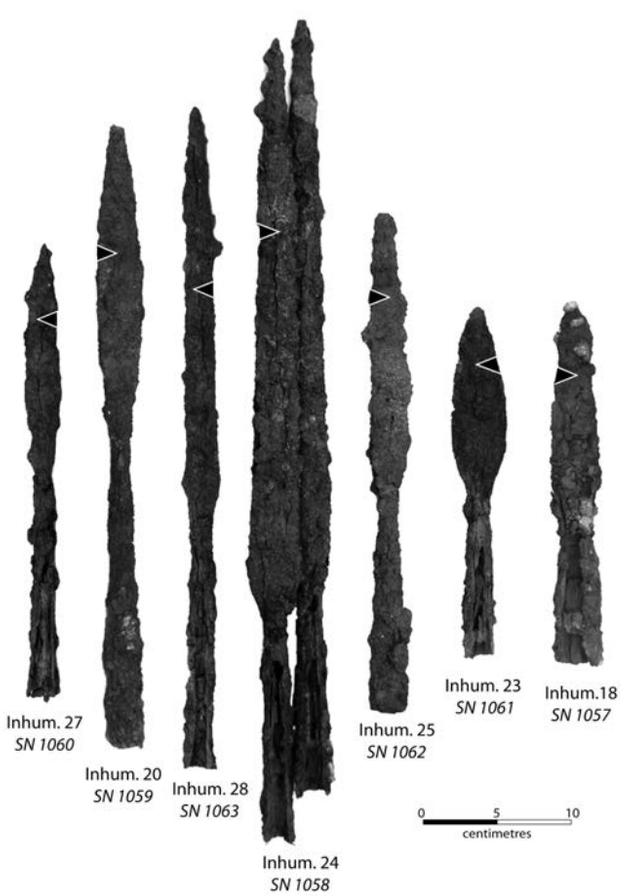

Plate XI Location on the spearheads of samples taken for metallurgical analysis (scale 1/5).
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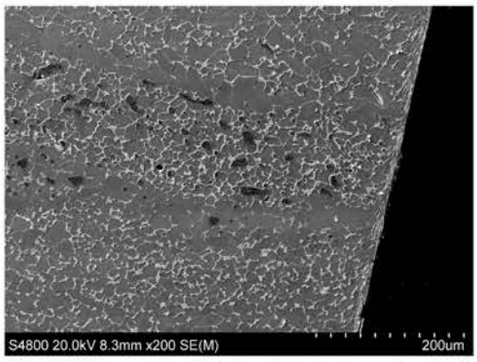
Most of the weapons were arranged on the left of the body, with the spearhead pointing to the head-end in all cases (Fig. 8.6). Possibly in inhumations 14 and 27 the spears had been placed on top of a coffin/burial-container, as the spearheads were found higher up in the grave backfills and outside of the coffin/burial-container stains. As no ferrules were found in any burials, spear-shaft length cannot be determined with certainty, other than from the limits of the grave. In inhumations 16 and 28 the spearheads were found by the arm, which might indicate weapons with shortened shafts; or possibly that they had been ritually broken before being placed. Both were small graves, possibly not big enough to accommodate full-size weapons, and one was almost certainly the burial of a child (inhumation 16). Similarly, the small spearhead from inhumation 18, together with the short length of the grave, may imply an undersized weapon in what was probably another infant/juvenile burial.

Mineral-preserved wood was found in the sockets of all the spearheads, and where species was confirmed in four cases all were ash (*Fraxinus excelsior*). This wood was favoured for spear shafts also at the Suffolk sites of Boss Hall (Ipswich), Flixton and Snape (Filmer-Sankey and Pestell 2001; Hirst and Clark 2009, 569–70; Scull 2009, 110; Riddler 2012b, 130), and was furthermore the species confirmed for the two spearheads examined from Sutton Hoo, mound 1 (Cutler 1978).

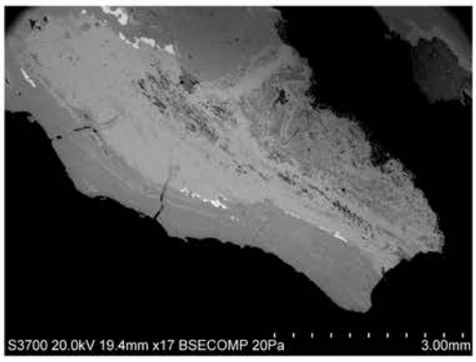
Metallurgical analysis of the spearheads

by J. Lang and Q. Wang

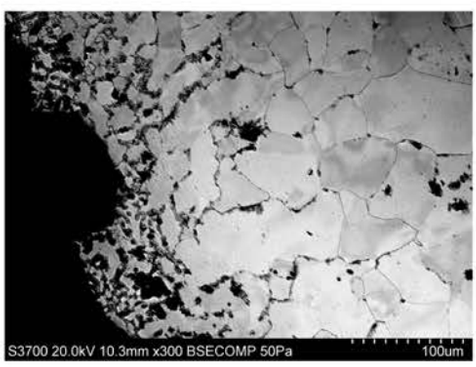
Seven spearheads were sampled to examine their manufacture and construction (Table 4.7; Samples 1057–63). Wedge-shaped sections were cut from each blade for metallographic analysis, as shown in Plate XI. They were first mounted in a resin support, then polished and examined using an optical microscope, before and after etching with a 2% nital solution. Elemental analysis was undertaken on sub-samples using an SEM with an INCA Energy system (Table 4.8). The analyses were run at an accelerating voltage of 20kV at low vacuum. The detection limits for each element typically varies from 0.1–0.3%. The relative precision (reproducibility) is about 2% for the major elements, and 10% for concentrations in the range of 5–20%, but it deteriorates as the detection limits are approached. Also, the hardness of the samples was determined with a Vickers microhardness tester (100g load). Most of the sections contained some slag, visible before etching. The smaller inclusions (about 5 microns diam.) were spherical, the rest more elongated (Pl. XIIa). Many of the more rounded inclusions were two-phased, with iron oxide as the second phase in a glassy matrix. Most of the long, thin inclusions tended to be single-phased and glassy. The composition of the inclusions (Table 4.8) seems to be fairly typical of the period, being similar to those reported by Moir (1990) in his study of the spearheads from West Heslerton, N. Yorks (Haughton and Powlesland 1999).



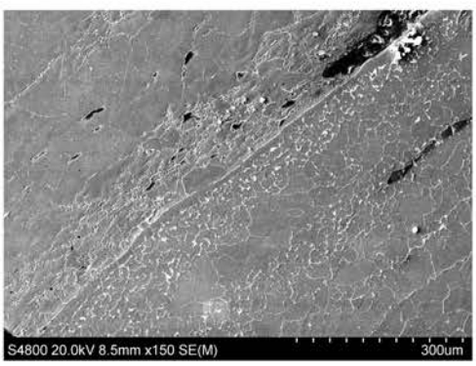
a *SN 1061* (inhumation 23): banded structure; the middle band has more slag inclusions.



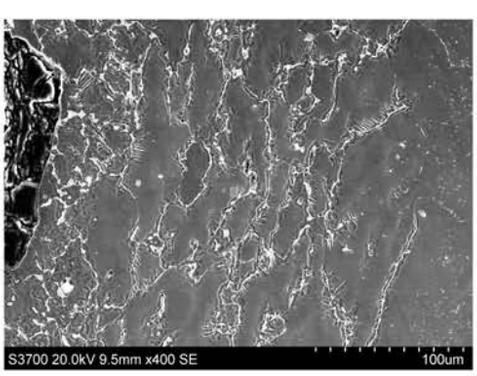
b *SN 1057* (inhumation 18): showing almost complete corrosion, with only small areas of metal remaining.



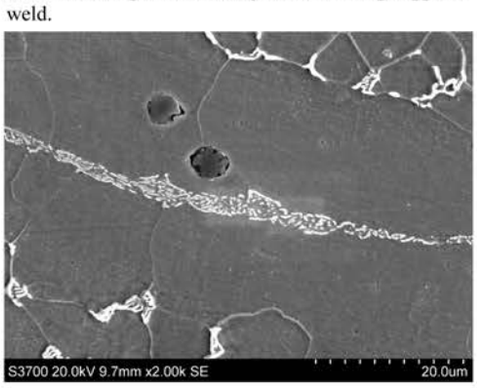
c *SN 1058* (inhumation 24; spearhead no. 1i) showing the part carburised surface (darker areas).



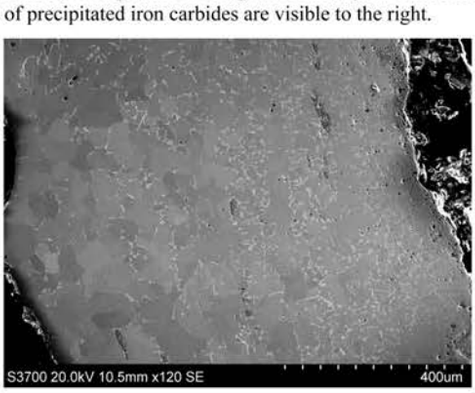
d *SN 1059* (inhumation 20): banded structure with carbon, and a variable grain size; the pearlite and slag suggest a weld.



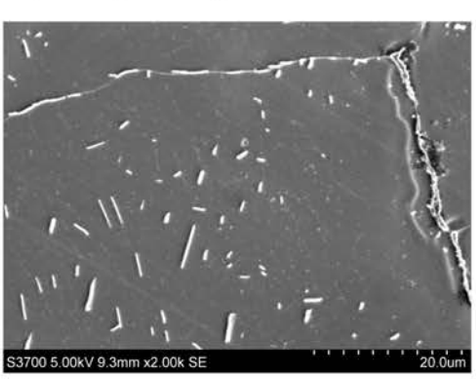
e *SN 1059* (inhumation 20): elongated ferrite grains near the surface, with pearlite in the grain boundary; also, needles of precipitated iron carbides are visible to the right.



f *SN 1061* (inhumation 23): pearlite band, suggesting a weld line, and two globular slag inclusions.



g *SN 1063* (inhumation 28): showing decrease in grain size across the section, with a small amount of grain-boundary pearlite.



h *SN 1059* (inhumation 20): iron carbide needles precipitated within the grains.

Plate XII SEM images of spearhead metallographic samples. Copyright Trustees of the British Museum

Sub-sample	*Sample*	*Type/Location*	*MgO*	*Al_2O_3*	*SiO_2*	*P_2O_5*	*SO_3*	*K_2O*	*CaO*	*TiO_2*	*MnO*	*FeO*	*NiO*
1	SN 1058	1-ph, elong incl	0.6	3.1	29.2	1	0.1	1.3	1.9	0.2	<0.1	63	0.1
2	SN 1059	2-ph/nr pearlite band	0.3	1.5	4.7	1.6	0.1	0.1	0.3	<0.1	nd	91	0.4
3	SN 1059	2-ph/in PWI	0.2	7	49	4.2	0.7	4.2	2	0.3	0.4	32	nd
4	SN 1061	globule	0.4	0.4	34.1	0.5	nd	1.2	2	0.4	0.3	60	nd
5	SN 1061	globule[1]	nd	4.6	16.4	0.5	nd	0.3	0.2	nd	0.1	79	nd
6	SN 1061	1-ph, elong incl	0.9	15	59	0.1	<0.1	3.7	2.2	0.5	0.2	18	<0.1

Key for Tables 4.7–8: C: carbon; carb: carburised; elong: elongated; ht: heat treated; $HV_{0.1}$ (av. 4) : hardness (Vickers microhardness, 4 determination average, at 100g load); incl: inclusion; LCI: low carbon iron (C <0.2%); layers: originally separate strips; LCS: (mild steel) low carbon steel (C<0.2–0.35%); n: no; nr: near; nd: below detection limits; ppts: precipitates; PWI: phosphoric wrought iron; S: steel (C>0.35%); tr: trace; WI: wrought iron; y: yes; 1-ph: single phased; 2-ph: two phased; [1] 2nd-phase of globule no. 4; ?: uncertain

Table 4.8 Composition of slag inclusions in the spearhead ferrous samples

The two sections from the spearheads from inhumations 18 and 25 (SN 1057, 1062) were almost completely corroded and yield little information (Pl. XIIb). The one sample from the inhumation 24 spearhead (SN 1058) was made from a heterogeneous piece of wrought iron. It contained some phosphorus, indicated by areas with 'ghost' structures, and the outer surface had some evidence of carburisation (Pl. XIIc).

The spearhead from inhumation 20 (SN 1059) was constructed from more than one piece of metal, showing as several layers (Pl. XIId). The core was carbon rich, while the outer layers consisted mainly of ferrite, containing phosphorus and a small amount of carbon concentrated as pearlite at the grain boundary. On one side a series of intermediate layers, of decreasing carbon content and increasing grain size, lay between the carbon-rich core and outer ferrite layers. The elongated ferrite grains near the surface (Pl. XIIe), and the elongated phosphorus 'ghost' bands throughout the section, indicate that the metal had been extensively forged. It is possible one of the outer layers was carburised, but this might not have been deliberate. The final heating process was insufficient to remove the traces of forging, which, in any case, does not occur very readily in the presence of phosphorus. Rapid cooling (i.e. slack quenching, by plunging into cold water or oil and quickly withdrawing, so that heat is left in the core) is indicated by a Widmanstatten structure in the carbon-rich band, and the precipitation of carbide needles in the ferrite, that occurs as the core heat dissipates. This is the most interesting blade from a technical point of view, as it seems likely that the use of a carbon-rich core could have been deliberate, providing an edge that could be easily re-sharpened.

Likewise the inhumation 23 spearhead (SN 1061) was made from at least two pieces of similar metal, which may have originally been folded or piled, though interpretation was somewhat hampered by the blade's corroded state. There was a distinct band of small globular or semi-globular inclusions, about 200 microns wide, running from the middle of the blade towards the cutting-edge (Pl. XIIa). The remaining metal was a rather heterogeneous low carbon iron/steel with about 0.25% carbon. In addition, a number of bands were visible, each consisting of an almost continuous series of small pearlite grains, surrounded on either side by a layer of ferrite grains (Pl. XIIf). This is often associated with welding, although absent were the slag and oxide particles typical of welds.

The spearhead from inhumation 27 (SN 1060) was made from wrought iron, with an almost completely phosphoric 'ghost' structure. The elongated ferrite grains near the surface and the phosphorus 'ghost' bands throughout the section indicate that the metal had been extensively forged. Precipitated carbide needles may suggest slack quenching, too, as described for the inhumation 20 example.

The inhumation 28 spearhead (SN 1063) was a heterogeneous low-carbon steel. Grain size varied (Pl. XIIg), including bands of coarser ferrite grains, but no evidence of phosphorus was found.

The microhardness values are given in Table 4.7. The highest value was found at the edge of the inhumation 20 spear-blade (283 HV), an area of phosphoric iron, whereas the carbon-rich core was less hard (208 HV). The inhumation 28 spearhead (SN 1063) gave the lowest values (edge: 137 HV; core: 125 HV).

In composition and structure the Tranmer House spearheads are similar to those reported in other technical studies, though these are relatively few: site samples include West Heslerton (Moir 1990) and Edix Hill (Gilmour and Salter 1999), together with smaller groups and singletons (McDonnell 1989; Starley 1996; Fell and Starley 1999; Lang 2012b). Overall, it can be stated that the spearhead metal was generally not of very good quality, and the techniques of manufacture were relatively basic, compared to what could be achieved in the production of swords, for example (see below, X-radiographic assessment of the swords). All the Tranmer House spearheads had been forged, this being most obvious in the examples with a phosphoric iron component. It is probable that the blades were hot-forged, with some slack quenched, and left to air cool, allowing the precipitation of small iron carbide needles within the ferrite grains (Pl. XIIh). This phenomenon is common in ancient iron (and may also result from an air-cooled structure gradually ageing over time). There were no indications of cold working, although this could have been lost to corrosion. Only one spear-blade, that from inhumation 24 (no. 1i), has any trace of possible carburisation on its surface, but again corrosion might have obscured evidence on others. The example from inhumation 20 has a rich-carbon core, with outer wrought layers of phosphoric and low-carbon iron. A similar construction was noted for a spearhead (grave 158) from West Heslerton (Moir 1990). Both are Swanton Type D weapons (1973, 64–73), but the other Type D2 spearhead from Tranmer House showed a heterogeneous structure of wrought and phosphoric iron. None of the available data currently provides any evidence that spearhead size and form (typology) was related to composition, construction or treatment, with the possible exception of an unusual spearhead (grave 323) from Buckland II (Dover), Kent (Lang 2012a, 271–72). The average hardness for Anglo-Saxon spearheads (from the studies cited above) seems to have been about 180 HV near the blade edge and about 160 HV at the core. The Tranmer House values are not dissimilar, with the exception of that from inhumation 28, which is unusually low.

Swords

by B. Ager

(Figs 3.21, 3.31, 3.42)

Inhumations 21 (no. 7i) and 27 (no. 5) each contained a sword. A third (unassociated find no. 2) is represented by fragments from the upper blade and tang found in 2001 by workmen close to inhumation 25 (Fig. 3.1). The intact swords are examples of Behmer's Type VI (1939, 121–73): the long, narrow-bladed, double-edged weapon of Germanic Europe. It was essentially an overarm slashing blade, although some might have had a more ceremonial function (McKinley 2003, 65–7; Birbeck *et al*., 2005, 59). In burials, they are regarded as high-status markers (Birbeck *et al*., 2005, 59). All three were pattern-welded (see below, X-radiographic assessment of the swords).

The overall lengths of the two complete swords are the same, including tang and pommel. The blades (not including the tang) are 790mm and 807mm. The maximum blade widths (50–1mm) are also very similar and both taper only very slightly before curving in to pointed tips. The shoulders angle downwards from the tang on the inhumation 21 sword, and on the unstratified fragment, but are squared on that from inhumation 27. That from inhumation 21 was definitely fullered on one side of the blade, though corrosion prevented further assessment.

Both the *in situ* weapons were found on the left of the body, in scabbards, in agreement with general Anglo-Saxon practice — probably the side they were worn in life

(West 1988, 8; Härke 1992a, 127). They were not 'as worn', however, but perhaps placed with the sword-belt wrapped around the scabbard (see above, *Buckles and belt-fittings*). The knife next to the blade in inhumation 27 was possibly in a pocket-sheath attached to the scabbard or belt.

The best indicator of date is the integral iron pommel of the inhumation 27 weapon, which is a low convex, boat-shape form, distinct from the 'cocked-hat' copper-alloy pommels characteristic of 5th/6th-century Behmer Type VI weapons. The earliest examples of such pommels occur on the Continent, for example, at the Alamannic cemetery of Pleidelsheim, Germany, where they have been dated to *c.* 530–555 (Koch 2001, Taf. 9, 2, 20A, 1, graves 15, 44). Another is the sword from Kärlich, Germany, which has a nielloed silver scabbard mouth-piece decorated in Late Antique style. It is assigned to the latter half of Menghin's 6th-century Zeitgruppe C (Menghin 1983, 99, 338, no. 7; Hanel 1994, 25, Taf. 25, 5; the now missing pommel is shown in Kühn 1940, Taf. 115, 1). However, the Tranmer House pommel does not have inlaid ornament, as per the continental fashion; it is plain, like other Anglo-Saxon examples. In England, four occur in Phases 3–4 (*c.* 575–650) at Buckland I (Dover), Kent; the one inlaid example is a probable Rhineland import (Evison 1987, figs 15, 20, 38, 45). At Mucking II, Essex, six swords had lozenge-shaped (convex or flat-topped) iron pommels (Hirst and Clark 2009, 562–64, table 9.39). Five are assigned to Mucking Phases 1biii–2, again dated from the late 6th century, though one (grave 766) is placed earlier in the same century. Ultimately this pommel form appears to reflect the trend towards longer, low, copper-alloy pommels, some with animal-headed terminals, seen on later 6th-century continental swords, that continued into the second third of the 7th century, as at the Alamannic cemetery of Neresheim (grave 115), Germany (Koch 1977, 95; Knaut 1993, Taf. 22: 115, 1).

However, the 'heirloom factor' (Brown 1915, 207–9) is probably more applicable to swords than to any other class of early-medieval artefact, with implications for dating. In *Beowulf* the weapons of heroes are described as 'ancient heirlooms', or the 'ancient sword[s] of giants', and 7th-century Kentish law refers to the practice of 'heirloom' (lines 1455–58, 1557–62, 1652–70; Davidson 1998, 125, 129, 142–47; Härke 2000). Therefore, it is possible some early Anglo-Saxon weapons were antiques when buried. Nevertheless, this seems not to have been a factor in the seriation sequence for the Mucking II swords (Hirst and Clark 2009, 711).

Finally, swords may be older than their scabbards. The radiating cord lines on the inhumation 21 sheath (see below) are generally an early feature of the 5th/6th centuries, but 7th-century examples are known, as at Broomfield, Essex (Cameron 2000, 36, 38–9).

Hilt and scabbard remains

by B. Ager, H. Bullock, C.R. Cartwright, C.J.R. Fern, S. Naidorf, J. Hood and F. Shearman

All three swords have mineral-preserved organic remains that conform generally to known Anglo-Saxon techniques of manufacture for hilts and scabbards (Cameron 2000, 34–5; McKinley 2003, 96; Hirst and Clark 2009, 562–66; Ager 2012).

In each case the scabbard comprised a thin wooden sheath covered with leather, with a probable fleece lining between the blade and wood. All the sheaths were of ash (*Fraxinus excelsior*). The fleece-hide has not been identified, but at other sites was sheepskin (McKinley 2003, 96); the lanolin in the wool would have helped condition the blade. In addition, the inhumation 21 scabbard has textile (flax/hemp) tapes around its top third, over the leather and wood, along with unwoven binding cords also (Table 4.14). Further cords, under the leather (over the wood), show the remains of a moulded pattern of three lines that radiate downwards to just above the existing break in the blade (Fig. 4.12; Pl. XIIIe).

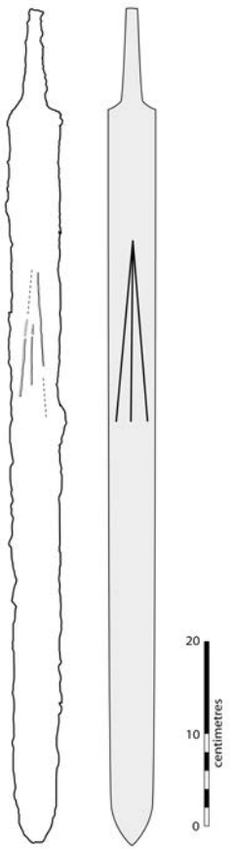


Figure 4.12 Cord-pattern remains on the sword scabbard from inhumation 21. By KM

The hilts of all three swords were mainly made of horn (or probable horn), though the broken fragment is missing most of its upper tang. For the two complete examples a tripartite arrangement is apparent, of a grip with upper and lower guards, originally held together by the pommel. On the inhumation 21 weapon, the grain runs along the tang, with that on the guards at right angles to it. Significantly, this sword has possible traces of an ivory upper guard or pommel, on the evidence of a laminated, creamy white, mineral-preserved organic. Parallels for this are rare. One potential example is the late 6th- to 7th-century sword from Acklam Wold, N. Yorks, on which ivory was possibly used for the guards and grip casing (Ager and Gilmour 1988, 15). The guards on the two complete weapons are a very similar thickness (upper, 10mm; lower, 11–2mm), but the lower guard on the fragment is almost twice as deep (19mm). The lower part of the grip on the fragment is expanded at its base, but insufficient remains of the others to ascertain their original form.

X-radiographic assessment of the swords

by J. Lang and Q. Wang

The swords were too fragile for metallographic sampling, so aspects of their construction could only be determined from X-radiographs and by visual examination of blade breaks. All three were pattern-welded, a technique that began in the Iron Age in Europe (Pleiner 1996), but flourished particularly in the early-medieval period. It comprised the twisting and forge-welding together of different rods of variously wrought, phosphoric and low carbon iron (mild steel), to make a patterned bar or strip with superior physical properties. This was usually incorporated to make the central part of the blade. A single pattern-welded bar could be used, or two pattern-welded layers might be employed, often with a plain core-layer sandwiched between them. The cutting-edges were then added, applied as separate strips to each edge, and were sometimes made of steel capable of high hardness. Once forged, the blade would have been polished and etched to bring out the decorative and possibly symbolic patterning (Lang and Ager 1989; Gilmour 2003, 97–100, fig. 63).

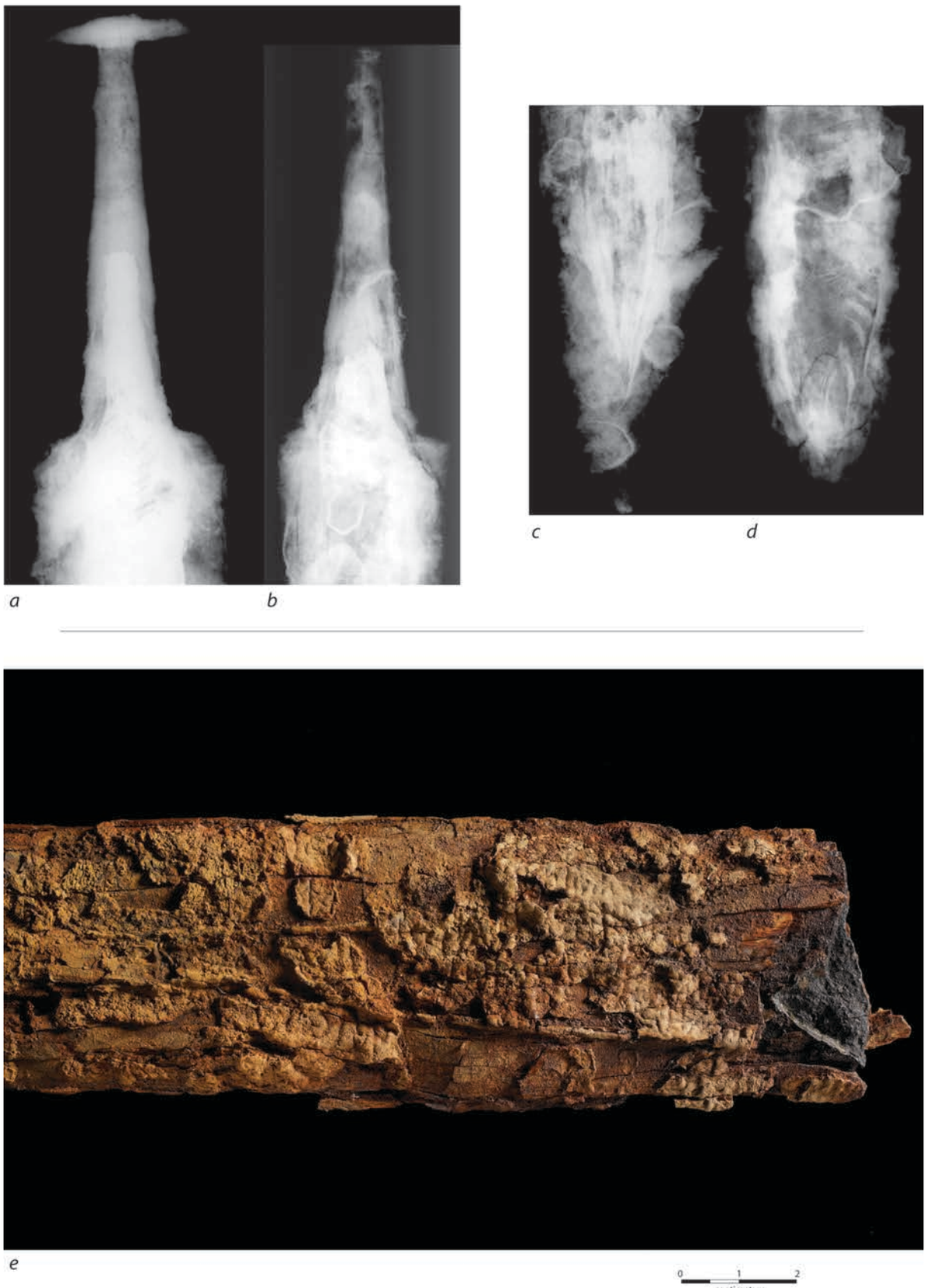


Plate XIII X-radiographs showing the pattern-welded cores of the swords from inhumations 21 (b, d) and 27 (a, c). In both cases the central section extends into the tang (a–b). At the tip of the inhumation 27 weapon (c), the pattern-welding is surrounded by the cutting edges, but on the inhumation 21 sword it extends almost to the tip (d); e) mineral preservation of the cord-patterned scabbard on the inhumation 21 sword (scale approx. 2/3; except (e), scale 1/1). Copyright Trustees of the British Museum

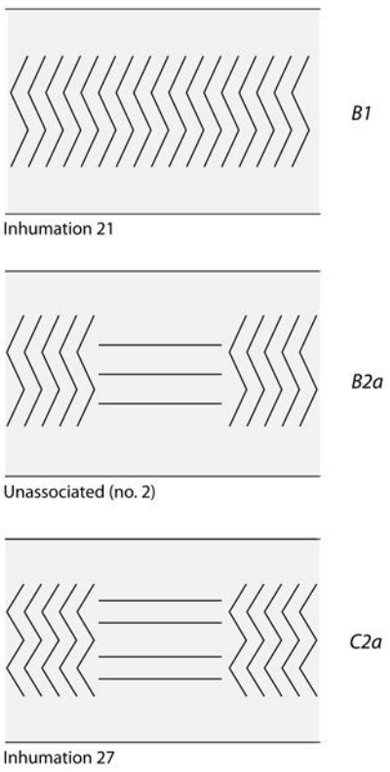


Figure 4.13 Schematics of the pattern-welded sword blades, by Lang and Ager (1989) type (not to scale). By CF

The X-radiographs of both the complete swords (inhumations 21 and 27, respectively nos 7, 5) and the fragment (unassociated find no. 2) show central pattern-welded panels, each approximately half the width of the blade, with cutting-edges welded on either side (Pl. XIIIa–d). Inspection of the fractured middle of the inhumation 21 example shows three layers, with a middle probably made of wrought iron, sandwiched between two patterned layers. The X-radiograph suggests each patterned layer consists of three continuously twisted bands, with the same direction of twist (Fig. 4.13), Type B1 as defined by Lang and Ager (1989, 88). The twist direction is the opposite on the reverse side. The pattern-welding extends almost to the tip of the blade, and at the hilt end can be seen terminating in the tang (Pl. XIIIb, d).

The inhumation 27 sword also has a two or three-layered central panel. In each patterned layer four bands were set side-by-side, each with straight and twisted sections (Fig. 4.13), Lang/Ager Type C2a (1989, 88). The twisted sections are coincident across the width, with alternating directions of twist, making a pattern of double chevrons. The length of the twisted sections varies between 50–70mm, whilst the straight (untwisted) sections are about 80mm. At the blade tip, the bars have been drawn down to a point, and it is possible to distinguish the ends of the individual rods on the X-radiograph (Pl. XIIIc). At the other end the termination of the pattern-welded section within the tang is again clearly evident (Pl. XIIIa).

The blade of the fragment has split, across the full width, so that the pattern is partially revealed. It consists of three bars of alternating twisted and straight sections, with the twisted portions coincident across the width (Fig. 4.13), Lang/Ager Type B2a (1989, 88), but the X-radiograph shows that the patterns in the two layers are not quite coincident through the blade.

Beads

by B. Brugmann

(Figs 3.2, 3.18, 3.29, 3.36, 3.39; Pls V, XIV)

One-hundred-and-thirty-three glass and amber beads (including fragments and burnt/melted examples) were found in five graves (cremation 3; inhumations 19, 26, 30 and 31). In addition to which, a burnt bead of silica material was found in one cremation (see below, *Bead from cremation 8*).

Fifty-nine of the Tranmer House beads are glass, with the number in each grave ranging from seven (inhumation 31) to fourteen (inhumation 26). Almost half of those from the inhumation burials are covered by an Anglo-Saxon typology based on attributes of manufacture, developed for the chronological analysis of burials. This is derived from two studies, one national, the other a local East Anglian analysis, the 'Four Cemeteries' study (Brugmann 2004; Penn and Brugmann 2007, 26–8). Table 4.9 provides a type series for the beads from the Tranmer House inhumations, with Table 4.10 summarising the chronological bead phases, in relation to the diagnostic bead types.

Twelve or possibly thirteen examples from cremation 3 had been damaged by fire; nine of them form a row of fused beads, presumably a 'string' affected *in situ*, though the beads have kept their overall shape. One example has been melted into a flat piece of glass, another into a lump of dark glass, attached to a burnt bone fragment, possibly originally a large bead. Because of their state, they cannot be classified with absolute confidence, though it also seems none of them are covered by the specific types.

Amber beads

The seventy-four amber beads were found as follows: thirty-four from inhumation 19, eighteen from inhumation 31, sixteen from inhumation 30, and six from inhumation 26. Most show signs of wear at the perforated sides. By their maximum diameter: thirty-three measured 8–10mm; thirty-seven, 11–5mm; four, 16–9mm. Three shape categories are evident: 'rounded' — mostly medium in proportion with a rounded show-side, but an irregular cross-section; 'facetted' — medium (or rarely long) in proportion, without any regular section; a very short, irregular bead, with a 'wedge-shaped' (asymmetrical) cross-section.

Although not based on a national sample, the published study of amber beads for the Buckland II cemetery (Dover), Kent, suggests that fashions followed some of the changes in glass-bead styles (Brugmann 2012). It was possible to demonstrate a tendency for small rounded amber beads in the late 5th to mid 6th century (Bead Phase A2), with larger facetted amber beads following the trend for more substantial glass beads introduced in the 6th century (Bead Phases A2b–B1). The use of facetted amber beads then decreased towards the end of the century (Bead Phase B).

Sixty-four (with a damaged bead probably sixty-five) of the Tranmer House amber beads are facetted (87%). Just one is wedge-shaped, and the remaining examples are rounded. Facetted beads dominate in each inhumation-burial assemblage, which suggests that the graves do not pre-date Bead Phase A2b (*c*. 530–580). The dates for the associated glass-bead types given below confirm this. Tranmer House seems to follow the general trend, in that the three graves with glass-bead combination groups of Phases A2b–B1 (inhumations 19, 30 and 31) contain more amber than inhumation 26, dated to Bead Phase B2 (c. 580–650).

Glass beads

(Pl. XIV)

The fused bead 'strings' from cremation 3 (Fig. 3.2, no. 2) are composed mainly of short, globular beads of roughly equal size, combining mostly monochrome types (white, yellow, red, green and blue) with decorated examples with

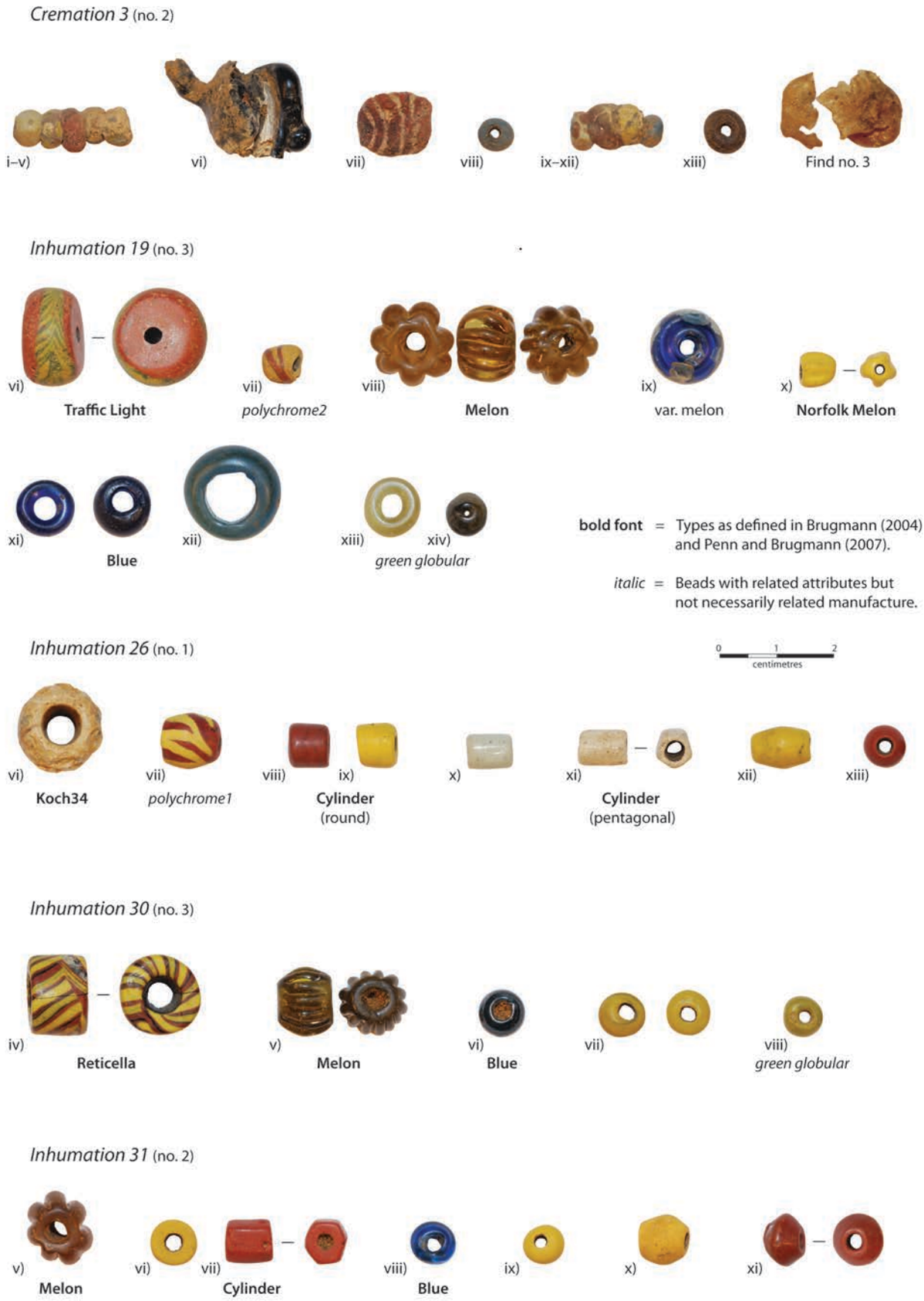


Plate XIV Glass beads and vessel glass. For bead typology see Table 4.9 (scale 1/1). By CF

Name	*No. of beads*	*No. of segments*	*Diameter of perforation (mm)*	*Diameter of Body (mm)*	*Length of body (mm)*	*Proportion*	*Bead technology*	*Shape*	*Translucency*	*Body colour*	*Decoration*	*Motif*
Bead 'Types' and related forms: Brugmann 2004; Penn and Brugmann 2007												
Type **Blue**	4	1	2–10	8–17	4–8	short to medium	wound	annular/globular	translucent	blue	none	none
Type **Cylinder** (pentagonal)	2	1	2.5–4	6–7	8–9	medium to long	wound, perforated sides marvered flat	cylindrical, pentagonal cross-section	opaque	white, red	none	none
Type **Cylinder** (round)	3	1	2.5–4	8	5–7	short to medium	wound, perforated sides marvered flat	cylindrical, round cross-section	opaque	yellow, red	none	none
cylinder (round) related	1	1	2–3	6	8	long	wound, one perforated side marvered flat	cylindrical, round cross-section	opaque	white	none	none
Type **Koch34** (blue)	1	1	5.5–7	15	12	medium	wound	globular	opaque	white	applied	narrow, translucent blue crossing trails
Type **Melon** (yellow-green)	6	1	3–5	12–15	9–11	short to medium	wound	globular, 7–13 ribbed cross-section	translucent	yellow	none	none
var. melon	1	1	3–3.5	13	8	short	wound, traces of winding	globular (asymmetrical)	translucent	blue	none	
Type **Norfolk Melon**	1	1	1.5–2.5	6	6	medium	wound	globular, 5 ribbed cross-section	opaque	yellow	none	none
Type **Reticella**	1	1	5–7	14	11	medium	wound or composite	short, cylindrical	opaque	white	applied	two opaque yellow, opaque red and transparent or translucent green twisted trails, arranged in a herringbone pattern
Type **Traffic Light** (twisted trail)	1	1	3–4	17	10	short	wound	globular, perforated sides marvered flat	opaque	red	applied	translucent green and yellow twisted trail
Other beads: monochrome												
biconical	3	1	2–4	7–9	6–8	short to long	wound	biconical	opaque	yellow, red	none	none
green globular	3	1	1.5–4.5	7–10	4–5	short	wound	globular	translucent	green	none	none
red globular	6	1	1.5–3	7–8	4–6	short to medium	wound	globular	opaque	red	none	none
yellow globular	5	1	2–4	7–8	4–5	short	wound	globular	opaque	yellow	none	none
Other beads: polychrome												
polychrome1	1	1	3–4	10	10	medium	wound	biconical	opaque	red	applied	opaque yellow circumferential zigzag trail
polychrome2	1	1	2	7	7	medium	wound	?globular	opaque	yellow	applied	opaque red irregular trail

Bold: 'Types' defined in Brugmann (2004), and Penn and Brugmann (2007); *Italics*: beads with related attributes, but not necessarily related manufacture

Table 4.9 Glass bead-type series for Tranmer House (see Pl. XIV)

Brugmann (2004)	*Date*	*Graves*	*Diagnostic beads*	
Bead Phase A1	*c*.AD450–530	cremation 3	small monchrome/ applied trails/dots	
Bead Phase A2	*c*.AD480–580			
Bead Phase A2b	*c*.AD530–580	inhumations 19 and 30	*Melon*, *Norfolk Melon*, *Reticella*	
Bead Phase B	*c*.AD550–650			
Bead Phase B1	*c*.AD550–600	inhumation 31	Cylinder (round and pentagonal)	
Bead Phase B2	*c*.AD580–650	inhumation 26	Cylinder (round and pentagonal)	*Koch34*

Table 4.10 Bead Phases (Brugmann 2004; Penn and Brugmann 2007), and their representation at Tranmer House

applied trails and/or dots. These most likely represent the earliest bead fashion, typical of 5th-century Anglo-Saxon graves (Brugmann 2004, 32–3, figs 74–6). A good comparative bead-type combination seems to be that in grave 9 at Cleatham, Lincs, with the cruciform brooch and small-long brooch associated dating the assemblage to East Anglian Phase A1 (c. 450–480; Brugmann 2004, fig. 74; Leahy 2007, 232, fig. 80; Penn and Brugmann 2007, 58, 71, fig. 5.20). However, the string possibly also includes later beads of Type *Koch34* of Bead Phase B2 (c. 580–650; Brugmann 2004, 81, figs 161–62), though, notably, the modelled radiocarbon age for cremation 3 suggests a date prior to this (see Chap. 7; Sect. II).

The glass bead-type combination from inhumation 30 (Fig. 3.36, no. 3) represents the relatively rare, but distinctive, fashion that defines Bead Phase A2b (*c*. 530–580; Brugmann 2004, 52). It combines Types *Melon* and *Reticella*, both probably imported from the Continent (*ibid*., 37). The *Reticella* bead has a herringbone pattern, created by twisted trails. The two *Melon* beads are the output of one or more workshops, that produced a certain type of ribbed bead, made exclusively from translucent yellow-green or dark blue glass (*ibid*., 76). In addition, there are six smaller globular glass beads (four opaque yellow, one translucent green, one translucent blue), and fragments of four others of translucent blue.

Inhumation 19 (Fig. 3.18, no. 3; Pl. Va) also contained three yellow *Melon* beads. Related to this type is a globular, translucent dark blue bead without ribbing, but of a size, colour and with traces of winding typical of *Melon* bead manufacture: type (variation) melon (Brugmann 2012, 99, Type 22). These beads are combined with some globular/annular forms (blue/green), a *Norfolk Melon* bead, a *Traffic Light* bead, decorated with twisted trails, and the fragment of another bead of *polychrome1* type. *Traffic Light* beads are an early type of Bead Phase A1, probably produced in East Anglia (Brugmann 2004, 34). The opaque yellow *Norfolk Melon* bead is much smaller than the other *Melon* beads and represents an insular development, probably produced in Norfolk, and usually worn with types of Bead Phase A2 (Penn and Brugmann 2007, 28). Hence, the *Traffic Light* type is the earliest datable bead in the grave and the *Melon* the latest, with the collection as a whole dating to Bead Phase A2b (*c*. 530–580). The Type *Norfolk Melon* and *Traffic Light* bead give the collection a regional touch.

Inhumation 31 (Fig. 3.39, no. 2; Pl. Vb) produced another yellow *Melon* bead and two *Cylinder* beads that, combined, date the group to Bead Phase B. The *Cylinder* types are one yellow bead, with a round cross-section, and a red with a pentagonal cross-section. These beads were probably also imported from the Continent, most likely together with the two biconical beads in the grave, one opaque yellow and one red (Brugmann 2004, 39–40). The presence of the *Melon* bead, in fashion around the mid 6th century, in the absence of later types, suggests a date for the group in Bead Phase B1 (*c*. 550–600).

Inhumation 26 (Fig. 3.29, no. 1) combined *Cylinder* beads with Type *Koch34*, a large white bead, which in this case has lost most of its applied translucent blue crossing trails. This bead dates the collection to Bead Phase B2 (*c*. 580–650). It might have been associated with a second white bead with applied translucent blue decoration, of which only fragments remain. Combined with the others from the grave, the collection looks similar to that from inhumation 31. They comprise: a cylindrical white bead with only one perforated side, marvered flat (probably due to careless manufacture); a yellow biconical and six red globular examples; a biconical red form with a yellow zigzag trail. The last was probably imported together with one other, a monochrome biconical bead.

Types *Cylinder* and *Koch34* beads are more common in Kent and East Anglia than in other Anglo-Saxon regions (Brugmann 2004, figs 41, 61); hence, their presence at Tranmer House is not surprising. *Melon* and *Reticella* beads are both rarer and more evenly distributed (Brugmann 2004, figs 45, 50). They do not indicate that the settlement associated with the cemetery was high status, but suggest that it was not a backwater either in terms of bead trade.

The chronological bead phases overlap significantly (Table 4.10). Therefore, the bead-type combinations cannot rule out, for example, that inhumation 31 was dug before inhumations 19 and 30, or even that all four inhumations date to the second half of the 6th century and are more or less contemporary.

Bead from cremation 8
by C.R. Cartwright and C.J.R. Fern
(Fig. 3.6)
An opaque white bead (no. 4) was found with the cremated bone from cremation 8 by Jacqueline McKinley during her analysis (see *Chap. 5; Sect. II: Cremated human bone*). SEM-EDX investigation has shown that its material is natural silica (SiO_2), i.e. quartz, with a small amount of surface calcium present that is probably residue from the calcined bone.

Its almond-shaped form and size (L. 12mm) suggest it is an amethyst-bead import from the east Mediterranean (U. Koch pers. comm.; cf. Drauschke 2010, pls 9–10). Amethyst (a quartz) turns white when burnt, as examples from Scandinavian cremation graves show (Ljungkvist 2010, 423). It probably represents, therefore, the lone survivor from a necklace incorporating amethysts that was part of the female costume of the individual burnt on the pyre.

Amethyst beads became popular in graves on the Frankish Continent from the last quarter of the 6th century (Drauschke 2010, pl. 8), but for England examples have not been previously found in datable burials before the mid 7th century, Brugmann's Bead Phase C (Geake 1997, 41–2, fig. 4.5, table 4.4; Brugmann 2004, 58–63, table 7). They come mainly from Kent, and rarely occur in graves in East Anglia. However, two 7th-century graves at the nearby Suffolk cemetery of Coddenham have produced five examples, two of which Brugmann has suggested are small enough to possibly have been imported in the 6th century (2011, 69). In sum, the bead from cremation 8 currently represents one of the earliest from England, and indeed from northwest Europe, since Drauschke's study of amethyst beads from southern Germany demonstrated only a dozen or so in burials before *c.* 570/80 (2010, 55, pl. 8).

Other glass

by C.J.R. Fern

(Fig. 3.2; Pl. XIV)

Two small fragments of melted glass from cremation 3 (no. 3) might have come from one or more vessels. They are now opaque but were perhaps originally 'colourless' or light brown. A colourless glass would suggest a date of the 5th to mid 6th century (Evison 2008, 3).

Glass vessels were high-status items. At Spong Hill, Norfolk, about 4% of the over 2000 cremation burials contained such remains (Hills 1993, table 2.1; Hills and Lucy 2013, 79–83).

Pottery

by S. Anderson

(Figs 3.2–3.3, 3.7–3.9, 3.12, 3.15, 3.36, 3.39)

A total of 894 sherds (9151g) of early Anglo-Saxon date were collected in the 2000 excavation, representing a maximum of thirty vessels. The majority were from eleven cremation burials (including 'cremation' 12), five inhumation burials and three ring-ditches, though residual and intrusive material also occurred in a small number of contexts. Most of the grave vessels had suffered some damage as the result of later disturbance. Only two probable early Anglo-Saxon sherds were found in the 1997 evaluation (Abbott 1997, app. III–IV).

Quantification was carried out using both sherd count and weight. A full catalogue by fabric, context and feature, including estimated vessel equivalents (EVEs), is available in the archive. Dating and form terminology follows Myres (1977) and Hamerow (1993).

Seven fabric groups were identified on the basis of major inclusions, listed in Table 4.11. All were handmade and the fabrics were extremely variable even within single vessels, so categorisation was often difficult. Background scatters of chalk, flint, grog, white mica and other less common inclusions, such as felspar and ferrous pieces, were present. Colour varied throughout from black/grey, to buff and brown, and red, often within single vessels. Many sites in East Anglia have produced similar fabric groups, though they occur in differing proportions.

Granitic-tempered vessels are found frequently in East Anglia. It has been suggested that these vessels might have been imported from the Charnwood Forest area of Leicestershire (Williams and Vince 1997), though new evidence from Suffolk and Norfolk is increasingly pointing to local manufacture (e.g. Anderson 2012; 2013). The source of the granite may be erratic material recovered from the local boulder clay, or it was possibly deliberately brought in from outside the region.

The dominance of calcareous-tempered wares (ESSS/ESCS) in this assemblage is mirrored at Handford Road in Ipswich, where shelly wares formed 71% of the group (Anderson 2005a). This form of tempering was not used in the cemetery at Flixton, in north-east Suffolk, although small quantities occurred amongst the assemblage from the settlement there (Anderson 2012), and also from the recently excavated site at Eye (Anderson 2008). Preliminary assessment suggests that it is not present amongst the Eriswell cemetery groups (Anderson 2005b), but again a small amount was found in the settlement (Anderson 2005c). Further to the south, Maltings Lane in Witham, Essex, has produced small quantities of shelly ware, but limestone was more frequent as a calcareous temper there (Anderson 2003). Later, an early-medieval pottery production site at Melton, near Woodbridge, also made use of shell as the major temper (Anderson and Newman 1999). From this distribution pattern it seems that shell tempering was particularly favoured in the southern coastal and estuarine areas of Suffolk, where presumably the material was easier to obtain than it would have been in central East Anglia. Anglo-Saxon shell-tempered pottery was also used further to the west, but the source there was the fossilised shell within limestone, such as was used in the Roman period at Harrold, Beds, and by Late Saxon potters at St Neots, Cambs (Brown 1994; Hurst 1955)

Very few vessels were complete, presumably the result of later disturbance and truncation of many of the burials. It was possible to reconstruct the profile of seven of the

Code	*Fabric*	*No*	*%No.*	*Wt (g)*	*%Wt.*	*MNV*
ESO1	*Grass Tempered Ware* Heavily grass-tempered with few other inclusions.	40	4.5	416	4.5	3
ESO2	*Grass and Sand Tempered Ware* Grass-tempered but containing a high proportion of sand.	184	20.6	1789	19.5	3
ESCQ	*Coarse Quartz* Coarse quartz tempering with few other inclusions.	9	1	29	0.3	3
ESFS	*Fine Sand* Fine sand tempering with few other inclusions.	2	0.2	16	0.2	2
ESSS	*Sparse Shelly* Sparse to moderate fine shell and sand tempering; shell generally leached out.	267	29.9	3319	36.3	11
ESCS	*Coarse Shelly* Coarse quartz and shell inclusions in a finer sandy matrix; shell leached out.	161	18	1218	13.3	5
ESCF	*Granitic* 'Charnwood Forest type' containing granitic tempering (dark mica, feldspar).	231	25.8	2364	25.8	3
	TOTAL	**894**		**9151**		**30**

Table 4.11 Fabric descriptions for the early Anglo-Saxon pottery

more complete examples, of which two were sub-biconical jars, four were globular jars and one was a hemispherical bowl.

Cremation containers

Eleven cremations were 'urned', but unfortunately several had been truncated and only the bases of the pots survived. The more complete vessels are described below, together with suggested dates based on the form and/or decoration.

Six of the vessels contained shell as the main inclusion, three were largely organic tempered, and two had coarse granitic tempering (Table 4.12). Organic, grass-tempered fabrics (ESO1/O2) have been argued to increase markedly in use from the 6th century, and in southern England especially from later in the century (Hamerow 1993, 54, 314, fig. 41; Hamerow *et. al.* 1994, 14), so the otherwise undiagnostic vessels in this fabric may be broadly dated to this period.

In general, the clay matrix and sand inclusions were the same for all vessels, but the granitic-tempered vessels were an exception. These had a very coarse clay matrix, possibly indicating a non-local source. However, they appear different to granitic vessels found in west Suffolk and Cambridgeshire and, as noted above, they need not have originated in Charnwood Forest.

Cremation	*Pot description*
1 (Fig. 3.2)	Small, flat-rounded base, lower half only, plain. Smoothed surface.
	ESSS: Hard black fabric. Fine sandy matrix containing moderate sub-rounded uncoloured and brown quartz sand up to 0.8mm diam., sparse fine mica, and moderate leached calcareous inclusions (shape of voids indicates shell).
	*(349)*24 sherds (253g).
2 (Fig. 3.2)	Thick flat-rounded base, lower half only, plain. Smoothed surface. 6th/7th century.
	ESO2: Hard dark brown fabric. Fine sandy matrix containing moderate sub-rounded uncoloured, white and brown quartz sand up to 0.8mm diam., sparse fine mica, and common burnt-out grass. Probably also some leached calcareous inclusions (shape of voids indicate shell).
	*(381)*12 sherds (284g).
3 (Fig. 3.2)	Rounded base, globular vessel, lower half only. Finger smoothing externally.
	ESCF: Hard dark brown fabric, rough internal surface. Medium sandy matrix containing abundant medium sub-rounded uncoloured and black quartz sand up to 0.5mm diam., sparse felspar *c*.1–3mm, occasional flint, ferrous particles, gold mica, red and grey grog, and large voids. Not typical ESCF.
	*(390)*128 sherds (1470g).
4 (Fig. 3.3)	?Flat-rounded base. Fragments of body and shoulder of sub-biconical jar, with small vertical hollow bosses and faint incised lines, but this area abraded. Smoothed internally and externally. ?6th century.
	ESO1: Hard black fabric, oxidised externally. Fine sandy matrix containing moderate sub-rounded uncoloured, white and brown sand up to 0.5mm, sparse fine mica, and common burnt-out grass/chaff.
	*(396–97)*24 sherds (253g), and 1 sherd unstratified *(100)*
5 (Fig. 3.3)	Flat-rounded base and body of globular jar with eight long vertical hollow bosses, 17–20mm wide, and *c*.60–70mm apart. 6th century or later.
	ESCS. Hard brown fabric, partly oxidised. Medium sandy matrix containing moderate sub-rounded white, uncoloured and brown quartz sand up to 3mm, occasional flint and abundant large voids, several of which show corrugated impressions (cockle shell?). Possibly also occasional chaff and grain impressions. Very corky texture.
	*(429)*40 sherds (691g).
8 (Fig. 3.7)	?Flat-rounded base. Globular jar with segmented circle stamps on upper half of body. Stamps: Briscoe Type A5aviii. Rim lost. Smoothed internally and externally. 6th/7th century.
	ESO2: Hard brown fabric. Very fine sandy matrix with occasional coarse quartz, sparse fine mica and moderate grass/chaff tempering, including grain impressions.
	*(487)*153 sherds (1500g).
9 (Fig. 3.7)	Rounded base, upper-half decorated with incised panels of horizontal and diagonal lines, stabbed dots and cruciform circle stamps. Stamps: Briscoe Type A4ai. ?Globular jar, 6th century.
	ESSS: Very hard well-fired grey fabric, partly oxidised externally. Fine sandy matrix with moderate white, brown and uncoloured coarse quartz up to 2mm. sparse fine mica and moderate voids (shell), occasional grass.
	*(637)*30 sherds (259g).
10 (Fig. 3.8)	Flat-angled base, lower half only, smoothed internally and externally.
	ESCS: Hard brown-black fabric. Fine sandy matrix with occasional coarse quartz up to 3mm, sparse fine mica and common coarse voids (shell). Occasional red grog.
	(644) 30 sherds (256g).
11 (Fig. 3.9)	Flat-rounded base, lower half only, external surface smoothed, interior untreated and very rough.
	ESCF: Hard black fabric, slightly oxidised (brown) externally. Medium sandy matrix containing abundant sub-rounded quartz grains, common pinkish felspar up to 5mm, occasional gold mica, common chaff/grass impressions. Felspar grains hardly visible externally.
	(674) and inhumation 32 (fill *(1014)* and find no. 3) 89 sherds (886g).
12 (Fig. 3.8)	Complete vessel, cracked on one side, one small area of rim lost. Tall globular, wide-mouthed jar with upright rim, plain, base slightly sagging. Rim diam. 160mm. 6th/7th century. Evidence of sooting.
	ESSS: Hard brown fabric. Fine sandy matrix with occasional coarse quartz up to 2mm, sparse mica and moderate medium voids (shell).
	(662) complete pot (1408g).
13 (Fig. 3.9)	?Rounded base. Tall globular, wide-mouthed jar with upright rim, plain. Smoothed internally and externally. Rim diam. 180mm. 6th/7th century.
	ESSS: Hard black fabric, oxidised externally. Fine sandy matrix, occasional coarse quartz up to 3mm, sparse fine mica, moderate voids (shell).
	(687–88/691–92/697/706) 119 sherds (531g).

Table 4.12 Pots from the cremation burials

Five vessels were represented by remains of the lower halves only, and one consisted largely of base sherds and a few pieces of rim collected from a separate context. The form of these six vessels could not be determined and there was no decoration on the surviving sherds. Of the identifiable vessels, three were globular jars, one was a sub-biconical jar and two were tall wide-mouthed jars with slightly globular sides. This latter form suggests a date from the 6th century. Most bases were flat-rounded (Hamerow 1993, fig. 26), although a few were rounded and one was angular. The few surviving rims were plain, and either upright or slightly everted.

Four vessels had surviving decoration. Two had vertical bosses with hollow backs (cremations 4, 5; both no. 1), and one of these probably had incised decoration in the form of parallel lines. The sub-biconical example from cremation 4 (no. 1) may be of 6th century date, whilst the globular vessel from cremation 5 (no. 1) is probably 6th century or later. The jar in cremation 8 (no. 6), found beside the hanging bowl, had segmented circle stamps distributed at random across the upper half of the body and is probably of 6th century or later date. The globular vessel from cremation 9 (no. 1) had stabbed dots and cruciform circle stamps, in chevrons delineated by parallel horizontal and diagonal lines, again probably dating to the 6th century.

Inhumation accessory vessels

Four inhumations contained notable pot remains (Table 4.13). A complete, small plain bowl was found in inhumation 15 (no. 1). This type of vessel has been associated with infant/juvenile graves in other East Anglian cemeteries. Such pots perhaps contained victuals (Lucy 2000, 92–4), though no evidence of this was found in any of the Tranmer House vessels.

Of the other pots, that in inhumation 30 (no. 1) comprised the lower half only. Possibly it was included broken, or if originally set higher up in the burial it could have been damaged by later activity. In inhumation 31 a single large body sherd (no. 1) was found with vertical hollow-backed bosses. It might have been deliberately included, used as a 'plate', although it was found over the head stain, which perhaps makes its accidental inclusion in the backfill more likely.

In inhumation 17 (no. 1) a complete sub-biconical jar was included with small vertical hollow-backed bosses and stamp-and-line decoration. The stamp pattern comprised a triple band at the neck, delimited by incised lines and, below this, groups of nine stamps set between the bosses. This ornament suggests possibly a date in the 6th century.

The nine sherds from inhumation 32 were from the urn in cremation 11, evidence that the inhumation had disturbed the earlier burial.

The basic clay matrix of the fabrics is the same as identified in the cremation vessels, with shell-tempering again dominating.

Pottery from ring-ditches

Three ring-ditches produced a small quantity of pottery. A sherd of ESFS fabric from ring-ditch *[344]* was abraded and possibly burnt; it may be of Roman date, although it had a handmade appearance. Five sherds of a single vessel (ESCS) were collected from a buried-soil layer associated with ring-ditch *[698]*. In addition, one small organic-tempered sherd (ESO2) was intrusive in the ring-ditch *[351]* of the Bronze Age barrow of *Phase 3*.

Pottery from other features

Two features can be dated, tentatively, to the early Anglo-Saxon period by the presence of sherds. Four (ESSS) were found on the surface of pit *[476]*, and a single body sherd of a 'burnt organic' fabric came from small pit/post-hole *[20]*, found during the 1997 evaluation (Abbott 1997, app. III–IV). However, alone they are poor evidence and might equally represent residual material in later features. The single sherd (ESCQ) recovered from a small pit/post-hole *[386]* just north of cremation 1 is such an instance, found together with recent rabbit bones. Further pottery (ESCQ/ESSS) was found in pit *[371]* together with modern pottery, and in trenches *[357]* and *[703]*, that between them cut several Anglo-Saxon ring-ditches and inhumation 27. In addition, one sherd (ESCF) was intrusive in a ditch *[335]* of *Phase 4ii*.

Discussion

Nine of the fourteen vessels recovered from burials were in shell-tempered fabrics, four were organic and one was

Inhumation	*Pot description*
15 (Fig. 3.12)	Complete, small curved bowl, plain, smoothed surfaces. Rim diam. 110mm. 6th century?
	ESSS: Hard brown fabric. Fine sandy matrix with occasional coarse quartz up to 2mm, sparse mica and moderate medium voids (shell).
	(526) complete vessel (294g).
17 (Fig. 3.15)	Complete, sub-biconical jar with upright plain, slightly everted rim; its base is not reconstructable. Band of stamp decoration on neck delineated by single incised lines above and below. Small vertical hollow bosses *c*.20mm by 40mm, 75mm apart (to centre of boss). Stamped with nine segmented circle or cruciform circle stamps in rows of three between bosses, and three rows in neck band. Stamps: Briscoe Types A4ai and A5aviii. Smoothed surfaces. 6th century.
	ESSS: Hard brown fabric. Fine sandy matrix with occasional coarse quartz up to 2mm, sparse mica and moderate medium voids (shell).
	(634) 60 sherds (588g).
30 (Fig. 3.36)	Flat-rounded base, lower half only. 6th–7th century.
	ESO1: Soft black fabric, partly oxidised externally. Fine sandy matrix, sparse large quartz up to 3mm, abundant grass tempering, sparse fine mica. Surface rough.
	(1001/1031) 6 sherds (137g).
31 (Fig. 3.39)	Bossed jar, form uncertain. Vertical hollow-backed boss *c*.18mm wide and *c*.45mm long. Smoothed surfaces. 6th century.
	ESCS: Very hard grey fabric, oxidised red externally. Fine sandy matrix, common coarse sub-rounded white, brown and uncoloured quartz, moderate coarse voids (shell), possibly some organic content.
	(sf2209) 1 sherd (77g).

Table 4.13 Pots from the inhumation burials

granitic. Sand-tempered sherds occurred only as residual material. Recent work on contemporary assemblages in East Anglia has suggested that fabrics were generally much more variable in settlements than in cemeteries (Anderson 2012), although at Carlton Colville it has been suggested that a greater diversity of fabrics was present in the earlier phases (Tipper 2009, 207–8). As noted above, few other East Anglian sites have produced such a high proportion of shelly wares, the most comparable being the settlement site at Handford Road (Ipswich), which appears (on the pottery evidence at least) not to have continued much beyond the end of the 6th century (Anderson 2005a). At Tranmer House, the dominance of shell temper is likely to reflect its availability locally. The organic-tempered wares have parallels at Sutton Hoo, in the undecorated, tall and globular pot used as a cremation urn in Burial 14, and the bossed globular example from the mound 17 burial (Bruce-Mitford 1975, 28, figs 22–3; Wade 2005, 268, fig. 106). Both are dated to the late 6th or early 7th century.

Seven vessels were identifiable to form. Four were globular, two were sub-biconical jars, and one was a small bowl. No identifiable 'early' forms (i.e. facetted, carinated) were present, and equally there were no 'bag-shaped' vessels, typical of the 7th century.

Where it was possible to determine with any certainty whether decoration was present, four vessels were classified as 'plain' and six had decoration (cremations 4, 5, 8 and 9; inhumations 17 and 31), including bosses and linear ornament, and three had stamps. Combined, the evidence for organic tempering, vessel form and decoration, associates the majority with the 6th century, or possibly later.

Only one of the 'funerary' vessels showed evidence of sooting, the tall globular jar in 'cremation' 12 (no. 1). This contrasts with the pots from burials at Flixton, the majority of which had evidence for pre-funerary use in the form of sooting or burnt food residue (Anderson 2012).

Pot stamps

by D. Briscoe

Four stamps (Fig. 4.14) were identifed on three vessels, from cremations 8 (no. 6) and 9 (no. 1), and inhumation 17 (no. 1). These have been compared with the types identified by Briscoe (1983), and with her *Archive of Anglo-Saxon Pottery Stamps* (AASPS). Two vessels (cremation 9 and inhumation 17) have Type A4ai stamps: cruciform circle (or 'hot cross bun'). This is the most common stamp form. Two examples from Needham Market are the closest parallels locally. One of the pots (inhumation 17) has a second stamp form, which occurs also on the vessel from cremation 8, Type A5aviii: negative rosette with eight petals. This is another very common motif with a wide distribution. None of the related stamps were from the same stamp-tool.

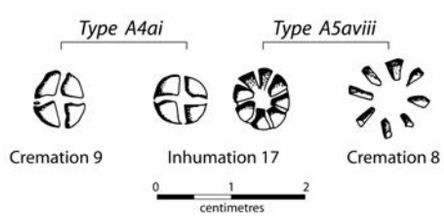


Figure 4.14 The pottery stamps from Tranmer House, by Briscoe (1983) type (scale 1/1). By SH

Combs

by I.D. Riddler and N.I.A. Trzaska-Nartowski

(Fig. 3.7)

Double-sided composite combs made of antler were identified from two burials (cremations 8 and 9). Only two fragments survived from cremation 9 (no. 2): a tooth segment and a small part of connecting plate. The comb had been burnt to a buff/white colour, presumably on the pyre. The connecting plate is undecorated and rectangular in section. Saw marks on both edges encroach on to its upper surface, indicating that the teeth on both sides were sawn at an angle. There were 3½ teeth per centimetre on one side and 4½ on the other. A local parallel is the comb from mound 3 at Brightwell Heath, which is undecorated but has a similar section (Reid Moir 1921; West 1998, fig. 11.4). However, the closest parallel comes from West Stow, Suffolk, a comb of late 5th- or early 6th-century date (West 1985, 148–49, fig. 161.12). This chronological bracket could equally apply to the Tranmer House fragments, given the associated decorated urn (see above, *Pottery*).

The comb found in the hanging bowl in cremation 8 (no. 2) is more complete. It had been placed unburnt in the vessel (Fig. 3.4; Pl. VIIe) together with the cremated bone and a possible bucket fragment (no. 3), though its poor surviving state makes it uncertain whether it was fully intact when included. It consists of an end segment and four tooth segments, fastened by at least three iron rivets, to broad undecorated connecting plates of D-shaped section. The connecting plates do not taper at the surviving end and the end segment extends well beyond them. Saw marks from the cutting of the teeth are prominent on both sides. The comb belongs to one of the most common types found in East Anglia during the early Anglo-Saxon period. Examples are known from a wide range of sites, both graves and settlement contexts, including Burwell, Duxford, Eriswell, Stonea and West Stow (Duncan and Riddler 2011). Another is the comb from mound 17 at Sutton Hoo (Evans 2005, 221, fig. 107). The earliest examples at West Stow date from the 6th century (West 1985, figs 49.1 and 76.5). It is very difficult to date individual cases with any precision, although the majority of the East Anglian combs belong to the late 6th or 7th centuries. The type is very common on the Continent as well. Examples from southern Germany date from *c.* 580–650 (Phases SD 7–9) at the Pleidelsheim cemetery. At Westheim they occur from *c.* 480/90–530 (Phase 1) and continue into the 7th century (Koch 2001, 188–89; Reiß 1994, 145–46), and they form part of Type Ger 3.23, of *c.* 530–610, in Phases 4–7 of the lower Rhine chronology (Siegmund 1998, 116).

Besides that in the mound 17 inhumation at Sutton Hoo, comb fragments were also recovered from the cremation burials under mounds 3, 5 and 6, of single-sided composite form, with one of indeterminate type in the mound 18 grave (Evans 2005, 204, 206, 207, 210). No less than three composite combs were found in mound 1: two single-sided and one double-sided (Evans and Galloway 1983; Riddler *et al.* forthcoming). Of particular note is the rite of including a comb with cremated remains contained in a copper-alloy vessel, exemplified by cremation 8, but seen too in mounds 5, 6 and 18 at Sutton Hoo, and also locally at Brightwell Heath (Dickinson and Speake 1992, table 1; Carver and Fern 2005, 286, 289). Within this group, cremation 8 now stands as one of the earliest. From the mid to late 7th

century, combs continued to be associated with hanging bowls, but in inhumations, including in graves at Ford, Castledyke South, Tugby and Lowbury Hill (Bruce-Mitford 2005, nos 27, 46, 54, 74, 88, 95).

Ultimately, the poor survival of skeletal materials within East Anglia, in general, makes it difficult to assess the true quantity and nature of combs buried in the region. They are relatively common in earlier cremation cemeteries of the 5th century (Williams 2003; Riddler and Trzaska-Nartowski 2013), occurring in graves of both males and females. Williams has considered the deposition of combs in these burials at length, reiterating Trollope's original observation that they were mainly placed in urns incomplete, as broken fragments (Trollope 1863, 31; Williams 2003, 102, 107–8), a situation that contrasts with the near-complete examples found in the cremation 8 and Brightwell Heath burials.

Ivory

by C.R. Cartwright and C.J.R. Fern

Three very small fragments of ivory-like material were found with the bone from cremation 13 (no. 3). The pieces have no surviving form or traces of working. One was examined with a high-resolution biological microscope and found to most closely match to burnt ivory, but it was not possible to determine the animal species from which it derived (Cartwright 2010).

Burnt ivory fragments were identified in over 200 (8%) of the cremation burials at Spong Hill, Norfolk, where they were mainly associated with females and in most cases probably indicate remains from a bag or purse frame (Hills 1993, table 2.1; 2001, 142–43; McKinley 1994a, 89; for a reconstruction see Myres and Green 1973, text-fig. 3). The same percentage of cremations contained ivory at Cleatham, Lincs (Leahy 2007, 203–4). Therefore, the fragments from cremation 13 could be likewise derived. At Spong Hill and elsewhere the ivory was from elephant tusk (Bond 1994a; Hirst and Clark 2009, 618). Probably this was traded out of Africa, possibly as ready-made bags (Hills 2001, 135–36; Walton Rogers 2007, 223).

In addition, a possible rare use of this material has been suggested on the sword hilt from inhumation 21, though again it was not possible to identify the ivory-bearing species (see above, *Swords: hilt and scabbard remains*).

III. Investigation of organic remains

Mineral-preserved organic remains were recorded extensively in association with metal finds during conservation at the British Museum's Department of Conservation and Scientific Research: Ceramics, Glass and Metals section. This includes evidence for artefact manufacture, as well as remains from clothing, grave structures and other objects, summarised in Table 4.14 (at the end of this chapter). The majority of the textile remains were separately studied by Penelope Walton Rogers of the Anglo-Saxon Laboratory, York, reported below in *Section IV.* (However, the swords were too fragile to travel to York; sample fragments of textile remains were sent but the swords were examined in their entirety by Caroline R. Cartwright of the British Museum).

Following burial, the mineral preservation of organic material can occur through contact with corroding metal in damp conditions. Corrosion products from the metalwork may be absorbed by the organic cell structure, or an iron oxide may coat the material to eventually leave a 'mineral-replaced' pseudomorph or cast where the organic residue ultimately dissolves (Cronyn 1990, 183, 245; Watson and Edwards 1990, 101; Watson 1994, 34). In other instances, the corrosion salts act as a biocide, limiting the attack of micro-organisms and preventing localised decay.

It should be noted that 'leather' was only recorded with certainty in one case (the sword scabbard from inhumation 21). For all other similar remains the term 'skin product' has been used, since species and treatment process were not determined. Multiple objects have this evidence, particularly buckles, knives and shield-fittings. Nonetheless, at other Anglo-Saxon sites leather has been the most frequent identification of such traces (e.g. Watson 1994, 37).

IV. Textiles and animal pelts

by P. Walton Rogers

Introduction

Remains of textiles and other fibre products were recorded in association with metalwork from seventeen graves, one a cremation burial and the others inhumations. Most of the evidence comes from graves with male-gender accessories, the identifiable female burials being relatively few. The preservation of organic materials in cemeteries of this period depends largely on the presence of corroding metalwork (Janaway 1985; 1989; Walton Rogers 2007, 50–60), and the number of men buried with weaponry at this site has provided a welcome body of data to supplement the predominantly female-related database of Early Anglo-Saxon textiles (Walton Rogers 2007, 58).

It will be shown that the collection as a whole is typical of the 6th century, which was a transitional phase in which the main features of later Anglo-Saxon textile production became established. The textiles include a range of different qualities, from heavy wool blanket and cloak material to finer linens, often both in the same grave. This is commonly the case with flat cemeteries of this period and there is little here, except perhaps the textiles from cremation 8, which would predict the special quality of many of the textiles from the burials in the mounds at Sutton Hoo (Crowfoot 1983; Walton Rogers 2005).

A detailed record of the analysis of each specimen has been placed in the site archive. The use of the textiles and pelts as clothing and soft-furnishings will be discussed separately in *Chapter 8*, where there is a full table of the evidence, together with its interpretation.

Fibre identification in textiles

The fibres in the textiles were identified by the author with the aid of two transmitted-light microscopes, one fitted for polarised light analysis and the other with an eyepiece graticule for measuring diameters and a facility to switch to incident light. Samples were viewed as whole mounts and as cross-sections, with transmitted light up to x640 magnification and incident light up to x160. By this means, the cuticular scale pattern of animal fibres could be recognised, even in part-mineralised samples. Most of the animal-fibre specimens showed the scale pattern and range of diameters to be expected of sheep's wool. In the sample from under the shield in inhumation 16, however, the fibres were predominantly fine, 10–20 microns

diameter, with some medium fibres, 25–38 microns diameter, which incorporated a medulla (central channel). These are features commonly seen in the undercoat of goat.

Plant fibres were identified from their smooth profiles, interrupted by occasional nodes, and by the presence of an internal lumen and cross-markings. It is not always possible to distinguish between flax, from *Linum usitatissimum* L., and hemp, from *Cannabis sativa* L., in poorly preserved specimens (though nettle can usually be identified at this level). The fibres in the braid or cord from inhumation 26 could be confidently identified as flax, from well-preserved fibres, 10–12 microns in diameter, each with a fine lumen and well-spaced cross-markings, and from a clockwise rotation in the 'drying-twist test' (Textile Institute 1975, 14–20). The samples from cremation 8 (2/1 twill on item 1), inhumation 19 (textile on item 1) and inhumation 30 (tabby on item 12) were almost certainly also flax. The fibres of the textile on the knife (item 5) from inhumation 32, however, were 14–22 microns diameter and each had a wide medulla, almost obscured by dense cross-markings: this has been interpreted as probably hemp.

The main textile types

Full technical details (weave, spin, thread-count and fibre) could not be recorded in every case, but weave (Fig. 4.15) and spin were clear in twenty-nine textiles from thirteen graves and in twenty-three of these the fibre could be identified (Table 4.15). The most common textile type proved to be tabby (Fig. 4.15; Pl. XVa), made with Z-spun yarn in warp and weft (ZZ), and in every case where the fibre could be identified, it was flax or hemp. These are mostly medium and fine fabrics, with thread-counts ranging from 14 x 14 to 20 x 17 threads per cm. They make up less than half of the group, which is typical of 6th-century collections: the major increase in the use of ZZ tabby belonged to the next century (Walton Rogers 2007, 106–7). One sub-set of ZZ tabby, the tabby repp, in which one system of yarn lies straight while the other weaves round it, has been isolated relatively recently from ordinary ZZ tabby. On the evidence collected so far, it appears to have been especially common in 6th-century burials in Kent and Suffolk (Walton Rogers 2007, 67–8, 220) and it is possible that it represents a particular costume accessory of this period (discussed further in *Chap. 8*).

The next most common textile group is represented by the 2/2 twills, which can be divided into those made exclusively from Z-spun yarn (ZZ) (Fig. 4.15; Pl. XVb) and those with warp and weft spun in opposite directions (ZS). ZS twills almost always prove to be made of wool (Walton Rogers 2007, 72), and, as here, often have a diamond pattern (inhumations 20, 21, 24, 29 and 32). The pattern repeat of 20Z x 18S in the diamond twill in inhumation 20 (Fig. 4.15; Pl. XVc) has been previously recorded in ten examples from Kent, London and Sutton Hoo, but it also occurs in some numbers on the opposite side of the North Sea. Anglo-Saxon England shared a common textile culture with the Frisian region, so that it is difficult to distinguish products of the two regions, but it is not impossible that these particular diamond repeats represent imports (Bender Jørgensen 1992, 133–35, 142–43; Walton Rogers 2007, 77, 237–38).

ZS wool twills can occur in a range of different qualities, but the examples from this cemetery are mainly medium-weight, thread-counts around 10–12 per cm,

Textile type	*Wool*	*Linen*	*Fibre not id.*	***Total***
ZZ tabby	0	4	3	**7**
ZZ tabby repp	0	4	2	**6**
ZZ 2/2 twill	*3	1	0	**4**
ZS 2/2 twill	3	0	0	**3**
ZS 2/2 diam	4	0	1	**5**
ZZ 2/1 twill	0	2	0	**2**
Other	1	1	0	**2**
Total	**11**	**12**	**6**	**29**

* One probably goat fibre

Table 4.15 Textiles from thirteen graves. Only confident identifications have been included

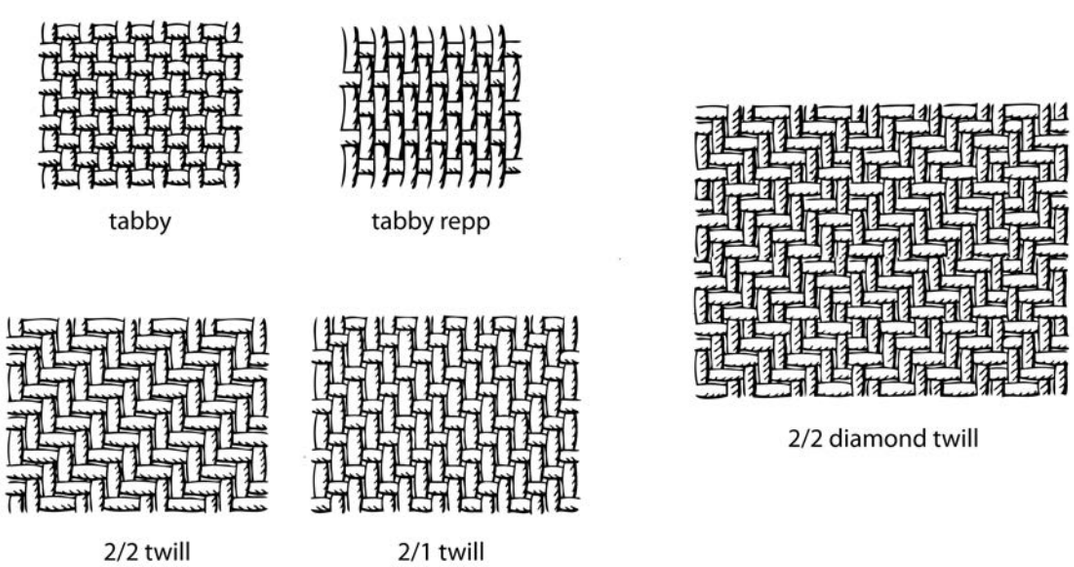


Figure 4.15 The structure of the weaves described in the text. By ASLab

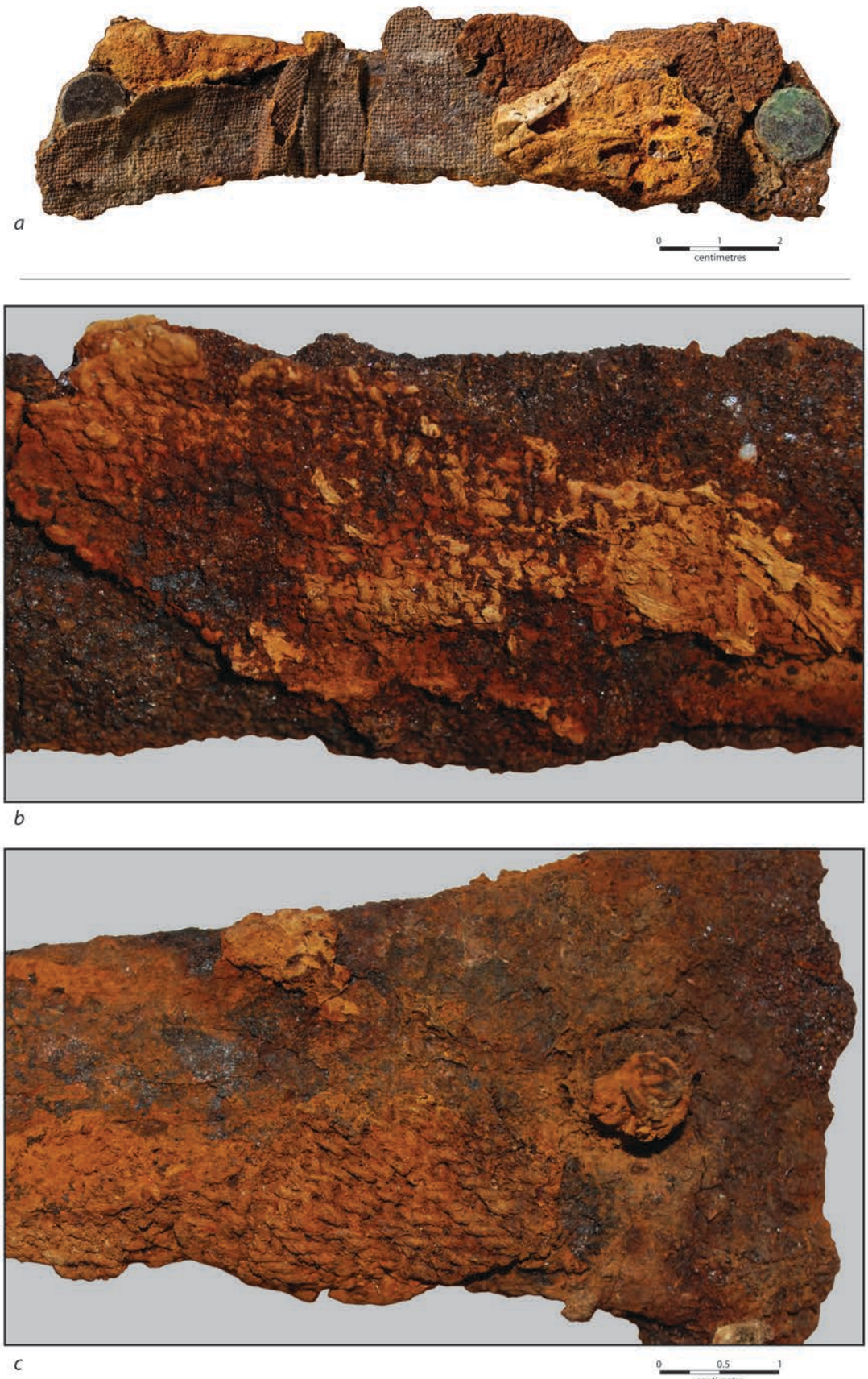


Plate XV Textile remains: a) multiple layers on the back (facing downwards in grave) of the shield hand-grip from inhumation 21; b) ZZ 2/2 twill, possibly goat-fibre, on the blade of the spearhead from inhumation 16; c) ZS wool 2/2 diamond twill on the back of the shield hand-grip from inhumation 20. The Z-spun system, probably the warp, runs lengthways along the grip (scale 2/1; except (a), scale 1/1)
(a) Copyright Trustees of the British Museum; (b–c) By CF

with one possible coarse example from inhumation 16. The textile type is rarely encountered in 5th-century graves, but through the course of the 6th century it steadily became established as the main wool clothing fabric of Anglo-Saxon England, displacing its predecessor wool 2/2 ZZ twill in the process (Walton Rogers 2007, 104–7). The transition is neatly illustrated in this cemetery (for dating see Table 7.4 and discussion in *Chap. 7; Sect. V*), where there are ZZ 2/2 twills in wool (or goat-fibre in one instance) from two burials of *AS Phase A* (inhumations 16 and 23), one from *AS Phase B* (inhumation 21) and none from *Phase C*, in contrast with ZS 2/2 twills from one unphased burial (inhumation 29), six from *AS Phase B* (inhumations 14, 20, 21, 24, 28 and 32) and one from *AS Phase C* (inhumation 27), with a possible second (inhumation 26). Linen 2/2 ZZ twill (inhumation 30), on the other hand, is a comparatively rare fabric-type, but one which keeps re-appearing throughout the Anglo-Saxon period.

A fine linen 2/1 twill was recorded in cremation 8 (*AS Phase B*) (Fig. 4.15; Pl. VIId) and there is a coarser example from Inhumation 24 (*AS Phase B*). This weave structure comes more naturally to the Roman two-beam vertical loom than the warp-weighted loom of the Anglo-Saxon settlements and for this and other reasons it has been interpreted as a survivor of Romano-British technology (Walton Rogers 2007, 72–3, 110, 230–32; Owen-Crocker 2007). Among sites of the 5th and early 6th centuries it occurs in areas where Romano-British continuity seems likely, although it is possible that some of the 2/1 twills from the south-east represent imports from the Continent. In later phases, 2/1 twill developed a closer relationship with well-furnished graves: at Sutton Hoo, for example, there were fine representatives of the weave in mound 1 (Crowfoot 1983, 438–42, textiles SH7, SH8 SH22) and mound 7 (Walton Rogers 2005, 209, 262). The two examples from Tranmer House demonstrate that either the technology to produce the weave, or the appropriate exchange networks for its import, existed in the area of Sutton Hoo before the mound burials were established.

Finally, a heavy wool fabric with an irregular weave structure was noted in a flat layer under the hanging bowl in the cremation 8 burial. It is possible that this is a diamond twill with a disrupted pattern although it also bore a resemblance to the coverlet weaves identified in grave 37 at Snape (Crowfoot 2001, 208–10; Walton Rogers 2007, 82, 236) and grave 52 at Flixton (Boulter and Walton Rogers 2012, 123).

Miscellaneous

The linen tape binding the sword scabbard from inhumation 21, together with cords, has been described above (see *Swords: hilt and scabbard remains*). Similar tape bindings have been recorded in later high-status burials although they are mostly finer and at 20 x 16 threads per cm, this example does not compare with the woven tapes from Sutton Hoo mound 1 (textiles SH13, SH16, SH23), one of which, binding the sword scabbard, had 64 threads per cm (Crowfoot 1983, 449–50, 460–62). A linen braid or cord had been used to suspend the tweezers in inhumation 26. Lastly, a fine plied thread in inhumation 30, in association with decayed skin product probably represents the stitching on a leather sheath or bag.

Animal pelts

Remains of animal pelts were recorded on the backs of shield hand-grips in inhumations 16, 23 and 24. In none of these was the scale pattern well-enough preserved to allow the species to be identified, but in the example from inhumation 16, the fibres were straight and measured 37–87 microns in diameter, which is commensurate with the coat of cattle. This adds to the limited body of evidence for what was probably an extensive use of animal pelts in Anglo-Saxon clothing and covers (Walton Rogers 2007, 103–4).

Endnotes

1 The preferred term here is 'hook-mount', rather than 'escutcheon', that was originally a term from heraldry.

2 The Sutton Hoo mound 17 grave was included in the recently published chronological study of early Anglo-Saxon graves and grave-goods that used high-precision radiocarbon dating, modelled with Bayesian mathematics, as its basis (Bayliss *et al.* 2013, 326). This has proposed a date for the burial of cal AD 615–650 (95% probability, UB-4423), slightly later than that argued on stylistic and typological grounds (see Evans 2005; 215–49; Carver and Fern 2005, 298–301, 310).

3 Further form-related bosses from Suffolk include one from Bury St Edmunds, associated with a Swanton Type E2 spearhead (West 1998, fig. 14), and multiple examples were found at Hadleigh Road (Ipswich; *ibid*., figs 70–1). In Norfolk, instances from Morning Thorpe occurred with large Type D2 and E3/4 spearheads (Green *et al*. 1987, figs 311, 315, 365, 381, 42; graves 42, 61, 215, 255, 367). At this cemetery, however, all except one of the bosses have knob-headed flange rivets, characteristic of Dickinson/Härke Type 6 bosses. Nevertheless, their formal relationship seems clear. Further afield, grave 965 at Mucking II, Essex, contained another (Hirst and Clark 2009, fig. 104), and an example with small, flat flange rivets came from grave 28 at Berinsfield, Oxon, found with two spearheads of Types C4 and E4 (Boyle *et al*. 1995, fig. 57).

Grave	*Find no.*	*Position*	*Object*	*Organic material*	*Position*	*Comment/Interpretation*
Crem. 8	**1**	centre of grave pit	bronze hanging bowl	cord/string	possible remains, on inner loop of suspension rings	means of suspension
				textile	on exterior body of bowl: on base, repair patch and up sides to rim (and detached)	Pl. VIId; see Table 8.5
				wood	inner rim	wooden lid; Pl. VIIf
Inhum. 14	**1**	right head-end, ?outside of grave-lining/on top of lid	iron spearhead	wood	inside socket	shaft
	2	upper ?chest/neck	iron shield-boss and hand-grip	skin product	between wood of shield-board and boss flange	?leather front cover of shield-board
					on terminal end of the grip (still *in situ*), between metal and wood, facing away from the boss (back of shield)	?leather back cover of shield-board
					inside of grip (facing shield-board), under wood of handle	?leather wrapping on grip
				textile	underside of grip (towards body)	see Table 8.5
				wood	underside of flange	shield-board
					inside of grip (facing shield-board)	handle
					outside of boss cone	?lid
	3–4	?chest and ?head	iron shield-board mounts (x4)	plant material	on front of disc-heads, arranged randomly	covering over body (and objects)
				skin product	underside of the disc-heads, over wood, and a second layer fronting the rivet washers (i.e. backing the wood)	?leather front and back covers of shield
				wood	between upper and lower layers of skin product on reverse of mounts	shield-board
					on front of disc-head (no. 4 only)	?lid
	5	left of buckle, ?waist	iron knife	horn	on tang	handle
				skin product	both sides of blade; layer extends around both cutting edge and back	?leather sheath
				textile	over skin product (and detached)	see Table 8.5
	6	centre ?waist	iron buckle	insect remains	puparia on unidentified remains, on loop	Pl. XVIa
				textile	on loop	see Table 8.5
				unidentified	very degraded material on inside of loop	?leather belt
Inhum. 15	**2**	?waist	iron buckle	skin product	at the axis and extending inside/around the tongue base	?leather belt
				textile	on front of loop	see Table 8.5
					on underside of loop	
Inhum. 16	**1**	left arm	iron spearhead	plant material	on blade and socket, over textile	covering/lining for body (and objects)
				skin product	patch on one side of the blade	
				textile	one side of blade and on socket, under plant remains	Pl. XVb; see Table 8.5
				unidentified	trace, amorphous, organic material on socket	?binding/strap
				wood	inside socket	shaft
	2	right shoulder	iron shield-boss and hand-grip	hide with hair/fur	back of boss-rivet washers; at least two layers present under textile (i.e. uppermost)	under shield — clothing or covering over body (see Table 8.5)
				plant material	on outside of boss and on flange disc-heads, arranged roughly parallel	covering over body (and objects)
				skin product	between board wood and underside of the rivet washers	?leather back cover of shield-board
					inside of grip (facing shield-board), on top of wood remains	?leather wrapping on grip/handle

Grave	*Find no.*	*Position*	*Object*	*Organic material*	*Position*	*Comment/Interpretation*
				textile	on underside of grip (towards body), over hide with hair/fur (i.e. underneath)	see Table 8.5
				wood	underside of boss flange	shield-board
					on grip (facing shield-board) and on underside of rivet washers; two layers present at both ends	lap joint cut in shield-board for handle
	3–4	chest and head	iron shield-board mounts (x4)	hide with hair/fur	single layer on back of rivet washer (no. 4 only)	clothing or covering over body (see Table 8.5)
				plant material	on front of disc-head (no. 4 only)	covering over body (and objects)
				skin product	underside of the disc-heads, over wood, and a second layer fronting the rivet washers (i.e. backing the wood)	?leather front and back covers of shield-board
				wood	between upper and lower layers of skin product on reverse of mounts	shield-board
	5	lower chest	iron knife	horn	on tang and shoulder	handle
				skin product	both sides of the blade	?leather sheath
				textile	around tip on one side, and on opposite face of blade also	see Table 8.5
	6	centre waist	iron buckle	textile	on front of loop	see Table 8.5
				unidentified	possible skin product, on tongue and underside of loop	?leather belt
Inhum. 17	**2**	left head-end	iron spearhead	plant material	on socket	covering/lining for body (and objects)
				wood	inside socket	shaft
	3	left chest	iron shield-boss and hand-grip	bone	small area on underside of flange	skeletal
				plant material	on outside of boss and around apex, arranged randomly	covering over body (and objects)
				skin product	between boss flange and wood of shield-board	?leather front cover of shield-board
					inside of grip (facing shield-board), under wood of handle, and possibly a thin layer along the rivet	?leather wrapping on grip
				wood	underside of boss flange	shield-board
					small area on inside edge of flange underside	handle
					inside of grip (facing shield-board)	handle
	4–5	head (neck), and left ?arm	iron shield-board mounts (x4)	plant material	on front of disc-heads, arranged randomly	covering over body (and objects)
				skin product	underside of the disc-heads, over wood, and a second layer fronting the rivet washers (i.e. backing the wood)	?leather front and back covers of shield-board
				wood	between upper and lower layers of skin product on reverse of mounts	shield-board
	6	lower chest	iron knife	horn	on tang	handle
				skin product	area on one side of blade	?leather sheath
	7	centre waist	iron buckle	insect remains	puparia and insect carcass, on skin product, at loop	
				skin product	between belt-plates and through loop	?leather belt
				textile	on underside of plate and loop	see Table 8.5
	8	left arm	copper-alloy fittings (x3)	unidentified	possible skin product, along edges	?leather back cover of shield-board
					on detached fragment, possibly horn or bone	
				wood	around iron rivet shanks	shield-board
Inhum. 18	**1**	left?head-end	iron spearhead	skin product	on socket and a small amount on one side of blade	
				unidentified	probable bone, on blade and edge of socket	skeletal

Grave	*Find no.*	*Position*	*Object*	*Organic material*	*Position*	*Comment/Interpretation*
				wood	inside socket	shaft
	2	left ?waist	iron knife	horn	on tang	handle
				insect remains	puparia, on skin product, on one side	
				skin product	edge of blade	?leather sheath
	3	?waist	iron buckle	unidentified	possible skin product running through loop	?leather belt
Inhum. 19	**1**	neck/right shoulder	copper-alloy brooch	textile	both sides of iron pin, and on ?back	see Table 8.5
	2	left shoulder	copper-alloy brooch	textile	on iron pin	see Table 8.5
	4	left ?waist	iron knife	horn	on tang	handle
				skin product	both sides of blade	?leather sheath
	5	right ?waist	iron buckle	skin product	between belt-plates and through loop	?leather belt or strap
Inhum. 20	**1**	left upper chest	iron spearhead	plant material	both sides, arranged randomly	covering/lining for body (and objects)
				skin product	one side of socket	
				wood	inside socket	shaft
					small area on one side of blade	?burial-container/grave-lining/lid
	2–3	head (neck)/right foot	iron shield-boss and hand-grip	bone and teeth	on expanded terminal of grip	human skeletal
				plant material	on outside of boss, arranged roughly parallel	covering over body (and objects)
				skin product	between boss flange and wood of shield-board	?leather front cover of shield-board
				textile	on underside of grip (towards body)	Pl. XVc; see Table 8.5
				wood	two areas on underside of boss flange	shield-board
					inside of grip (facing shield-board)	handle
	4	lower chest	iron knife	textile	on one side of blade	see Table 8.5
				unidentified	amorphous, on blade and tang	
	5	left foot	iron fittings (x8)	plant material	on upper surface of one fragment, arranged randomly	covering/lining for body (and objects)
				wood	underside of fittings	
	6	head-end	iron rivet	wood	covering and perpendicular to shank	
Inhum. 21	**1**	left head-end	iron spearhead	feather	two feathers, over textile (i.e. underneath)	Pl. XVIb; down of ?head-pillow
				plant material	along one side of blade, arranged roughly parallel	covering/lining for body (and objects)
				textile	on one side, covering blade and socket	see Table 8.5
				wood	inside socket	shaft
	2	neck/head	iron shield-boss and hand-grip	plant material	on outside of boss and on flange, arranged roughly parallel	Pl. Xa; covering over body (and objects)
				skin product	between boss flange and wood of shield-board, and a second layer fronting the rivet washers (i.e. backing the wood)	?leather front and back covers of shield-board
					inside of grip (facing shield-board); possibly extending around and up the sides of the surviving handle wood	?leather wrapping on grip/handle
					thin layer of skin product on back of grip rivet washer	?leather front cover of shield-board
				textile	on underside of grip (towards body)	Pl. XVa; see Table 8.5
				wood	underside of the flange; small area of original hand-hole edge on the interior of flange	shield-board
					on inner surface of grip, the full width of the straight-edged handle is preserved, the wood grain running in line with the brace	handle

Grave	***Find no.***	*Position*	*Object*	*Organic material*	*Position*	*Comment/Interpretation*
	3–4	right and left of shield-boss	copper-alloy shield-board mounts (x8)	coating	a whitish calcite, aluminosilicate and beeswax compound on underside, over skin product (Thickett 2001)	coating on front cover of shield-board
				skin product	between back of disc-heads and wood remains (i.e. fronting board); also over rivet washers (two pieces of board surviving, loose)	?leather front and back covers of shield-board
				wood	between skin product, on reverse of the disc-heads, and in front of the rivet washers (mounts set parallel to wood-grain direction)	shield-board
	5	above shield-boss	copper-alloy 'aquatic' shield-board ornament	coating	a whitish calcite, aluminosilicate and beeswax compound on underside, over skin product (Thickett 2001)	coating on front cover of shield-board
				skin product	between back of mount and wood remains (i.e. fronting board); also over rivet washers (piece of board surviving, loose)	?leather front and back covers of shield-board
				wood	between skin product, on reverse of the disc-heads, and in front of the rivet washers (mount set parallel to wood-grain direction)	shield-board
	6	above 'aquatic' mount no. 5	copper-alloy bird-of-prey shield-board ornament	coating	a whitish calcite, aluminosilicate and beeswax compound on underside, over skin product (Thickett 2001)	coating on front cover of shield-board
				skin product	between back of mount and wood remains (i.e. fronting board); also over rivet washers (piece of board surviving, attached)	?leather front and back covers of shield-board
				wood	between skin product, on reverse of the disc-heads, and in front of the rivet washers (mount set perpendicular to wood-grain direction)	Pl. Xb; shield-board
	7	left chest	iron sword	cord	one side of blade in close association with the woven tapes (some detached)	scabbard binding cords; see Table 8.5
					three cord-lines, radiating from the centre of the sword on one side, upper-third of scabbard; on top of wood and under leather	Pl. XIIIe; decoration created by string-lining/foundation-moulding technique
				fleece/hide with hair/fur	both sides between blade and wood	?fleece inner lining of scabbard
				leather	both sides of blade, over wood and cord	covering of scabbard
				probably horn (another material may be present on the pommel)	traces on tang, the grain runs lengthways	grip
					traces at right angles to the grip, at either end of the tang	upper and lower guards
					creamy white with laminar structure, appears to be different from the organic remains elsewhere on the tang; possibly ivory	pommel
				textile	woven tapes present around the upper part of the sword; Z-spun threads of flax/hemp, tabby woven; on both sides of the blade and on its edges indicating the tapes were wound around the upper sword (some detached)	uppermost scabbard binding; see Table 8.5
					traces on lower part of the sword	?garment/cover
				wood	both sides of blade	scabbard construction
	8	right waist	iron knife	horn	on tang	handle
				skin product	edge of blade	?leather sheath
				textile	on both sides of blade	see Table 8.5
	9	buckle and plate separated, but originally with sword	iron buckle	skin product	on loop; on reverse between plate and washer(s); on underside of plate from another strap (at a right angle to it)	belt ?leather
				textile	on front of loop	see Table 8.5

Grave	***Find no.***	*Position*	*Object*	*Organic material*	*Position*	*Comment/Interpretation*
Inhum. 23	**1**	right head-end	iron spearhead	feather	single feather on blade edge, over textile (i.e. underneath)	down of ?head-pillow
				plant material	on both sides, over textile	covering/lining for body (and objects)
				textile	on one side of blade and wrapping around socket, under plant remains	see Table 8.5
				unidentified	side of socket	
				wood	inside socket	shaft
	2	at head	iron shield-boss and hand-grip	hide with hair/fur	underside of grip (towards body), over textile (i.e. underneath)	clothing or covering over body (see Table 8.5)
				skin product	between underside of boss flange and the wood of the shield-board	?leather front cover of shield-board
					two small areas on outside of the boss	?leather bag?
					on edge of iron grip, close to terminal	?leather back cover of shield-board
					inside of grip (facing shield-board)	?leather wrapping on grip/handle
				textile	underside of grip (towards body), under hide with hair/fur (i.e. uppermost)	see Table 8.5
				wood	underside of boss flange	shield-board
					apical disc of the boss	?cover
					inside of grip (facing shield-board), at terminal end, next to rivet	handle
	3	upper chest	copper-alloy shield-board mounts (x3)	skin product	underside of rivet heads, over wood, and between the washer and the wood	?leather front and back covers of shield-board
				textile	back of one rivet washer only (towards body)	see Table 8.5
				wood	back of rivet heads	shield-board
	5	right of body	iron knife	horn	on tang	handle
				skin product	on blade	?leather sheath
	6	right waist	iron buckle	skin product	through loop	?leather belt
				wood	small areas on front of loop	?cover
Inhum. 24	**1**	left head-end	iron spearheads (x2)	plant material	on upper surfaces of both, arranged broadly diagonally	covering over body (and objects)
				textile	base of socket, (ii) only	see Table 8.5
				unidentified	indistinct, amorphous deposits present on sides of sockets	
				wood	inside sockets	shafts
	2	neck/head	iron shield-boss and hand-grip	hide with hair/fur	underside of grip (towards body), over textile (i.e. underneath)	clothing or covering over body (see Table 8.5)
				plant material	on outside of boss, arranged roughly parallel	covering over body (and objects)
				skin product	between wood of shield-board and boss flange	?leather front cover of shield-board
					inside of grip (facing shield-board), under wood of handle	?leather wrapping on grip
					underside of the grip (toward body), three thongs direct on the iron surface and under the textile layer	?leather carrying strap
				wood	underside of flange	shield-board
					inside of the grip (facing shield-board)	handle
				textile	underside of grip (towards body), under hide with hair/fur (i.e. uppermost)	see Table 8.5
	3–4	at head and upper chest	copper-alloy shield-board mounts (x6)	coating	a whitish calcite, aluminosilicate and beeswax compound on underside, over skin product (Thickett 2001)	coating on front cover of shield-board
				plant material	on front of disc-heads	covering over body (and objects)
				skin product	underside of the disc-heads, over wood, and a second layer backing the wood (2 pieces of board survive, attached)	?leather front and back covers of the shield-board

Grave	*Find no.*	*Position*	*Object*	*Organic material*	*Position*	*Comment/Interpretation*
				wood	between the two layers of skin product, on the underside of the disc-heads	shield-board; Pl.XVII
	5	waist	iron knife	horn	on tang	handle
				insect remains	puparia on top of skin product on one blade face	
				skin product	thick layer in a small area on one side of the blade, extending over back edge	?leather sheath
				textile	on one side of blade, over skin product	see Table 8.5
				unidentified	possible skin product, heavily deteriorated, indistinct and amorphous, on one side of blade	
	6	at neck, below shield-boss	iron buckle	skin product	through loop and pierced by tongue	?leather shield carrying-strap
				textile	on underside	see Table 8.5
	7	centre waist	iron buckle	skin product	through loop	?leather belt
				textile	on underside of loop	see Table 8.5
				wood	on back of loop	?buckle plate (see *Chap. 8; Sect. V*)
Inhum. 25	**1**	left head-end	iron spearhead	plant material	on both sides, arranged randomly	covering/lining for body (and objects)
				wood	inside socket	shaft
	2	left waist	iron knife	horn	on tang	handle
				insect remains	puparia on top of skin product on one blade face, close to the tip	
				skin product	on blade	?leather sheath
Inhum. 26	**3**	upper leg	copper-alloy tweezers	cord/braid	between arms	see Table 8.5
	4	left waist	iron knife	horn	on tang	handle
				skin product	on blade	?leather sheath
	5	waist	iron buckle	skin product	under tongue	?leather belt
				textile	on back of axis	see Table 8.5
	6	left waist	iron ring	skin product	wound around the section of the ring	?leather belt or suspension strap
				textile	on both sides	see Table 8.5
Inhum. 27	**1**	left head-end, outside container/lining	iron spearhead	wood	inside socket	shaft
	2	right of arm/chest, at an angle	iron shield-boss and hand-grip	plant material	on outside of boss, arranged randomly	covering over body (and objects)
				skin product	between boss flange and wood of shield-board, and a second layer fronting the rivet washers (i.e. backing the wood)	?leather front and back covers of shield-board
				wood	underside of boss flange	shield-board
					on inside of grip (facing shield-board)	handle
					underside of grip (towards body)	?burial-container/lid
	3–4	below and under shield-boss	iron shield-board mounts (x4)	skin product	on underside of disc-heads, over wood (no. 3 only)	front cover of shield-board
				wood	on underside of the disc-head, under skin product, and around rivet shank on one example	shield-board
	5	left side	iron sword	bone and associated remains	two areas on one side	skeletal

Grave	*Find no.*	*Position*	*Object*	*Organic material*	*Position*	*Comment/Interpretation*
				fleece/hide with hair/fur	both sides between blade and wood	?fleece inner lining of scabbard
				horn	on tang	grip
					traces at right angles to, and below, the grip	lower guard
				skin product	both sides of blade, over wood	?leather covering of scabbard
				wood	both sides of blade, under skin product	scabbard construction
				textile	small areas on both sides of blade	see Table 8.5
	6	with buckle and sword	iron knife	horn	on tang	handle
				skin product	both sides of blade	?leather sheath
				textile	one side of blade, over skin product	see Table 8.5
	7	with knife and sword	iron buckle	skin product	between belt-plates	?leather belt
				textile	on tip of tongue	see Table 8.5
					on outer loop	
Inhum. 28	**1**	right arm	iron spearhead	unidentified	possibly plant material, centre of blade on one face, close to socket	covering/lining for body (and objects)
				wood	inside socket	shaft
	2	upper chest/neck	iron shield-boss and hand-grip	skin product	between boss flange and wood of shield-board, and a second layer fronting the rivet washers (i.e. backing the wood)	?leather front and back covers of shield-board
					inside of grip (facing shield-board)	?leather wrapping on grip
				textile	underside of boss flange, over rivet heads; possibly on back of hand-grip also	see Table 8.5
				wood	underside of boss flange	shield-board
	3–4	left and right of shield-boss	iron shield-board mounts (x4)	plant material	on front of disc-heads, arranged randomly (not no. 4ii)	Pl. XVIIIa; covering over body (and objects)
				skin product	underside of disc-heads, over wood of shield-board	?leather front cover of shield-board
				wood	underside of disc-heads, under skin product and around rivet shanks	shield-board
	5	left waist	iron knife	unidentified	probably horn, on tang	handle
					probably skin product, on blade	?leather sheath
	6	under disc-mount no. 3ii	iron buckle	skin product	across front and back of the tongue	?leather shield carrying-strap
				wood	on side of loop	probably shield-board
				?textile	possible only	see Table 8.5
Inhum. 29	**1**	right head-end	iron spearhead (socket only)	textile	on one side	see Table 8.5
				wood	inside socket	shaft
	2	upper chest/neck	iron shield-boss and hand-grip	skin product	between boss flange and wood of shield-board	?leather front cover of shield-board
					inside of grip (facing shield-board), under wood of handle	?leather wrapping on grip
					leather strips/thongs present on underside of grip (away from shield-board), wound around each end three times	shield-carrying strap
				plant material	on outside of boss and on flange disc-heads, arranged roughly parallel	covering over body (and objects)
				textile	underside of grip (towards body)	see Table 8.5
				wood	underside of boss flange	shield-board

Grave	***Find no.***	*Position*	*Object*	*Organic material*	*Position*	*Comment/Interpretation*
					inside of grip (facing shield-board)	handle
	3–4	left head-end and upper chest	iron shield-board mounts (x6)	plant material	on front of disc-heads, arranged roughly parallel	covering over body (and objects)
				skin product	underside of the disc-heads, over wood, and a second layer backing the wood	?leather front and back covers of the shield-board
				wood	on underside of disc-heads, between the two layers of skin product	shield-board
Inhum. 30	**4**	with beads, on ?chest	copper-alloy and silver pendant fragments	unidentified	very thin layer	
	5	left upper ?leg	iron girdle-set	plant material	on upper shank of key (i) and its ring, arranged randomly	covering/lining for body (and objects)
				skin product	on rings of both keys (i, iii)	?leather belt
					through buckle loop (ii) and between plates	
				textile	on one side of key (i)	see Table 8.5
					on one (or possibly both) face(s) of key (iii)	
				threads/cord	on pin fragment (iv)	
				wood	small traces along one edge of key (i)	?burial-container/grave-lining/cover
	6	left upper ?leg	iron knife	horn	on tang	handle
				plant material	close to tip of blade, arranged randomly	covering/lining for body (and objects)
				skin product	small area on back of blade	?leather sheath
	7	right waist/shoulder?	iron pin	textile	along length and on head	see Table 8.5
				unidentified	possible skin product, very deteriorated, on lower third	
	8	left ?leg	copper-alloy strap-ends	skin product	with rivets	?leather belt
				textile	on rivet of one	see Table 8.5
				unidentified	on one side of one, close to rivet	
	9	centre ?waist	iron buckle and copper-alloy disc-headed studs	skin product	around tongue and through buckle loop (i)	?leather belt
					detached fragment associated with disc-headed stud (iii)	
				textile	on underside and sides of buckle loop (i)	see Table 8.5
	10	left ?waist	iron ring	plant material	on one side, arranged randomly	covering/lining for body (and objects)
				textile	around outer edge	see Table 8.5
				unidentified	probable skin product, small area	?leather belt/suspension strap
	12	top left, head-end	iron staples (x6)	textile	on outer surface of short hammered-over end on (vi) and one other end fragment	see Table 8.5
				wood	on interiors, perpendicular to the staples' length and on outer edges of short sides	?plank (?cover)
	13i	at ?head	iron latch	wood	grain in line with length of object, on one side, and around nail/rivet	
	14	at ?head	iron nail	textile	on head (and detached)	see Table 8.5
				wood	along shank	
	15	at ?head	iron flat 'blade' fragment	plant material	along one edge, arranged randomly	covering/lining for body (and objects)
				textile	on back of blade at tip	see Table 8.5
				unidentified	middle, on opposite side to wood	possibly skin product: see Table 8.5

Grave	***Find no.***	*Position*	*Object*	*Organic material*	*Position*	*Comment/Interpretation*
				wood	on one side	
	17	right ?shoulder	iron staples (x2)	wood	on interiors, perpendicular to the staples' length and on outer edge of short side on one (i)	?plank (?cover)
Inhum. 31	**3**	centre waist	iron knife	horn	on tang	handle
				skin product	on several areas of blade	?leather sheath
				textile	on back of blade, near tang	see Table 8.5
Inhum. 32	**1**	left head-end	iron spearhead	plant material	close to socket on one side of blade, arranged randomly	covering/lining for body (and objects)
				wood	inside socket	shaft
	2	left upper leg	iron shield-boss and hand-grip	plant material	on outside of boss, arranged randomly	covering over body (and objects)
				skin product	between boss flange and wood of shield-board, and a second layer fronting the rivet washers (i.e. backing the wood)	?leather front and back covers of shield-board
				textile	underside of grip (towards body)	see Table 8.5
				wood	underside of boss flange	shield-board
					inside of grip (facing shield-board) at one terminal end	handle
	3–4	left and right of shield-boss	iron shield-board mounts (x4)	plant material	on front of disc-heads, arranged randomly	Pl. XVIIIb; covering over body (and objects)
				skin product	on underside of disc-heads, over wood, and a second layer fronting the rivet washers (i.e. backing the wood)	?leather front and back cover of shield-board
				wood	on underside of disc-heads, between skin product	shield-board
	5	left waist	iron knife	horn	on tang	handle
				skin product	on edge of blade	?leather sheath
				textile	on back of blade	see Table 8.5
	6	left waist	iron buckle	skin product	on inside of loop	?leather belt or shield-carrying strap
				possible textile	on front of loop	see Table 8.5
	7	centre waist	iron buckle	insect remains	puparia on top of skin product	
				skin product	on inside of loop	?leather belt or shield-carrying strap
Unassoc.	**1**	unassociated	iron spear ferrule	wood	inside socket	shaft
				plant material	on sides of ferrule	covering/lining for body (and objects)
Unassoc.	**2**	unassociated	iron sword fragment	fleece/hide with hair/fur	both sides of blade, under wood	?fleece inner lining of scabbard
				horn	on tang	grip
					traces at right angles to, and below, the grip	lower guard
				skin product	?leather covering of scabbard	both sides of blade, over wood
				wood	both sides of blade, under skin product	scabbard construction
				plant material	on one side of sword in a random arrangement	covering/lining for body (and objects)

Table 4.14 Catalogue of the mineral-preserved organic remains with metal objects (collated by S. Naidorf from observations made by British Museum conservators)

Chapter 5. Human, Animal and Environmental Remains

edited by C.J.R. Fern

I. Introduction

This chapter concerns the human, animal and environmental remains from the site, through *Phases 2–5*, the late Neolithic/early Bronze Age to early Anglo-Saxon period.

II. Human remains

The human bone in the inhumation burials survived very poorly, due to the acidic ground conditions at the site, as was the case at other cemeteries of the period located on the Sandlings strip, including Sutton Hoo (Carver 2005, 38–9, 47–53, 191–92). Nine inhumations had some localised bone or tooth survival, however, preservation that was due to corrosion salts from close-by or overlying metal objects. By contrast, the calcined remains from the cremation burials were not affected by the acerbic conditions. Therefore, the bulk of the human osteological data is drawn from these. In total, the remains of a maximum of twenty-three individuals allowed some analysis (six inhumations; seventeen cremations), a figure that includes redeposited bone. The remains of one individual date to the Bronze Age; the rest are of the early Anglo-Saxon period.

Body stains and sand bodies

by C.J.R. Fern

Body stains of varying definition were identified in all of the inhumation burials at the base of the grave cuts (Fig. 8.5; Pls IIIb–d, IVb–c). In a number of graves these took the form of full or partial 'sand bodies', surviving in relief, usually with the legs best defined. Similar examples were excavated at neighbouring Sutton Hoo and at nearby Snape (Filmer-Sankey and Pestell 2001, 16; Carver 2005, 38–9, 47–53). Most suggest some information about the individual and grave rite, including a general age-range and the attitude of the body (see *Chap. 8; Sect. IV: Body position* and *Orientation*).

The Tranmer House examples were typically of mid-dark (grey-), brown or black sand, sometimes with green or olive tinges, and with a texture that varied from silty to indurated. Occasionally the excavator recorded an 'organic' character. Some had localised, fragmentary bone and teeth surviving (see below). Soil analyses undertaken at Sutton Hoo and at Mucking, where examples also occurred, concluded that the staining and sand bodies formed during decomposition, by the precipitation of manganese (dioxide) within the biological structure of the cadaver (Biek 2005; Biek 2009; Hirst and Clark 2009, 12–8).

The least well-defined examples at the site were the stains in inhumations 15 and 18. For both, grave size and grave-goods suggest, very probably, immature individuals, and since infant and young-juvenile remains are prone to decay more rapidly, this could explain the limited body-stain/sand-body formation in these cases.

The site records for the better-defined body stains and sand bodies allow an estimate of age at death (i.e. infant/juvenile/subadult/adult), on the basis of comparison with data derived from other early Anglo-Saxon cemeteries where skeletal remains survived. 'Body' length for those individuals laid extended (legs unflexed) was *c.* 1.20–1.90m (measured from 1/10 scale plans). That in inhumation 21 was larger, at 2.05m, but it incorporated the stain of a shield-board at the head. Furthermore, the statures these measurements suggest appear to correlate broadly with the gender identifications (i.e. male/female) of the individuals, as suggested by grave-goods. At the cemetery of Castledyke, Lincs, adult male skeletons measured 1.60–1.89m in length; adult females measured 1.49–1.68m (Boylston *et al*. 1998, 225–26, table 6). Therefore, four of the Tranmer House body stains/sand bodies, at 1.71–1.90m, may suggest adult males (inhumations 14, 24, 29 and 32), a conclusion corroborated by the weaponry the graves contained. It is possible the lesser statures of the individuals in two other weapon-burials, inhumations 17 and 28, indicate adolescents (i.e. older subadults), although teeth from one have been identified as from a young adult (see below). Inhumation 16 had a particularly well-defined sand body, 1.38m in length, 'skeletal' in its appearance and proportionate with an older juvenile (*c.* 10–12 yrs). A juvenile is also suggested by the sand body recorded in inhumation 22, the smallest of the extended examples. For the female-gendered burials, the body stain in inhumation 31 was 1.48m in length, consistent with a small older subadult or adult, and the crouched sand body in inhumation 26 had a broadly similar stature.

Human remains from the inhumation burials

by S. Anderson

Fragments of teeth and mandibular bone were recovered from a small number of graves, the only remains to have survived sufficiently to allow analysis. Unfortunately, the information which could be obtained from the study of these was sparse.

Teeth were recovered from four body stains (inhumations 27, 28, 30 and 32) and in two instances were found preserved beneath shield-bosses (inhumations 21 and 24). In addition, traces were identified on a shield hand-grip from inhumation 20, but were too degraded for analysis. The group is too small and fragmentary for detailed interpretation, so summaries are presented below. Degrees of tooth wear are based on Bouts and Pot (1989).

Inhumation 21: body stain *(883)*. Small fragments of tooth enamel and very badly decomposed mandibular bone; fragments of ?molar enamel covered in concreted sand; and two teeth with roots, probably lower right molars. The wear on the ?M2 appeared to be moderate (4–4+), suggesting the individual was probably in middle age.

Inhumation 24: body stain *(911)*. Twenty-three teeth: the enamel had largely flaked off and was preserved as small, unreconstructable fragments. A few pieces of mandibular and unidentifiable, ?facial or basal cranial, fragments of bone were also present. Identifiable teeth comprised all six upper molars, the upper right canine, and all the mandibular teeth. There was no evidence of caries. It was possible to estimate the degree of attrition for some of the teeth, where fragments of enamel had been retained. The molars appeared to be worn to a moderate-to-heavy degree (4–5), suggesting that the individual was middle-aged or older.

Inhumation 27: body stain *(978)*. A small fragment of ?young adult molar, showing a slight degree of wear; only the enamel of the crown survives.

Inhumation 28: body stain *(1003)*. Small pieces of adult teeth, most of which consist of the enamel in tiny fragments. Recognisable pieces include a lower molar, an upper incisor and a premolar. The largest fragments, which still have partial roots surviving, are two upper right molars (second and third). These are small, possibly indicating a female individual, and the wear is light-to-medium, suggesting that 'she' was young or middle-aged at death.

Inhumation 30: body stain *(1032)*. Very poor fragments of green-stained teeth (from copper corrosion), consisting of a few flakes of enamel. Recognisable were pieces of the upper first incisors, one canine and several partial molar crowns. It was not possible to determine the degree of wear due to sand concretions. Probably adult, but could be subadult.

Inhumation 32: body stain *(1019)*. Partial dentition of a mature adult, consisting of the upper right PM2 to M3, the upper left M2–3, the lower right M2–3 and the lower left M1–3. The crowns and part of the roots were present, but the enamel was in poor condition and several crowns were broken. Wear was not heavy, the most severe being the upper right M1 (3+), indicating an age of *c*.25–35 years. The teeth were relatively large and could indicate a male individual.

Human remains from the cremation burials
by J.I. McKinley

Introduction
Cremated bone from sixty-nine contexts was received for analysis. Six contexts related to the remains of a middle Bronze Age unurned burial (*Phase 3*) with redeposited pyre debris (cremation 33) made central to ring-ditch *[351]*. The majority of the material (sixty-three contexts) derived from early Anglo-Saxon deposits within the mixed-rite cemetery (*Phase 5*). The remains comprise those from a minimum of five urned burials (four with redeposited pyre debris), one unurned burial with redeposited pyre debris, and one 'animal accessory' burial (McKinley 1994a, 93) made in a bronze hanging bowl and ceramic vessel (Table 5.1). The remains of a further four disturbed and/or redeposited burials are likely to have been made urned (cremations 2, 4, 9 and 10), three with accompanying deposits of pyre debris, with one other probable unurned burial (cremation 6) also accompanied by pyre debris. Most other contexts represent the remains of pyre debris deposited within various pits (or post-holes) and ring-ditches, with two cases of cremated bone redeposited in the fills of inhumation graves, and one deposit of uncertain type — possibly a redeposited burial of unknown form.

Methods
Osteological analysis followed the writer's standard procedure for cremated remains (McKinley 1994a, 5–21; 2004a). Two of the bone deposits *(489/644)* had been excavated as three/ten sub-contexts (spits and/or quadrants) to enable details of their formation processes to be analysed. These divisions were maintained throughout analysis, though only the data for the overall context in each case is presented in Table 5.1.

Age was assessed from the stage of tooth and skeletal development (Beek 1983; Scheuer and Black 2000), and the patterns and degree of age-related changes to the bone (Buikstra and Ubelaker 1994). Sex was ascertained from the sexually dimorphic traits of the skeleton (Gejvall 1981; Bass 1987; Buikstra and Ubelaker 1994).

The identifiable non-human osseous material was separated out for examination by the archaeozoologist (see below, *Sect. III: Cremated animal bone*); the weight of this material is presented in Table 5.1 for each of the relevant contexts.

Full details of the osteological analysis are held in the archive (McKinley 2008b).

Disturbance and condition
Many (*c*. 33%) of the features containing cremated bone had survived to a depth of only 0.10m or less, and only three graves survived to more than 0.20m (range 0.04–0.30m). In most features the cremated bone was evident at the level of the stripped surface and some bone will undoubtedly have been lost from many of these deposits as a result of truncation. In addition to this disturbance, primarily due to ploughing, many of the features and deposits had been damaged as a result of bioturbation reflecting — occasionally substantial — tree-root damage and animal burrowing, as well as modern disturbance in the case of cremations 2 and 4. Whilst bone may only potentially have been lost from the deposits by such mechanisms, evidence for the burial formation process was certainly disrupted.

The most intact burial deposit subject to examination derived from grave *[491]*, containing cremation 8, which survived to a depth of *c*. 0.17m (Fig. 3.4). Here, the majority of the bone (*c*. 69%) had been buried in a lidded hanging bowl, which survived intact, and the rest in an adjacent ceramic vessel, the rim of which had been slightly damaged, but no bone seems to have been lost from this deposit as a result of this disturbance. The only other fully intact vessel was recovered from one of the two deepest surviving cuts, feature *[659]* (max. 0.30m) situated central to ring-ditch *[606]*, but it is uncertain what — if anything — this vessel contained (see *Chap. 3; Sect. II: 'Cremation' 12*). The contents of the only other grave, feature *[686]* (cremation 13), to survive to the same depth was subject to extensive bioturbation, which had totally disrupted at least one half of the burial remains.

The visual condition of the majority of the bone is good and trabecular bone (generally the first to be lost in acidic soil conditions such as those prevailing at Sutton Hoo; McKinley 1997a, 245; Nielsen-Marsh *et al.* 2000) is relatively well represented in most contexts. The small quantities of bone from the ring-ditches are all slightly worn and chalky in appearance, as are a few fragments from the bone *(489)* inside the hanging bowl (cremation 8) and two of its four associated small pits (Fig. 3.4), and the remains from one of the redeposited burials. The assemblages from the ring-ditches, pits, two of the redeposited burials, and the heavily bioturbated burial were all devoid of trabecular bone fragments, suggesting that even where the rest of the bone appeared in good condition there had been some loss within the acidic burial environment. The form of most of these deposits, which offered little or no protection from the burial environment by containment within an urn, or disruption of that protection, is most likely to have been responsible for the condition of the bone. The slightly worn appearance of four or five bone fragments from the burial in the hanging bowl is less easily explained, but all were found in the lower fill of the vessel and may reflect some minor localised variation in the burial environment.

Demographic data
A minimum of fourteen individuals were identified, one middle Bronze Age and thirteen early Anglo-Saxon (Table 5.1). The Bronze Age remains represent those of a young/mature adult, most likely female.

Each of the twelve probable Anglo-Saxon cremation graves from which bone was recovered contained the remains of one individual. Most of the redeposited cremated bone collected from non-grave contexts (redeposited pyre debris from pit and ditch fills, and odd fragments from inhumation graves) could have derived from the same actual cremations as those represented within the burials, although the poor condition of much of this redeposited bone allowed no possibility for the establishment of definite joins or associations between bone from the different deposit types. A few fragments of immature skull vault were recovered from ring-ditch *[597]*, however, and in the absence of any burial remains within this age-range this individual has been included in the minimum number count.

With the exception of three individuals who could be aged no closer than subadult/adult (i.e. >13 yrs), all comprised adults with age-ranges extending from 18 yrs to >50 yrs. At least four individuals (three probably female) were under 35 years of age, and only two (including one male) were confidently aged at over 30 years. It was possible to suggest the sex of less than half of those identified, with five probable/most likely female and one male.

For comparison, the grave-goods and other factors suggest that most of the inhumation graves were those of males, with female-type goods recovered from only four, and with only a few probable infants/juveniles (see *Chap. 8; Sect. II: Population*). Whilst caution must be exercised in comparing data from the two assemblages, since the 54% unsexed individuals from the cremated bone assemblage could all have been male, and the biological sex of most of the inhumations could not be confirmed, there is some suggestion that the cremated population included more females than males and the inhumed population more males than females. However, it is likely that other areas of the cemetery remain to be excavated and, therefore, the graves currently available for examination may not be representative of the population as a whole.

There was a similar dearth of immature individuals within the cremated bone assemblage from the excavations at Sutton Hoo, the youngest of the seven or possibly eight individuals identified being a subadult '...certainly below 20 years, probably ... under 18 years' (Gejvall 1975, 98 and 135–36; Lee 2005, 269–75). A similar proportion of the individuals were sexed, with three probable/most likely male and one possible female (Gejvall 1975, 135–36). The latter evidence appears in contrast with that from the cremation burials at Tranmer House, and, if a genuine reflection of the 'population', suggests a spatial division between the sexes in terms of their place of burial (but see *Chap. 9; Sect. II*).

Both burial groups at Sutton Hoo appear in contrast to other contemporaneous cremation cemeteries which include higher proportions of immature individuals and overall demographic structures more indicative of 'normal' domestic populations. At Spong Hill, Norfolk, for example, 26% of the 2,196 strong population were immature, 61.2% of the sexed adults (30.4%) were female and 38.8% male (McKinley 1994a, 68–9); at Sancton, East Yorks (364 individuals), 29% of the population was immature, 25% of the adults were female and 18% males (rest unsexed; McKinley 1993a); within the much smaller assemblage (eighteen individuals) from St Mary's (Southampton), 33% were immature, and of the five sexed adults, three were male and two female (McKinley 2005).

The results from St Mary's, a group of commensurate size to that from Sutton Hoo/Tranmer House, suggests that the difference in the size of the cemeteries is not necessarily a contributory factor in the extreme paucity of immature individuals recovered from the latter. Two possible factors should be considered, however: preferential taphonomic destruction, and 'missing infants' due to non-recovery from the pyre site for burial. The bone from Sutton Hoo is generally in good condition and were infant/juvenile remains to have been buried with those of an adult (generally presumed to have been cremated with them; McKinley 1994a, 100–2) there is no reason to assume their remains would have survived any less well than those of the adult. Some of the bone from the few un-contained deposits was fairly poorly preserved, but even here one would expect some of the compact bone — if originally present — to survive as it did in context *(638)*, ring-ditch *[597]*. The secondary rite of burial within the overall mortuary rite of cremation clearly did not require deposition of all the cremated bone remaining at the end of the primary rite of cremation itself (McKinley 2006). In most cases at Tranmer House it is likely that less than half of the human remains were included in the burial, the majority of the bone in some cases comprising that of the animal included as a pyre good (see below). Experimental pyre cremations have shown that the horizontal spatial distribution of the various pyre inclusions is maintained throughout the cremation process, rendering relatively easy distinction of different individuals/animal remains for collection. It is, therefore, possible, particularly where a large animal was included on the pyre, that where 50% or less of an adult's remains were collected for inclusion in the burial, those of an infant/juvenile placed on the same pyre may inadvertently have been overlooked altogether.

These possible skewing factors aside, taken on the current evidence, the cremation-burial group at Tranmer House does not appear to represent a normal domestic population, but comprises a largely adult group with indications of some sexual dimorphism in the location of burials within the wider cemetery area.

Pathology

A few minor pathological lesions were observed in the remains of three individuals comprising two probable females and one male. A summary of the observed lesions is presented in Table 5.1.

Infection of the periosteal membrane covering bone may lead to the formation of periosteal new bone. Infection may be introduced directly as a result of trauma, develop in response to an adjacent soft tissue infection, or spread via the bloodstream from foci elsewhere in the body. The aetiology of individual lesions often cannot be deduced and they are commonly classified as indicative of a non-specific infection. Slight reactive (active at time of death) new bone was observed on a fragment of fibula shaft from bone *(486)* (cremation 8), and lamellar (healing) new bone on a fragment of humerus shaft from bone *(644)* (cremation 10). The origin of the infection is unclear in both cases but neither show indications of trauma.

The causative factors of enthesophytes (bony growths at tendon and ligament insertions) can include advancing age, traumatic stress, or various diseases (Rogers and Waldron 1995, 24–5) and, again, it is not always possible to be conclusive with respect to the aetiology of particular lesions. Slight lesions on a fragment of pelvis (associated with attachments for hip and thigh muscles) from grave *[427]* (cremation 5) probably reflect general activity-related wear-and-tear.

Aspects of pyre technology and cremation ritual

Oxidation

Although the majority of the cremated bone is white in colour, indicative of full oxidation of the bone (Holden *et al.* 1995a and b), most of the Anglo-Saxon burials (*c.* 66.7%) contained a few fragments exhibiting colour variations indicative of incomplete oxidation. The

Feature	*Cut*	*Fill/Deposit*	*Phase*	*Deposit type*	*Bone (g)*	*Age/Sex*	*Pathology*	*Comments*
Crem. 33	*[905]*	*(906)*	3	unurned burial, rpd	415.1	adult *c*. 23–40 yrs., ??female		
(Bronze Age)		*(912/915–16/919/923)*		rpd (below burial)	143.9	= *(906)*		incl. animal (0.6g)
'Post-hole' (Bronze Age)	*[1044]*	*(1045)*	3	redep.	<0.1	no human		animal only
Crem. 1	*[359]*	*(350)*	5	urned burial	34.3	adult >50 yrs.		
		(360)		?rpd	0.2			
Crem. 2	*[370]*	*(381/384)*	5	?urned burial, rpd, part redep.	17.2	subadult/adult >13 yrs.		FAS
Crem. 3	*[388]*	*(389)*	5	urned burial, rpd	501.8	adult *c*. 23–35 yrs., ?female		incl. animal (1.3g)
Crem. 4	*[395], [3001]*	*(396–98)*	5	?urned burial, rpd, part redep.	718.3	adult >18 yrs., ?female		FAS, incl. animal (446.1g)
Crem. 5	*[427]*	*(430/432)*	5	urned burial, rpd	888	adult *c*. 30–40 yrs., male	enthesophytes – iliac crest; mv – enamel pearl	incl. animal (7.3g)
Crem. 6	*[439]*	*(440/442)*	5	?unurned burial, rpd	148.6	subadult/adult >14 yrs.		FAS, burnt stone, incl. animal (84.9g)
Crem. 7	*[482]*	*(483)*	5	unurned burial, rpd	451.6	adult *c*. 25–45 yrs., ??female		incl. animal (139g)
Crem. 8	*[491]*	*(486/489–90)*	5	urned burial (bronze bowl and pot), rpd, AA	1823.3	adult *c*. 23–35 yrs., ?female	periosteal new bone – fibula; impacted mandibular left canine	incl. animal (983.5g), fragments of a vertebra divided between vessels
'Post-hole'	*[488]*	*(498–99)*	5	rpd	9	adult >25 yrs.		
'Post-hole'	*[500]*	*(501–2)*	5	rpd	19.7	no human		animal only
'Post-hole'	*[505]*	*(506–7)*	5	rpd	5.8	no human		animal only
Crem. 9	*[636]*	*(637)*	5	redep. ?urned burial	53.3	adult >18 yrs.		
Crem. 10	*[643]*	*(644)*	5	?urned burial	256	adult *c*. 18–35 yrs., ??female	periosteal new bone – humerus	incl. animal (0.9g)
Crem. 11	*[656]*	*(657–58)*	5	urned burial, rpd	531.5	adult *c*. 20–29 yrs.		incl. animal (11g)
'Crem. 12'	*[659]*	*(662)*	5	?cenotaph	?*missing*			
Ring-ditch (assoc. crem. 12)	*[606]*	*(613/623/629/631/642/734–36/738)*	5	rpd	29.7g	adult >18 yrs.		?FAS, incl. animal (15g)
Crem. 13	*[686]*	*(687–88/690–92/697/702/740)*	5	urned burial, rpd	713.4	subadult/adult >13 yrs.		incl. animal (317g)
Ring-ditch (assoc. crem. 13)	*[597]*	*(603/605/607/628/638/708/724/757–59)*	5	rpd	28.6	1) subadult/adult >13 yrs. 2) immature 1–12 yrs.		?FAS, incl. animal (14g)
Ring-ditch	*[665]*	*(671)*	5	rpd	0.2	unidentified		
Ring-ditch	*[698]*	*(709–14)*	5	rpd	0.1	no human		animal only
Ring-ditch	*[932]*	*(933–35/940–44)*	5	rpd	4.6	subadult/adult >13 yrs.		
Inhum. 18	*[650]*	*(653)*	5	redep.	0.6	no human		animal only
Inhum. 30	*[1000]*	*(1001)*	5	redep.	3.7	adult >18 yrs.		

Key: AA – 'animal accessory'; FAS – fuel-ash slag; mv – morphological variation; redep. – redeposited; rpd – redeposited pyre debris; u/b – unburnt; ? – probable; ?? – possible

Table 5.1 Summary of results for all contexts with cremated bone

Feature	*Context*	*Phase*	*Deposit type*	*Animal bone*	*Species*					*Approx. size*		
				(g)	*Horse (Equus sp.)*	*Cattle (Bos taurus)*	*Sheep/Goat (Ovis aries)*	*Pig (Sus sp.)*	*Bird*	*Large ungulate*	*Sheep/Goat-size*	*Small/ Medium mammal*
Crem. 33	*(912)*	3	unurned	0.6							•	
'Post-hole' *[1044]*	*(1045)*	3	backfill	1						•		
Crem. 3	*(389)*	5	urned	1.6							•	
Crem. 4	*(396–98)*	5	?urned	446.1	•	•				•	•	
Crem. 5	*(430/432)*	5	urned	7.3						•		
Crem. 6	*(440/442)*	5	?unurned	84.9			•			•	•	
Crem. 7	*(483)*	5	unurned	139	•	•	•		•	•	•	•
Crem. 8	*(486)*	5	urned: pot	328.5	•	•				•	•	•
incl. 'animal accessory'	*(489)*	5	urned: hanging bowl	655	•	•	•	•		•	•	•
	(490)	5	grave fill							•	•	•
'Post-hole' *[500]*	*(501–2)*	5	backfill	19.7						•	•	
'Post-hole' *[505]*	*(506–7)*	5	backfill	5.8						•	•	
Crem. 10	*(644)*	5	?urned	0.9							•	
Crem. 11	*(657–58)*	5	urned	11						•	•	
Ring-ditch *[606]*; assoc. crem. 12	*(613/623/629/631/635)*	5	backfill	15			•			•	•	•
Crem. 13	*(687–88/690–92/697)*	5	urned	317	•	•	•			•	•	
Inhum. 18	*(653)*	5	grave fill	3						•		
Ring-ditch *[597]*; assoc. crem. 13	*(603/605/607/628/708/ 724/757/759)*	5	backfill	14						•	•	
Ring-ditch *[698]*	*(709–14)*	5	backfill	0.1							•	

Table 5.2 Contexts with cremated animal bone

variations are generally minor, involving blue or grey colouration of only a few fragments from any one skeletal element, often forming a 'sandwich' effect (white inner and outer edges with darker centre). Between one and five skeletal elements are affected in each case, elements of the upper limb being most commonly involved (six burials), followed by elements of lower limb (five cases) and skull (four case); no elements of the axial skeleton are affected. In most cases bone from two skeletal areas is involved (five burials), in two cases that from only one skeletal area and in one case that from three skeletal areas.

Factors affecting the efficiency of oxidation have been discussed previously by the writer (McKinley 1994a, 76–8; 2004b, 293–95; 2008a). The general pattern of involvement here suggests possible under-sizing of the pyres in some cases, with, for example, the arms laid to the side of the body and slightly peripheral to the main heat on a potentially over-narrow pyre. This could have been exacerbated by the inclusion of a large animal on the same pyre, as indicated by the frequent recovery of horse and cattle remains from four of the burials (cremations 4, 7, 8 and 13), including some poorly oxidised bone. The same mechanism could have affected oxidation of the lower leg elements, though in both cases some cut-off in oxygen supply by items of clothing or pyre goods comprised of thick fur or leather could have produced a similar effect. The most extensive variations were seen in the remains of the one adult male identified (cremation 5); this sex-based variation has parallels with observations from numerous Romano-British cremation cemeteries (McKinley 2008a).

The variability in oxidation (degree and extent) appears less than that noted in contemporaneous cremation cemeteries in Yorkshire (McKinley 1993a) and East Anglia (McKinley 1994a 83–4); some colour variation was also noted at Portway (Andover), Wilts (Henderson 1985) and at Alton, Hants, the bone was almost uniformly a pale grey (Powers 1988). This may indicate, despite the implied minor shortfalls, that more fuel was generally used to construct the pyres for those subsequently buried in the Tranmer House cemetery than was the case for their contemporaries elsewhere. Gejvall made no note of the colour of the bone from mounds 3 and 4 at Sutton Hoo (possibly because it showed no variation from the white of full oxidation), and recorded that from Burial 14 as 'well burnt' (1975, 98). Most of the bone from the four burials examined by Lee (2005) was well oxidised, but she observed limited variations (black-grey) in some bone from each burial (bone affected not specified). Overall, the levels of oxidation sound similar to those observed in this analysis.

Bone weight

The weight of bone recovered from the Anglo-Saxon burials ranged from 17.2g (the redeposited, probably urned burial from grave *[370]*, cremation 2) to 1823.3g ('animal accessory' burial from grave *[491]*, cremation 8). The weight recovered from the five burials confidently known to have been urned (in ceramic vessels) ranged from 34.3g to 888g, with an average of 533.8g (or 658.7g if the heavily disturbed cremation 2 burial is excluded). The one confidently unurned burial (cremation 7) weighed-in at 451.6g. All these deposits are likely to have suffered some bone loss due to disturbance, though the proportions are likely to have varied and were probably relatively minor in most cases (all except cremation 1 were from graves of 0.10m depth or more). The only grave from which there is unlikely to have been any loss of bone is grave *[491]* (cremation 8), where over half (54%) of the bone recovered is horse and other species (see below, *Sect. III: Cremated animal bone*). The largest weight of human bone derived from grave *[427]* (cremation 5), the remains of an adult male, representing *c.* 56% of the expected weight of bone from an adult cremation (McKinley 1993b).

The remains of all except Burial 14 from the Sutton Hoo cemetery had suffered some level of disturbance (Carver 2005, 105), as a consequence of which some bone might have been lost via removal or taphonomic mechanisms. It is probably no coincidence that the largest quantity of bone from the investigations (1710g) was recovered from this undisturbed deposit, the amounts from the remaining graves having a range of 140g to 1081.3g, with an average of 677.1g. As in this analysis, a large proportion of the remains from some burials comprised animal bone (41–8% from mounds 6 and 7; Lee 2005), though none was observed in Burial 14 (Gejvall 1975, 98).

The inclusion in the burial of only a proportion of the bone remaining after cremation is a recognised part of the rite, but why there should be such wide variation remains unclear. Anglo-Saxon burials from East Anglia and northern England present an additional problem when considering this aspect of the rite due to the large quantities of animal bone many of them contain, creating a potentially misleading impression of the proportion of the remains collected from the pyre site for burial. The deposits from Tranmer House are similar in terms of their weight with those from these two regions, where one sees very broad weight ranges, e.g. 117.2–3105.1g from Spong Hill (McKinley 1994a, 85), and relatively high average weights of bone, e.g. 882.2g for undisturbed adult burials at Sancton (McKinley 1993a). Recorded weights from sites in southern England tend to have shorter and lower ranges and averages, with few deposits of more than 500g (Henderson 1985; Powers 1988; Cameron 1988; Bayley 2003; McKinley 2005). Exceptions may be found at Christchurch, Dorset (Bayley 1983) and Ringlemere, Kent (McKinley 2009), both of which have extensive weight ranges and average weights of almost 600g (with no large amount of animal bone).

Fragmentation

There are a number of factors which may affect the size of cremated bone fragments (McKinley 1994b), the majority of which are exclusive of any deliberate human action other than that of cremation itself. The majority of the bone from the Bronze Age burial was recovered from the 5mm sieve fraction (*c*. 59%) with a maximum fragment size of 44mm. The majority of bone (53–74%) from most of the Anglo-Saxon graves (61%) was recovered from the 10mm sieve fraction; in four cases most was collected in the 5mm sieve fraction (54–69% of bone) and in one case from the 2mm sieve fraction (34%). The size of the maximum fragment ranged from 84mm (urned burial, cremation 5) to 23mm (redeposited burial, cremation 2), with an average of 42mm. The overall fragmentation levels are similar to, or slightly higher than, those seen at Spong Hill and Sancton, which have an average of *c*. 50% and 43% from the 10mm fraction, respectively, and

average maximum fragment sizes of 42mm and 35.5mm (McKinley 1993a; 1994a, 84). The average maximum fragment from Portway was relatively low at 35mm (Henderson 1985), whilst those from St Mary's and Ringlemere were relatively high at 52mm and 59mm, respectively (McKinley 2005; 2009). Gejvall noted a maximum fragment size of 80mm from Burial 14 at Sutton Hoo, whilst in Lee's analysis the majority (61%) of the bone by weight was recovered from the 10mm sieve fraction and above.

Two of the Tranmer House graves containing smaller fragment sizes were those housing redeposited burials in which increased fragmentation is likely to have occurred due to disturbance. The most heavily fragmented bone came from the substantially truncated urned burial in grave *[359]* (cremation 1; vessel depth 0.02m). There was, however, an unusually high level of fragmentation in the remains of two other urned burials from graves *[388]* (cremation 3) and *[656]* (cremation 11). Although both were relatively shallow (0.10m and 0.14m) and clearly truncated — which will have had some effect on fragmentation to the bone — there is some suggestion that there could have been additional incidental (pyre tending or techniques of bone recovery for burial) or possibly deliberate fragmentation to the bone prior to burial.

Skeletal elements

The percentage of the bone from the Anglo-Saxon burials identifiable to individual human skeletal elements was often very small due to almost half the graves containing large quantities of animal bone (Tables 5.1–5.2). In four cases less than 3% by weight of the bone was identifiable to skeletal element and in one other case less than 10%. In the remaining deposits more normal proportions (*c*. 23–53%) of identifiable elements were recorded. These generally low rates exacerbated the usual biases resulting from the ease with which skull fragments may be recognised and the difficulties in distinguishing individual long bones (McKinley 1994a, 6), and the effects of the potential loss of trabecular bone (see *Disturbance and condition*) reducing the proportion of the axial skeleton (mostly trabecular) identified.

Allowing for these intrinsic factors, there was no discernibly deliberate selection of specific skeletal elements for burial, and bone fragments from each skeletal area were identified from each burial in all except one case. Whilst there was an unusually high proportion of identifiable axial skeletal elements from graves *[439]* (cremation 6; *c*. 81% of identifiable bone weight) and *[482]* (cremation 7; *c.* 39%), the overall low quantities of identifiable human bone could mean these higher proportions from this one skeletal area are misleading. Or alternatively, since both contained fairly large quantities of animal bone, this may suggest that the animal offerings — particularly in the case of the material from grave *[439]* (cremation 6) from which no lower limb was identified — were placed towards the proximal/'head-end' of the pyre, resulting in a biased collection of the human remains from this area being included in the burial. It further implies that the collection of the animal bone, or at least its inclusion in the burial, was viewed as being as relevant as that of the human it accompanied; or was most of the latter destined for deposition/distribution elsewhere than within this grave?

Tooth roots and the small bones of the hands and feet are commonly recovered from the remains of cremation burials of all periods, and it is believed their frequency of occurrence may provide some indication of the mode of recovery of bone from the pyre site for burial (McKinley 2000a; 2004b, 299–301). The Bronze Age grave *[905]* (cremation 33) contained fifteen of these small skeletal elements, most (eleven) being recovered from the burial and the rest from the underlying deposit of pyre debris. Between one and twenty elements were recovered from just over half of the Anglo-Saxon graves, with the average seven (all five burials made in ceramic urns, the unurned burial (cremation 7) and the hanging bowl (cremation 8) within grave *[491]*). The two graves with the highest number of elements both contained the remains of urned burials (cremations 5 and 11), one containing the only male remains identified and both including only small amounts of animal bone. The only other burial including more than the average number of these elements (cremation 3) also comprised an urned deposit with only a small amount of animal bone.

The data suggest different modes of recovery of remains from the pyre may have been employed for the cremations, one of the pertinent factors being the presence of a large animal on the pyre. In the latter cases collection of bone for burial by the hand recovery of individual bones/fragments might have created a bias towards the more easily recoverable larger animal bones; this may account for the very low quantities of human bone within these burials. As discussed above (see *Demographic data*), in a rite where it was not considered necessary to collect all the bone for burial after cremation, it would be natural to concentrate on the larger fragments first. Those cremations undertaken with offerings of only small animals or joints of meat would produce, overall, much smaller quantities of bone, and the smaller human skeletal elements would stand more chance of recovery. It is possible, however, that for the two deposits with fourteen or more tooth root/hand/foot bones, a different mode of recovery was employed, involving raking-off and winnowing of the cremated remains, thereby easing the recovery of the smaller skeletal elements as well as the larger ones.

Dual burials

The presence of some dual burials within cremation cemeteries (average *c*. 5%) is a common characteristic of the rite across its temporal range (McKinley 1997b). None of the burials at Tranmer House contained the remains of more than one individual. However, the number of burials recovered is small and as it appears likely that the cemetery has not been subject to full excavation, consequently the apparent absence of any dual burials could be fortuitous due to location. Each of the burial remains from Sutton Hoo identified by Lee (2005) included the remains of single individuals, but Gejvall (1975) believed mound 4 contained evidence for at least two adults amongst the 533g of bone recovered (much of it animal): one male and one probably female (this was on the basis not of duplicate elements, but five small fragments of un-replicated skull, axial and long bone which he believed most likely to be female as against most other identified elements which he believed to be male).

Anglo-Saxon cemeteries in the north and central-eastern areas of England have been found to

contain dual burials at a rate of *c*. 4–7% (McKinley 1993a), predominantly an adult and an immature individual (e.g. McKinley 1994a, 100–2). No dual burials were recognised at Alton (Cameron 1988; Powers 1988), Portway (Henderson 1985), Worthy Park, Hants (Bayley 2003), Christchurch (Bayley 1983), St Mary's (McKinley 2005) or Ringlemere (McKinley 2009). This suggests there may be a regional variation in the rite in respect of dual cremation/burial, in which Sutton Hoo/Tranmer House has more in common with the contemporaneous cemeteries to the south rather than those to the north.

Pyre goods

Variable quantities of cremated animal bone — the remains of pyre goods — were recovered from the Anglo-Saxon burials (see below, *Sect. III; Cremated animal bone*; Table 5.2). The inclusion of cremated animal bone in burials is a common characteristic of the rite across the temporal range, but appears to reach its zenith — both in terms of quantity and variability of species — in the early Anglo-Saxon period in cemeteries in the north and central-eastern areas of England (McKinley 2000a; 2006).

The identified quantities ranged from less than 1g to almost a 1000g. In five graves the quantity of animal bone recovered far out-weighed that of the human bone. In grave *[491]* (cremation 8), the majority of the bone (*c*. 69%) was recovered from the bronze vessel and the rest from the ceramic urn. Although most from both vessels was animal, a higher proportion of that from the ceramic vessel derived from the animal compared with that from the copper-alloy bowl (*c.* 59% and 52% respectively). The human bone from the two vessels clearly represents the remains of the same young adult female, as joining fragments of a cervical vertebra were recovered from both vessels. Despite the predominance of animal remains in both vessels, the burial has obvious similarities with the 1.3% of deposits from Spong Hill denoted as 'animal accessory' burials (McKinley 1994a, 93), with a smaller proportion of this burial-form having been noted at Sancton and other central-eastern cemeteries also (McKinley 1993a, 309–10) In addition, several non-grave contexts contained fragments of animal bone (see below; Tables 5.1–5.2), what appears likely to represent redeposited pyre debris, sometimes to the exclusion of human bone, although the quantities involved are very small (<20g).

The surviving evidence indicates that animal bone was deliberately being collected for inclusion in the burial and such remains were not just being discarded with the rest of the pyre debris (which could be inclusive of both human bone and various pyre goods anyway). The small quantity of probable animal bone from the Bronze Age grave was recovered from the pyre debris deposited below the burial, but this could have been incidental rather than deliberate (see below).

Given the inclusion of such large quantities of animal bone in individual deposits, the large size of some animals, and the classic non-recovery of all the cremated remains for burial, the question remains: did those collecting the bone know they were burying more animal than human bone? Also, was it a deliberate choice, and what was done with the rest of the human bone? It seems unlikely that people more familiar with animal and probably human corpses than most modern Westerners would not be able to distinguish between horse and human remains, even cremated, if only in terms of size. Also, the ordered way in which a pyre collapses means the relative horizontal and vertical distribution of inclusions is maintained throughout cremation (McKinley 1997a, fig. 46; 2000b); so a horse carcass laid to the left side of a human corpse would still lie there, in anatomical order, at the end of the process, unless manipulated (perhaps by extensive tending), thereby assisting the recognition of different components on the pyre. Was the human bone preferentially collected after completion of the primary rite for other purposes? For example, was it distributed to mourners, retained as relics, or scattered; functions perhaps less-well fulfilled by the animal remains, hence their predominance in the secondary rite of burial?

Redeposited pyre debris

Varying quantities of redeposited pyre debris — mixed deposits of fuel ash and small quantities of cremated bone — were recovered from the majority of the Anglo-Saxon graves and the middle Bronze Age grave. Only in the latter case is there a clear record of the distribution, the deposit of pyre debris having been made in the base of the grave prior to the burial; elsewhere, fills were simply described on site as 'charcoal-rich' suggesting deposits were made subsequent to the burial. There is no evidence to suggest, in any case, that the debris originated from other than the same cremation as the bone contained within the associated burial.

The inclusion of pyre debris in grave fills is a common characteristic of the rite throughout its use and reflects the proximity of the pyre site to the place of burial (McKinley 1998; 2000b; 2000c). The temporal and geographic exception is the Anglo-Saxon period, as represented by the cemeteries in central and north-eastern England such as Spong Hill and Sancton. Here only very small quantities of fuel ash (max. 3g) have been recovered from a few deposits (<2%), and generally from amongst the bone in the urned burials (McKinley 1993a; 1994a). It has been argued that these large cemeteries functioned as communal burial places for dispersed communities who cremated their dead within/close to the settlement area and thereafter transported the cremated bone for burial (*ibid.*; 2006). None of the burials at Christchurch (Jarvis 1983) or Portway was recorded as containing fuel ash, though a reference to 'dark earth' at the latter site may reflect the presence of small fraction charcoal (Cook and Dacre 1985). Charcoal was, however, recovered from several of the features and deposits containing cremated bone at Alton (Evison 1988), though it is plausible that some of the 'cremations' may have represented scattered material or deposits of pyre debris instead of burials (McKinley 2005). At St Mary's (Southampton), pyre debris had been added to eight graves (*c.* 44%) subsequent to the burial having been made (*ibid.*), and to one grave fill at Ringlemere (McKinley 2009).

There is no clear record of any of the graves subject to investigation at Sutton Hoo containing pyre debris. 'Very little charcoal' was recovered from the burial deposits in mound 18, and whilst layers of 'black earth' noted in mound 3 could be of relevance, on balance, there is an absence of the type of evidence recovered from the Tranmer House graves (Carver 2005, 67–106). This may, in part, be due to the extensive disturbance suffered by

some of the deposits, or a failure to record the presence of such material by the site's early excavators.

Fuel ash and redeposited cremated bone were recovered from the fills of several ring-ditches (*[597]*, *[606]*, *[665]* and *[932]*), occurring both together and separately, and apparently representing deposits of pyre debris deliberately or accidentally incorporated into some segments of the individual ditch fills. The largest (but still small) quantities of bone came from ditches *[597]* (all except the north quadrant) and *[606]* (south half only), but only the former enclosed a definite cremation grave. The presence of this material in these fills suggests that the interior of some of the ring-ditches may have functioned — as did at least some of their Bronze Age predecessors (McKinley 2000d) — as crematoria, the debris from the pyres being cast into the open ditches.

The four post-holes describing an area *c.* 2m by 3.5m centred on grave *[491]* (cremation 8) each contained charcoal-rich fills, including in three cases cremated animal and human bone (Fig. 3.4; Table 5.1). The feature has parallels from cremation cemeteries in southern England and continental Europe (see *Chap. 8. Sect. III: Post structures and pyres*). In this case, the presence of the pyre debris suggests the feature might have been associated with the pyre itself rather than some subsequent structure. Posts acting to stabilise a pyre may themselves not burn away due to their peripheral position, and having served their purpose and the remnants having been removed, the remaining holes could have been filled with pyre debris. The effects of a pyre do not penetrate far into the underlying soil (*c*. 0.05–0.08m; McKinley 2000b), and any resulting scorched surface could easily be eradicated by later ploughing/truncation — clearly an active mechanism at Tranmer House (see above). This group of associated features may represent the remains of a form of *bustum*, therefore, with the central grave cut through the pyre site after cremation, though, if so, the bone for burial must first have been collected and the pyre debris cleared, or one would have expected to see some debris in the grave fill.

Formation processes

Some details of the burial formation process were evident from the deposit made within the copper-alloy bowl (cremation 8). The unburnt bone comb rested on a *c*. 20mm deep layer of cremated bone towards the base of the vessel, obviously incorporated within the burial during deposition of the bone rather than before or after it was placed in the bowl. The cremated animal bone was mixed with the human remains throughout the fill (which was removed as two quadranted spits), and the different skeletal elements were also mixed throughout.

The nature of the deposit in cut *[659]* ('cremation' 12) is a mystery. The absence of any cremated bone from this deposit, made central to ring-ditch *[606],* may be genuine, the deposit representing a cenotaph. There is growing evidence from cremation cemeteries of other dates for deposits of this type (McKinley 2000b). Unfortunately, the absence of reliable records means this interpretation cannot be made with confidence in this case (see *Chap. 3; Sect. II: 'Cremation' 12*).

III. Animal and insect remains

Unburnt animal bone survived only in features of late post-medieval date and after (Willett 2000). This included remains from a number of sheep burials, reflecting the predominant animal husbandry of the locality prior to the Edwardian Sutton Hoo estate. Only calcined animal bone, resistant to the acidic soil, was found in earlier features, and, predominantly in the early Anglo-Saxon cremations. Significant, too, are the mineral-preserved remains of feathers and puparia found on metal grave-goods from the cemetery.

Cremated animal bone

by J.M. Bond and A.R.R. Mustchin

Introduction

This report mainly concerns the cremated animal bone from fifteen Anglo-Saxon features of *Phase 5*: nine cremation burials, one inhumation, and five others. Bone was also recorded for two *Phase 3* Bronze Age features, one a burial (cremation 33), the other a small pit or post-hole *[1044]*. They are summarised in Table 5.2. With just one exception, all of the finds were from features in Area A.

The deposits

The majority of contexts containing cremated animal bone were associated with the early Anglo-Saxon cemetery (*Phase 5*), where animals or parts of animals had formed part of the cremation ritual and subsequent burial deposit. They comprise: one or two unurned burials (cremations 6 and 7), up to seven urned burials (cremations 3, 4, 5, 8, 10, 11 and 13), three ring-ditches (*[597]*, *[606]* and *[698]*), and two possible post-holes (*[500]* and *[505]*) associated with the cremation 8 burial. In addition, a further bone fragment was identified in the backfill of inhumation 18.

In all instances, the animal bone was intermingled with human cremated bone. The identified quantities range from under 1g to 983.5g, the greatest from cremation 8. In five graves the quantity far out-weighed that of the human bone.

A small amount of burnt animal bone was also identified in two *Phase 3* features, the Bronze Age burial (cremation 33) and a small pit or post-hole *[1044]*.

Methods of identification and state of preservation

Identification of the cremated animal bone was achieved principally through direct comparison with modern and archaeozoological reference material housed at the Archaeological, Geographical and Environmental Sciences Department (AGES), University of Bradford. Where possible the following criteria were recorded: genus/species, bone element, area of fragment, side (left or right), degree of burning, fragment size, fusion state, pathology, butchery or other modification. Fragment size was measured along the longest surviving axis, to give a measure of the degree of fragmentation, and the weight of cremated bone was also recorded. This record forms part of the site archive (Bond 2010).

Cremated animal bone can be notoriously difficult to identify (Bond 1996). The material from this site proved to be especially challenging. The average fragment size was unusually small, and the state of preservation poor, with some pieces very worn (see above, *Sect. II: Cremated human remains*).

The colour of each fragment was recorded; burnt bone varies in colour from brown, through black, blue-grey and grey to white, depending on the temperature of burning and the completeness of the process (Nicholson 1993). The majority were white in colour, reflecting the high temperature and completeness of the burning process. Many also displayed a degree of shrinkage and warping, and overall a very considerable degree of fragmentation was noted throughout the assemblage. Most were in the size categories 0–10mm or 10–20mm,

with none exceeding 50–100mm. This degree of disintegration seriously affected the identification potential.

The fragmentary state of the cremated bone assemblages and the frequently observed occurrence of different kinds of animals, and/or multiple individuals within single burials, meant that no assumptions could be made when identifying the material. Hence, the term 'large ungulate' is employed to describe cattle and horse-sized skeletal fragments that could not be positively ascribed to either animal. This category could also include red deer (*Cervus elaphus*), as all three animals are ungulates with similar skeletal anatomy and in roughly the same size class. However, whilst unworked red deer antler has been found in some early Anglo-Saxon cemeteries, such as Spong Hill, Norfolk, and Lackford, Suffolk (Bond and Worley 2006, 95), no other skeletal parts have been identified at these or other cemeteries and, therefore, the greater likelihood is that these bone fragments are from cattle or horse.

'Sheep/goat-size' has been used to categorise unidentified bone fragments from medium-sized animals, a class which might also include pig and large dog. Any unidentified fragments thought to be from smaller mammals than these are recorded simply as 'small/medium mammal'. Some small 'bird' bones were also identified by their very different structure.

The classes 'large ungulate' and 'sheep/goat-size' were also employed in the analysis of cremated animal bone from the large cemetery at Spong Hill and the contemporary site of Sancton I, East Yorks (Timby 1993; Bond 1993; McKinley 1994a; Bond 1994b), and for the burials under mounds 5, 6 and 7 at Sutton Hoo (Bond 2005, 275). Hence, this report is directly comparable with those studies; Spong Hill has produced the largest cremated animal bone assemblage of the period in England, so far analysed.

Range of species

Of the 13214 bone fragments examined (3862g), only ninety-six were identifiable to genus or species, although many of the remaining fragments could be assigned to animal-size categories (Table 5.2). The unusually high proportion of unidentifiable bones is most likely due to many being under 10mm in size.

Those mammals positively identified were horse (*Equus* sp.), cattle (*Bos taurus*), sheep (*Ovis aries*) and pig (*Sus* sp.). It is possible that goat could also be present; it is extremely difficult to differentiate primitive sheep from goat, even in unburnt assemblages. Therefore, the convention is to identify these bones as 'sheep/goat', although no positive identifications of goat have ever been made from Anglo-Saxon cremations. It is possible that at least some of the 'small/medium mammal' bones recorded are from smaller dogs, which have been recorded for other sites. For example, at Spong Hill dogs in cremation burials ranged from large hunting breeds to small terrier-sized animals (Bond 1994b, 132–34).

Two bird bones were recorded from cremation 7. Both were of a similar size to domestic fowl (*Gallus gallus*), but could not be positively identified as such.

Modified bone

Three Anglo-Saxon graves (cremations 4, 6 and 11) yielded bone fragments displaying apparent butchery. This mainly took the form of knife marks, with just one bearing a chop mark. Unfortunately none of the pieces were identifiable to genus/species, but six were sheep/goat-size and four, including the chopped fragment (from cremation 4), were large ungulate-sized.

Age at death

Cremated assemblages rarely yield much data on age at death of the animals involved, because the bone is fragmented and the complete tooth row is absent, the teeth often highly disintegrated, reduced to small pieces of enamel and tooth root. Hence, there were few fragments for which species, bone element and fusion state could be identified, and for which the surviving part was diagnostic of age. Where recorded, minimum ages were assigned following Silver (1969). Cremation 4 contained two first phalanges from a horse, fused at the proximal end; but this only means that the animal was over 13–15 months old. The same minimum age is indicated for another horse by fragments of fused proximal areas from a first and a second phalanx, found in the cremation 8 burial (in the hanging bowl). An older minimum age is established by a fused cervical horse vertebra from cremation 7, indicating an animal over five years old at death. Cattle bones, also from cremation 4, included a fused proximal radius and a fused proximal metatarsal; the latter is of use only in confirming the animal was older than a neonate, whilst the former indicates an animal of 15–18 months or older.

No definite neonate or very young animal bones were recorded from these contexts, though suckling pig has been recorded at other Anglo-Saxon cemeteries, notably Spong Hill (Bond 1994b, 131–32).

Bronze Age (Phase 3) assemblage

A few small fragments of cremated animal bone (combined weight *c.* 2g) were recovered from features of this period. Cremation 33 produced a single sheep/goat-size long-bone fragment. In Area C, a small pit or post-hole *[1044]* recorded one large ungulate piece and one unidentifiable fragment.

Early Anglo-Saxon (Phase 5) assemblage

In the cremation 8 grave, the cremated bone was split unequally between two vessels. The fill of the ceramic pot (no. 6) was majority animal bone, whilst approximately half the bone in the hanging bowl was animal (no. 1). This hanging-bowl assemblage produced the only instance of identifiable pig remains from the cemetery; a single fragment of right astragalus. It is just possible, that this single bone may not represent a pig carcase or meat joint, but rather a playing piece or amulet (Bond 1994b, 130). Sets of playing pieces of sheep astragali, some very worn, were found in several instances at Spong Hill and Sancton I, sometimes represented by just a single bone (Bond 1993, 305–6; 1994b, 128). This astragalus fragment is also worn, though pig astragali are less regular in shape than sheep, which may suggest a different use. Other species contained in the bronze bowl were horse, cattle and sheep/goat. The single fragment of sheep/goat bone was a proximal shaft of metacarpal, whilst cattle was represented by fragments of radius, ulna, tibia, and first and third phalanx. Horse was the best represented, with sixteen identified bone fragments, from mandible, carpal, pelvis, tibia, metapodial, astragalus, sesamoid, and first, second and third phalanges. From the range of horse skeletal elements (from the head, through the front limb, pelvis and back limb) it seems that most, or all, of an individual was cremated.

The ceramic urn in cremation 8 included four identifiable cattle bone fragments and ten identifiable fragments of horse. The cattle elements comprised right tibia, vertebrae and a skull fragment (zygomaticus), whilst the horse bones included carpal, metapodial, phalanx, ulna and skull. Also recorded from this grave were a large number of both large ungulate and sheep/goat-size fragments. This makes it likely that whole animals, or at least several different elements or 'cuts', were included on the pyre. The grave-pit fill produced no identifiable species, only nineteen fragments that could be assigned to size categories. The majority of bones in the pot were animal remains, and so might be considered to represent an 'animal accessory' (see above, *Sect II: Cremated human remains*; McKinley 1993a, 309–11; 1994a, 93–4). Two of the four probable post-holes (*[500]* and *[505]*) that surrounded the cremation 8 burial also contained animal bone. It is argued that these features are very likely evidence for the pyre structure (see *Chap. 8; Sect. III: Post structures and pyres*). Combined, they contained large ungulate, sheep/goat-size and unidentifiable bone fragments.

Animal bone was identified and analysed from a further six early Anglo-Saxon cremations buried urned. Cremation 3 produced only 1.6g, four fragments, all either long or flat bone elements of sheep/goat-size. Cremation 5 recorded 7.3g of bone, all large ungulate, comprising long bone, rib or skull fragments. Cremations 10 (possibly urned) and 11 also produced small amounts of bone, identifiable only as large ungulate or sheep/goat-size. By contrast, cremation 4 yielded 446.1g of animal bone, with an identifiable nine fragments of cattle and twelve of horse. The cattle elements comprised cranial petrous bone, horn core, humerus, radius, carpal, metacarpal, metatarsal and third phalanx. From the horse, cranial occipital bone, the axis, femur, metatarsal, first and second phalanx, and caudal vertebrae. Again, the parts from both species seem representative of whole carcasses rather than individual 'cuts'. Cremation 13 also included cattle and horse remains, as well as one sheep/goat tibia fragment. Cattle elements comprised mandible, radius, ulna, metatarsal, and first phalanx, probably the remains of a whole animal. Horse was represented by two fragments of mandible and one fragment of astragalus. The identifiable horse bone only attests to the certain presence of a skull and one hind limb. A single hind limb element is similarly represented in the case of the sheep/goat. Cremation 13 was surrounded by ring-ditch *[597]*, the fills of which also produced cremated faunal remains.

The very disturbed spread within ring-ditch *[437]* is interpreted as probably an unurned burial (cremation 6). Only a single fragment of sheep/goat left radius was identifiable, but was accompanied by large ungulate and sheep/goat-size remains. The other unurned burial (cremation 7) contained noteworthy animal remains. There were fragments of cattle, horse, sheep/goat, and bird bone (domestic fowl-size). Seven cattle elements were of the skull and upper vertebral

column, with a piece of metacarpal. Identifiable horse bone included mandible, humerus, vertebrae, pelvis and third phalanx. The two sheep/goat bone fragments present, from a metacarpal and a scapula, attest only to the presence of a single forelimb, perhaps butchered at the shoulder. The bird elements were humerus and lumbosacrale. Although three instances of possible knife butchery were recorded, none were from species identified bone elements.

Cremated faunal material was also identified from three ring-ditches. Ring-ditch *[597]* was associated with cremation 13. Eight of its ditch-fill sections contained a total of 217 fragments of animal bone (14g). However, none was assignable to genus or species. Large ungulate and sheep/goat-size pieces were most common, mirroring the associated grave assemblage. Ring-ditch *[606]* was associated with 'cremation' 12, although there is no record of any bone from the 'urn' in this grave (see *Chap 3; Sect. II: 'Cremation' 12*). Cremated animal bone was recorded from five of the ditch-fill sections, 101 fragments in all (15g). Only a single sheep/goat astragalus (from fill *(613)*) was identifiable to species. Large ungulate, sheep/goat-size and medium/small mammal-size fragments were also present. The third ring-ditch *[698]* produced just one sheep/goat-size fragment.

The final feature of this period to contain cremated animal bone was inhumation 18. The grave backfill *(653)* yielded a single long-bone fragment of large ungulate size.

Discussion

The heavily fragmented nature of the material notwithstanding, the results of the analysis of the cremated animal bone are significant. Of the urned burials, three contained identifiable remains of both horse and cattle (cremations 4, 8 and 13). These animals were jointly the most common at the cemetery as a whole, with the same combination also present in one of the unurned burials (cremation 7). This finds some parallels at other sites. At Spong Hill, horse was the most common animal, occurring in 23% of those cremation burials with animal offerings (McKinley 1994a, table 5). Meat-age cattle were present in at least 80 cases (8%), associated with 'wealthier' burials, but only seven were probably whole animals (Bond 1994b, 126–28; Bond and Worley 2006, 91). Hence, the combination of horse and cattle remains (especially including whole cattle, instead of cuts) is rare, which was also the case at Sancton I (Bond 1993, 309). In terms of its local context, the parallels from the 'royal' cemetery at Sutton Hoo are perhaps most apposite, where cattle and horse also occurred (Table 9.1; Gejvall 1975; Bond 2005). Mound 7 had a horse, a whole cattle carcase, probably a whole sheep, a joint of pork, and red deer antler (Bond 2005, 276–79, table 38).

The greatest range of identifiable animal remains was seen in the hanging-bowl burial (cremation 8). Potentially, this burial contained a horse, a cow (or beef steer), a sheep and a dog, together with pig remains. The single pig astragalus may be variously interpreted. It could be from a whole pig or pork joint, or it may be an amulet or playing piece, perhaps from a wild/domestic boar (Bond 1994b, 130). Pig is not a particularly common offering; they were present in only 8.5% of the Spong Hill cremation burials, and in every case only a single bone or very few bones were present (Bond 1994b, 130–32; McKinley 1994a, table 5); in no case could an entire carcase be said to be present, except for the five cases where suckling pigs (neonate animals) were identified. Hence, the single pig bone accords with the pig offerings known from burials at other cemeteries (Bond and Worley 2006, 92).

The only bird offering was in the unurned cremation 7, which with its range of animal remains, suggests quite a significant burial. Cremation 6, whilst 'poorer' by comparison, is still quite rich when compared to many cremations in the big 'folk' cemeteries at Spong Hill and Sancton I (McKinley 1994a, 92–100; Bond and Worley 2006), with a large mammal (probably a horse or cow, or both) and a sheep/goat.

It may seem odd that so few sheep remains were identified in the Tranmer House burials, given that they are the commonest 'food' animal identified at comparable sites; at Spong Hill 17% of cremation burials with animal bone had sheep/goat bone (Bond 1994b, 128–30; McKinley 1994a, table 5; Bond and Worley 2006, 91). Mostly, at this and other sites, individual animals were represented by only one piece, or a few bones, indicating joints of meat. At Spong Hill, such lamb/mutton cuts occurred broadly across the whole social spectrum (McKinley 1994a, 99).

Lastly, it may be noted that the 'wilder' elements present at some sites, including red deer antler and bear claws (terminal phalanges), were not identified in this assemblage (Bond and Worley 2006, 95–6). Bear claws, indicating the presence of a bearskin (perhaps exotic imports from Scandinavia), were also absent from the Sutton Hoo cremation graves (Bond 2005, 280).

Feathers

by C.J.R. Fern

The spearheads from inhumations 21 and 23 together have mineral-preserved remains of up to three feathers. These were visually examined by Mark Adams of The Natural History Museum (Senior Curator, Bird Group, Department of Zoology), and what follows is based on his comments.

Two fragments occur beside each other on the socket of the spearhead from inhumation 21, but they are not ordered so as to suggest they represent remnants of an actual bird. The most complete instance (Pl. XVIb), though it is still poorly preserved overall, yields some information. It is missing its proximal end (base), the shaft broken off at an oblique angle (not a natural, symmetrical taper). Equally, the distal end (tip) is absent, and its total length is unknown, therefore. The structure and spacing of its barbs hint that it is possibly a contour (body) feather rather than a flight feather. If so, then it comes from a bird larger than a sparrow/finch, for example. Ultimately, however, its poor preservation makes these statements very uncertain. The second fragment is orientated at 180° relative to the first and is much smaller, though in structure it appears similar: it could be from another feather or possibly it is a fragment from the first example. A single fragment is on the blade face of the inhumation 23 spearhead, but it is in poorer condition and, for this reason, nothing more can be said about it.

Feather remains occur only rarely in early Anglo-Saxon graves, as they do in graves on the Continent and in Scandinavia in the period, the corpus including several examples from Sutton Hoo (Bruce-Mitford 1983, 888–90; Walton Rogers 2007, 225–26). Most instances have been found in male weapon-burials, often of higher-status individuals, with the usual interpretation one of down from pillows or mattresses (*ibid.*). In inhumations 21 and 23, the spearheads were found at the head-end of the grave, which could indicate head-pillows also. The same situation, of 'down' on a spearhead at the head, occurred in grave 81 at Mill Hill (Deal), Kent, a burial similar to inhumation 21 in other respects (see *Chap. 4; Sect. II*: *Shield from inhumation 21*; Parfitt and Brugmann 1997, 147–48, fig. 43; Parfitt 2003, 81). At Sutton Hoo, the remains were in the mound 1 and 4 burials. In mound 1

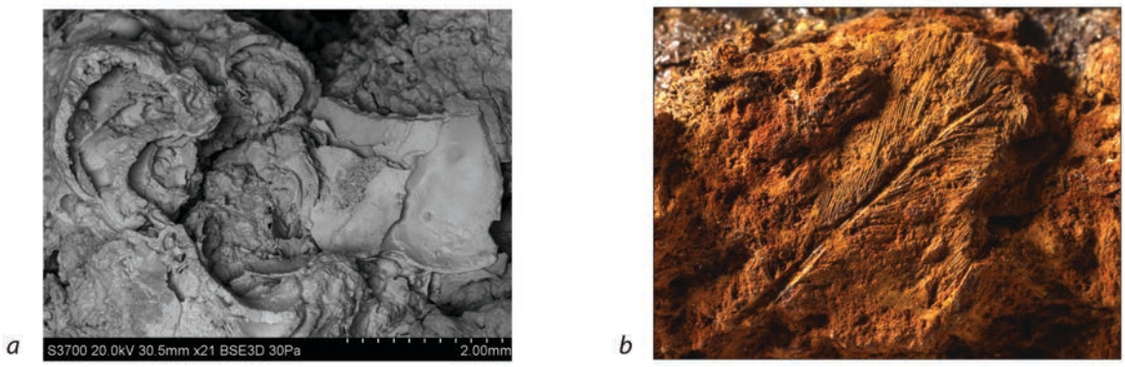


Plate XVI Insect and feather remains: a) SEM image of puparia on the buckle from inhumation 14; b) feather on the spearhead from inhumation 21 (not to scale). Copyright Trustees of the British Museum

was possibly goose down from a pillow placed under the Anastasius dish. In mound 4 the feathers had been preserved by contact with a metal bowl used to hold a cremation, and might also indicate a pillow or cushion (Bruce-Mitford 1983, 888–90; Crowfoot 1983, 466). Another example from Suffolk was recorded at Snape, on a spearhead in grave 47, a weapon-burial in a boat, the feather impression consistent with a bird of chicken- or duck-size (Filmer-Sankey and Pestell 2001, 105). In addition, the use of head-pillows has been suggested from soil stains in graves at Mucking, Essex, notably occurring in both male and female burials (Hirst and Clark 2009, 651–52). However, since ultimately the remains from Tranmer House cannot rule out the possibility of flight feathers, it remains conceivable that the feathers instead formed pendent decoration for the spearheads, though there is as yet no confirmation of this practice in England at the period.

Insects

by C.J.R. Fern and J. Hood

Knives and iron buckles from six inhumation graves have mineral-preserved insect remains (Table 5.3). They are associated with the remains of a skin product, probably leather (see *Chap. 4: Sect. III*), presumably from sheaths, and belts or straps. Examination was undertaken using a binocular microscope at up to x100 magnification (although they are visible to the naked eye), and one case was recorded using an SEM (Pl. XVIa). Almost all are the remains of puparia, some having a 'boat-shaped' appearance, and in several cases they are numerous and densely concentrated. The exception is a potential insect abdomen on a buckle from inhumation 17. None was identified to species.

Pupa casings occur fairly frequently on metalwork from early Anglo-Saxon burials, and are typically associated with leather, which was probably eaten by the insect larvae (Watson 1994, 37). At the local Boss Hall and Buttermarket cemeteries (Ipswich) remains were also mainly found on knives and buckles, with the puparia grouped, as in this case (Turner-Walker 2009, 65–6, 226–28). According to Turner-Walker this is behaviour suggestive of fly pupa, with at Buttermarket *Conicera tibialis* (coffin-fly) identified. This species is attracted to buried corpses and can burrow through loose soil (up to a metre deep), and hence the presence of puparia need not indicate that a body had lain exposed before interment (*ibid*., 65). Also, at nearby Snape two graves had fly remains, identified as *Fannia* sp., and *Ophyra capensis* or *Ophyra leucostoma* (Robinson 2001).

Ivory

Two probable cases of ivory are dealt with in *Chapter 4* (*Sect. II: Ivory*).

IV. Plant and wood remains

The plant and wood evidence comes from two sources: soil samples taken from the graves, mainly the cremation burials, and mineral-preserved remains on the metal grave-goods. The majority relates to the early Anglo-Saxon environment of *Phase 5*.

Wood remains on metalwork

by C.R. Cartwright

Methodology

Mineral-preserved wood was identified on many of the iron artefacts from the early Anglo-Saxon cemetery. Preservation was limited, however, by the highly corroded state of much of the metalwork. There was also a large fragment of charred wood from one grave (inhumation 27). Standard wood anatomical procedures were followed and the samples examined in three different planes for identification: transverse,

Grave	*Find no.*	*Object*	*Description/ Location*
Inhum. 14	**6**	buckle	numerous small, broken puparia preserved on top of unidentified mineralised remains, as well as inside loop
Inhum. 17	**7**	buckle	numerous small puparia, and a single insect carcass, preserved in and on top of skin product through loop
Inhum. 18	**2**	knife	numerous small 'boat-shaped' puparia, preserved on top of skin product on one blade face
Inhum. 24	**5**	knife	numerous small puparia preserved on top of skin product on one blade face
Inhum. 25	**2**	knife	several small puparia preserved on top of skin product on one blade face, close to the tip
Inhum. 32	**7**	buckle	several small, broken puparia preserved on top of skin product passing through loop

Table 5.3 Mineral-preserved insect remains on iron objects from graves

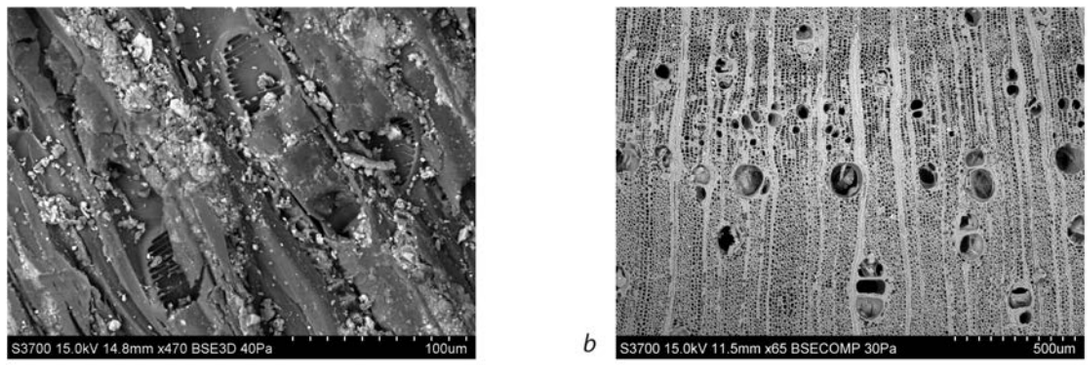


Plate XVII SEM images of wood on two shield disc mounts from inhumation 24: a) *Alnus glutinosa* (alder) b) *Fraxinus excelsior* (ash). Copyright Trustees of the British Museum

radial longitudinal and tangential longitudinal. Identifications of most of the mineral-preserved wood were carried out using a high-resolution biological microscope with darkfield reflected light, at magnifications ranging from x100 to x1000. In addition, a variable pressure SEM was used for examining very poorly-preserved, problematic or particularly interesting finds (Pl. XVII). It should be noted that not all the metalwork from the graves was examined, however, so the results must be regarded from the interpretative perspective as representative.

Results

Fifty-four identifications were made for ten graves and one unassociated find (Table 5.4); where the same genus/species occurred multiple times for sets of objects (e.g. shield-fittings) these have been condensed to a single listing. Four wood species are represented, in order of frequency: ash (*Fraxinus excelsior*), alder (*Alnus glutinosa*), oak (*Quercus* sp.) and yew (*Taxus baccata*).

Discussion

Ash (*Fraxinus excelsior*) dominates as the wood of choice, including for spear shafts, shield-boards and scabbards, and it was also used for the hanging-bowl lid. Alder (*Alnus glutinosa*) and oak (*Quercus* sp.) were each used in a

Grave	*Artefact*	*Find no(s).*	*Wood genus/species*			
			Alnus glutinosa	*Fraxinus excelsior*	*Quercus sp.*	*Taxus baccata*
Crem. 8	hanging bowl (lid)	1		•		
Inhum. 17	shield-boss	3i		•		
	shield mounts	4, 5		•		
Inhum. 21	spearhead	1		•		
	shield grip	2ii		•		
	sword	7i		•		
Inhum. 23	spearhead	1		•		
	shield-boss	2i		•		
	shield mounts	3		•		
	buckle	6			•	
Inhum. 24	spearhead	1i		•		
	shield-boss	2i	•			
	shield mounts	3	•			
	shield mounts	4		•		
	buckle	7				•
Inhum. 27	shield-boss	2i			•	
	sword	5		•		
	charred wood	8			•	
Inhum. 28	shield mounts	3, 4		•		
Inhum. 29	shield-boss	2i		•		
	shield grip	2ii		•		
	shield mounts	3, 4		•		
Inhum. 30	staples	12		•		
	latch	13i		•		
	nail	14		•		
	iron 'blade'	15		•		
	staples	17		•		
Inhum. 32	spearhead	1		•		
	shield-boss	2i		•		
	shield mounts	3, 4		•		
Unassoc.	sword	2		•		
			alder	**ash**	**oak**	**yew**

Table 5.4 Mineral-preserved wood remains on iron objects from graves

single instance for shield-boards, with the latter also present as possible coffin/container-lid wood in one case (inhumation 23). There is a single occurrence of yew (*Taxus baccata*) on the buckle in inhumation 24. This wood is most commonly associated with metal-bound wooden buckets in the period (Cook 2004, 34), but in this grave may have served a different function (see *Chap. 8; Sect. V*).

Populations of alder and oak have been recorded at Sutton Hoo from the Neolithic (Carver 2005, 367, 376, figs 156, table 9), but ash is not evidenced locally in the prehistoric nor early-medieval eras, being absent from the charcoal, macrofossil and pollen records for both Sutton Hoo and Tranmer House. *Fraxinus excelsior* trees prefer damp and base-rich (calcareous) soils, rather than the acid heathland of the Sandlings (Stace 1997, 350). Today isolated pockets of ash trees do grow along the shores of the nearby River Deben on patches of calcareous soil (M. Atkinson, National Trust Estate Manager, pers. comm.), but this has yet to be corroborated for the period in question.

Plant remains on metalwork
by C.R. Cartwright

Methodology
The mineral-preserved plant remains were examined as per the wood (see above), with the addition that the 'interference contrast mode' on the biological microscope assisted the examination of fragments. Also, as per the wood, since not all grave-goods were examined, these results are representative only. Remains on shield-board mounts from inhumations 28 and 32 are shown in Plate XVIII.

Results
Forty-seven identifications were made (Table 5.5); where the same genus/species occurred multiple times for sets of objects (e.g. shield-fittings) these have been condensed to a single listing. Remains were extensive across many of the finds and comprised, in order of frequency (on artefact types per grave): cock's foot (grass) (*Dactylis glomerata*), common reed (*Phragmites communis*), bracken (*Pteridium aquilinum*), creeping soft-grass (*Holcus mollis*), heather/ling (*Calluna vulgaris*), bell heather (*Erica cinerea*), onion couch (grass) (*Arrhenatherum elatius*), velvet bent (grass) (*Agrostis canina*), wavy hair-grass (*Deschampsia flexuosa*) and yarrow (*Achillea millefolium*). This represents a diverse assemblage of woodland, heathland and acid grassland taxa.

From the character of the remains and their distribution on objects, it seems very likely that layers of vegetation were deliberately placed in the graves. The remains point to heathland plant types prevalent at the site, as well as to species possibly harvested elsewhere (see below, *Discussion of the plant and wood remains* and *Chap. 8; Sect. IV: Coverings and linings of plant material*).

Plate XVIII Plant remains: a) *Pteridium aquilinum* (bracken) on a shield disc mount (no. 3i) from inhumation 28; b) *Phragmites communis* (common reed) and other plant remains on a shield disc mount (no. 4i) from inhumation 32 (scale 2/1).
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Charred plant macrofossils
by V. Fryer

Introduction and method statement
One-hundred and forty-one samples, for the retrieval and assessment of plant macrofossils, were taken from fills within pits (some possibly post-holes), ditches, graves, cremation deposits and ring-ditches. The samples were processed by manual water flotation/washover and the flots were collected in a 500 micron mesh sieve. Modern roots, seeds and arthropod remains were abundant throughout, and most flots required further sieving through a 2mm mesh prior to sorting. An initial assessment showed that of the total number of samples, sixty-one contained only charcoal/charred wood fragments. The remaining flots (or sub-samples thereof) were scanned under a binocular microscope at magnifications up to x 16, and the plant macrofossils and other remains noted. These are presented in Table 5.6; nomenclature within the table follows Stace (1997). All the plant remains were charred.

In 2009–10, Caroline Cartwright made a study of the charcoal wood collected during the same process, which also identified a small number of additional plant macrofossils (see below).

Grave	*Artefact*	*Find no(s).*	*Plant genus/species*									
			Achillea millefolium	*Agrostis canina*	*Arrhenatherum elatius*	*Calluna vulgaris*	*Dactylis glomerata*	*Deschampsia flexuosa*	*Erica cinerea*	*Holcus mollis*	*Phragmites communis*	*Pteridium aquilinum*
Inhum. 14	shield mounts	3, 4			•		•			•		
Inhum. 16	spearhead	1					•					
	shield-boss	2i					•					
	shield mounts	4					•					
Inhum. 17	spearhead	2					•				•	
	shield-boss	3i					•					
	shield mounts	4, 5		•			•			•		
Inhum. 20	spearhead	1						•		•		
	shield-boss	2					•					
	iron fittings	5i–iv								•		
Inhum. 21	spearhead	1					•					
	shield-boss	2i					•					
Inhum. 23	spearhead	1					•					
Inhum. 24	spearheads	1i–ii					•					
	shield-boss	2i					•					
	shield mounts	3, 4					•					
	buckle	6					•					
Inhum. 25	spearhead	1					•					
Inhum. 27	shield-boss	2i					•					
Inhum. 28	shield mounts	3, 4	•			•	•				•	•
Inhum. 29	shield-boss	2i				•	•		•		•	•
	shield mounts	3, 4				•	•				•	•
Inhum. 30	key	5i					•					
	knife	6					•					
	iron ring	10					•					
	iron ‘blade’	15					•					
Inhum. 32	spearhead	1					•					
	shield-boss	2i					•					
	shield mounts	3, 4					•				•	•
			yarrow	**velvet bent**	**onion couch**	**heather/ ling**	**cock’s foot**	**wavy hair-grass**	**bell heather**	**creeping soft-grass**	**common reed**	**bracken**

Table 5.5 Mineral-preserved plant remains on iron objects from graves

				Cereals		*Herbs*											
Area	Feature/Grave	Context	*Phase*	*Hordeum sp. (grains)*	*Triticum spelta (glume base)*	*Arrhenatherum sp. (tuber)*	*Bromus sp.*	*Chenopodiaceae indet.*	*Chenopodium album*	*Fallopia convolvulus*	*Medicago/Trifolium/Lotus sp.*	*Montia fontana (contaminant?)*	*Persicaria maculosa/ lapathifolia*	*Plantago lanceolata*	*small Poaceae indet.*	*large Poaceae indet.*
A	**Pit *[551]***	*(564)*	2													
A	**'Post-hole' *[618]***	*(619–20)*	2					X								
A	**Cremation 33**	*(906)*	3													
A	**Cremation 33**	*(912/915/916/919)*	3											X	X	
A	**Cremation 33**	*(923)*	3							X				X		
B	**'Post-hole' *[1044]***	*(1045)*	3		X											
A	**Hearth *[550]***	*(549)*	4iii													
A	**Cremation 2**	*(381)*	5													
A	**Cremation 3**	*(389)*	5	X*												
A	**Cremation 6**	*(440)*	5													
A	**Cremation 6**	*(442/460)*	5					X								
A	**Cremation 6**	*(461)*	5													
A	**Cremation 7**	*(483)*	5													
A	**Cremation 8**	*(486)*	5								X					
A	**Cremation 8**	*(490)*	5												X	
A	**Cremation 11**	*(657–58)*	5			X	X				X	X				
A	**Cremation 12**	*(660)*	5								X					
A	**Cremation 13**	*(692)*	5													
A	**Cremation 13**	*(706)*	5					X								
A	**Ring-ditch *[404]***	*(406)*	5												X	
A	**Ring-ditch *[425]***	*(426)*	5													
A	**Ring-ditch *[437]***	*(447)*	5								X					
A	**Ring-ditch *[597]***	multi-context/ single fill	5						X		X		X	X	X	
A	**Ring-ditch *[606]***	multi-context/ upper fill	5	X				X						X		X
A	**Ring-ditch *[665]***	multi-context/ single fill	5													
A	**Ring-ditch *[698]***	multi-context/ single fill	5												X	
A	**Ring-ditch *[932]***	multi-context/ single fill	5								X					
A	**Post-hole *[488]***	*(498–99)*	5													
A	**Post-hole *[500]***	*(501–2)*	5			X						X				
A	**Post-hole *[505]***	*(506)*	5											X		
				barley	*spelt*	*onion couch type tuber*	*brome*	*goosefoot family*	*white goosefoot*	*black bindweed*	*medick/clover/trefoil*	*water-blinks*	*redshank/pale persicaria*	*ribwort plantain*	*small grasses*	*large grasses*

NR – sample volume not recorded in original assessment, as no plant macrofossils were identified
*Identified by Caroline Cartwright

Table 5.6 Charred plant macrofossils from features of *Phases 2–5*

Herbs								*Trees/Shrubs*						*Indeterminate*						*Other*			
Polygonaceae indet.	*Polygonum aviculare*	*Rumex acetosella*	*Rumex sp.*	*S. graminea*	*Stellaria sp.*	*Vicia/Lathyrus sp.*		*Corylus avellana (shell frags.)*	*Quercus sp. (seed frags.)*	*Rubus sp.*	*Sambucus nigra*	*Ulex europaeus*		*buds*	*catkin frags.*	*cereal (grains)*	*culm frags.*	*seeds*	*tubers*	*Ericaceae indet. (floret)*	*Ericaceae indet. (stem)*	*charred root/rhizome/stem*	*Sample Volume (l)*
								X*	X*														NR
		X				X																	2
		X				X												X					6
																							20.5
																						X	25.5
																							15
																		X					6.5
																		X					1.5
								X*	X*														NR
																				X			5
																				X	X		35.5
															X					X			14
															X			X					45
		X	X																				4
								X*	X*														20
		X																X					4
																							9
		X																					1
																		X					4.5
																X							4
		X																					6
																			X				3.5
X	X	X				X	X							X			X	X					78
		X								X						X		X	X	X		X	127.5
		X			X							X						X					5
	X	X						X			X	X						X					14.5
		X										X											11
		X																X					10
																		X					15.5
	X																						5.5

knotweed family	*common knotgrass*	*sheep's sorrel*	*dock/sorrel*	*common stitchwort*	*chickweed/stitchwort*	*vetch/vetchling*	*hazelnut shell*	*acorn*	*rose family (incl. bramble)*	*elderberry*	*gorse*	*buds*	*catkin frags.*	*cereal*	*culm frags.*	*seeds*	*tubers*	*heather (floret)*	*heather (stem)*	*charred root/rhizome/stem*
Herbs							*Trees/Shrubs*					*Indeterminate*						*Other*		

				Trees/Shrubs (g)															
Area	*Feature/Grave*	*Deposit*	*Phase*	*Acer campestre*	*Alnus glutinosa*	*Betula sp.*	*Corylus avellana*	*Hedera sp.*	*Ilex aquifolium*	*Malus sylvestris*	*Pinus sp.*	*Prunus avium*	*Prunus spinosa*	*Quercus sp.*	*Salix sp.*	*Sambucus nigra*	*Sorbus aucuparia*	*Tilia sp.*	*Ulex europaeus*	
A	**Pit *[551]***	*(552)*	2								5									**5**
A	**Pit *[551]***	*(564)*	2				19		24					23						**66**
A	**'Post-hole' *[618]***	*(619)*	2		6															**6**
A	**'Post-hole' *[618]***	*(620)*	2		5															**5**
A	**Pit *[679]***	*(680)*	2			9	6							7						**22**
A	**Pit *[693]***	*(694)*	2				3							5						**8**
C	**Pit *[1028]***	*(1030)*	2	4	5							3		6						**18**
A	**Cremation 33**	*(906)*	3		10				6					21						**37**
A	**Cremation 33**	*(912/915/916/919)*	3		7		6		20					28						**61**
A	**Cremation 33**	*(923)*	3								17									**17**
B	**'Post-hole' *[1040]***	*(1041)*	4i–ii			8														**8**
A	**Hearth *[550]***	*(549)*	4iii	10	23			X*	12			5		46			9			**105**
A	**Cremation 2**	*(381)*	5						6											**6**
A	**Cremation 3**	*(389)*	5				3		4					3						**10**
A	**Cremation 4**	*(396–97)*	5								8									**8**
A	**Cremation 4**	*(398)*	5								8									**8**
A	**Cremation 5**	*(430)*	5											7						**7**
A	**Cremation 6**	*(440)*	5											3						**3**
A	**Cremation 6**	*(442/460)*	5								8			10						**18**
A	**Cremation 6**	*(461/465/475/478)*	5								14									**14**
A	**Cremation 7**	*(483)*	5	9	15									12						**36**
A	**Cremation 8**	*(486)*	5			27								15						**42**
A	**Cremation 8**	*(490)*	5				6							7						**13**
A	**Cremation 10**	*(644)*	5								6									**6**
A	**Cremation 11**	*(657–58)*	5	10	36									59						**105**
A	**Cremation 12**	*(660)*	5						5											**5**
A	**Cremation 13**	*[3001], (687)*	5											12						**12**
A	**Cremation 13**	*(688/690)*	5								10			12						**22**
A	**Cremation 13**	*(692/697/740)*	5		7		3							24						**34**
A	**Cremation 13**	*(706)*	5											2						**2**
A	**Inhumation 14**	*(493)*	5				6							2						**8**
A	**Inhumation 27**	*sf2187* (no. 8)	5											33						**33**
A	**Ring-ditch *[342]***	*(402)*	5												9					**9**
A	**Ring-ditch *[344]***	*(345/380)*	5		6									5						**11**
A	**Ring-ditch *[404]***	*(406)*	5								3				6				3	**12**
A	**Ring-ditch *[425]***	*(426)*	5							7								8		**15**
A	**Ring-ditch *[437]***	*(443/447/481)*	5	7	28	5					4			18					3	**65**

A	**Ring-ditch *[597]***	multi-context/single fill	5	3	16	44	24				5		26	13	41					**172**
A	**Ring-ditch *[606]***	multi-context/upper fill	5	4	15	40	2		14					104						**179**
A	**Ring-ditch *[665]***	multi-context/single fill	5			13								4	7				5	**29**
A	**Ring-ditch *[698]***	multi-context/single fill	5	7	9	23	6		7					29						**81**
A	**Ring-ditch *[932]***	multi-context/single fill	5	11	18	33								39	3					**104**
A	**Post-hole *[488]***	*(498–99)*	5											36						**36**
A	**Post-hole *[500]***	*(501–2)*	5		5									9		4				**18**
A	**Post-hole *[505]***	*(506–7)*	5			3								4						**7**
A	**Post-hole *[557]***	*(558–59)*	5	6	13									22	24					**65**
		TOTAL		**71**	**224**	**205**	**84**	**NR**	**98**	**7**	**88**	**8**	**26**	**620**	**90**	**4**	**9**	**8**	**11**	
				field maple	*alder*	*birch*	*hazel*	*ivy*	*holly*	*crab apple*	*pine*	*wild cherry*	*blackthorn*	*oak*	*willow*	*elder*	*rowan*	*lime/linden*	*gorse*	***TOTAL***

*Weight not recorded: sample sent for radiocarbon dating in 2001

Table 5.7 Charcoal wood from features of *Phases 2–5*

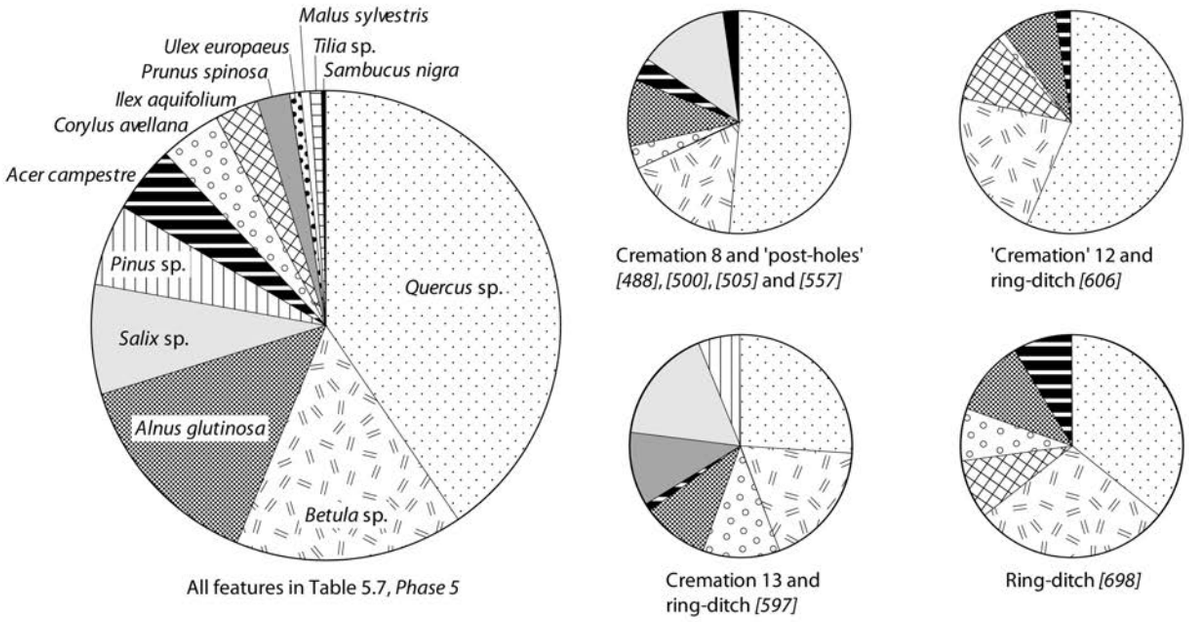


Figure 5.1 The relative proportions of charcoal wood identified from the cremation burials (cf. Table 5.7). By CF

Results

For the early Anglo-Saxon period (*Phase 5*) only the assemblages from cremation deposits and related features were assessed in full (the bone fill of the hanging bowl from cremation 8 was excavated at the British Museum), as it was expected that in these instances the plant macrofossils could be related to a specific activity (i.e. the cremation act). Only in one case was an inhumation backfill assessed (inhumation 14) to establish potential. [1]

Cereals and seeds of common weeds, grassland herbs and heathland plants were noted, although mostly at a very low density. Preservation was generally quite poor, with the majority of grains and seeds severely puffed and distorted, probably as a result of high temperatures during combustion. It was also noted that a high proportion of the charcoal fragments were very poorly preserved, being both distorted and very fragmentary. Barley (*Hordeum* sp.) grains were present in the fill of ring-ditch *[606]*, contexts *(613)* and *(642)*, and a double-keeled spelt wheat (*Triticum spelta*) glume base was noted within the fill of small pit *[1044]*, context *(1045)*. In addition, Caroline Cartwright also identified barley within cremation 3, fill *(389)*.

Seeds of common weeds mostly occurred as single specimens within an assemblage. The taxa noted include brome (*Bromus* sp.), medick/clover/trefoil (*Medicago/Trifolium/Lotus* sp.), ribwort plantain (*Plantago lanceolata*), indeterminate grasses (Poaceae), dock (*Rumex* sp.), sheep's sorrel (*Rumex acetosella*) and vetch/vetchling (*Vicia/Lathyrus* sp.). Onion couch (*Arrhenatherum* sp.) type tubers were recorded in cremation 11 and 'post-hole' *[500]*.

Tree/shrub macrofossils were rare also. Some ring-ditch deposits included hazelnut shell fragments along with seeds of bramble (*Rubus* sect. *Glandulosus*), elderberry (*Sambucus nigra*) and gorse (*Ulex europaeus*). To these Caroline Cartwright's analysis added oak (*Quercus* sp.) fruits (acorns) and further hazelnut (*Corylus avellana*) shell fragments from cremations 3 and 8, and the fill of pit *[551]*. Other infrequent macrofossils included fragments of charred root or stem (including some heather (Ericaceae) stem), heather florets and indeterminate catkins, culm fragments, seeds and tubers.

In addition, fills *(607)* and *(645)* from ring-ditches *[597]* and *[606]*, respectively, contained fragments of a black porous material, that is most likely to be a by-product of pyre combustion (i.e. 'fuel-ash slag').

Discussion

With the exception of hearth *[550]*, the majority of the features sampled demonstrated a very low density of charred macrofossils. In the case of the cremation and ring-ditch features the assemblages may be directly related to pyre activity, associated or nearby, although there remains the potential for the accidental incorporation of scattered or wind-dispersed detritus. The occurrence of materials sourced from a range of local habitats is of note. This includes grassland (grass fruits, grassland herb seeds and tubers), heathland (heather stem fragments and gorse seeds) and scrub (catkins). Some was perhaps kindling, but others could be remains of vegetation exposed to burning at the actual pyre site. Similar assemblages have been recorded from cremation-associated deposits at the early Anglo-Saxon cemetery of Springfield Lyons, Essex (Tyler and Major 2005; Murphy 2005, table 16).

The spelt wheat glume base from post-hole *[1044]* is difficult to interpret, as a single small macrofossil could easily be affected by bioturbation. However, if it is contemporary with the feature from which the sample was taken it could be a significant early occurrence of spelt, although the feature's dating is not certain (see *Chap. 2; Sect. IV: Discussion*). Similarly early specimens have been recorded from elsewhere in Suffolk, for example, from West Row Fen (Martin and Murphy 1988, 353–57).

Wood and other remains from charcoal

by C.R. Cartwright (with contributions by C.J.R. Fern)

Introduction

Fourteen hand-excavated charcoal samples and 120 flotation samples were studied, comprising fragmented, charred wood and other plant remains. The latter were processed by Val Fryer, who identified the macrofossils present in a sample assessment (see above; Fryer 2001). The purpose of this further analysis was to examine the wood charcoal (though in the course of this a small number of additional plant macrofossils were observed also: see Table 5.6). The flotation material examined represents most, but not all, of that initially recovered.[2] Therefore, from the interpretative perspective, the results given in Table 5.7 should be regarded as representative.

Methodology

Following standard procedures, all charcoal fragments were fractured into three different planes for identification: transverse, radial longitudinal and tangential longitudinal. Most identifications were carried out using a specialised high-resolution biological microscope with darkfield reflected light at magnifications ranging from x100 to x1000. In addition, a variable pressure SEM was used for poorly preserved, problematic or particularly interesting samples.

There is no completely satisfactory method for expressing relative proportions of plant species from archaeological contexts, either quantitatively or semi-quantitatively. Counting charcoal fragments is meaningless as it simply gives an index of fragmentation rather than a useful means of comparing relative quantities. Therefore, the different taxa identified in Table 5.7 have been expressed by weight (g).

Results

The results combine the material from hand-excavated flotation samples, listed by context (Table 5.7). Throughout all the flotation samples there were indications of modern, intrusive material in the form of fragments of bracken, grasses, roots, rhizomes, heather, stems, florets and tubers.

Certain taxa are identified to genus level only, not to species. This is because (a) there are several possible species within the genus available for the region, and (b) the species (within each genus) are anatomically indistinguishable, for example, oak (*Quercus* sp.) and birch (*Betula* sp.).

Late Neolithic to Roman/early medieval (Phases 2–4iii)

The evidence was recovered from small pits (or post-holes), a single large pit *[551]*, an unurned cremation burial (cremation 33) and a hearth *[550]*. The large pit, of *Phase 2*, had holly (*Ilex aquifolium*), oak and hazel (*Corylus avellana*) in broadly equal proportions, together with a small amount of pine (*Pinus* sp.). The other contemporary features contained smaller amounts of charcoal, adding alder (*Alnus glutinosa*), birch (*Betula* sp.), field maple (*Acer campestre*) and wild cherry (*Prunus avium*). In addition, lime/linden (*Tilia* sp.) is represented by a single pollen grain from the fill of pit *[551]* (see below, *Sect. V*).

For the Bronze Age (*Phase 3*), cremation 33 again contained holly, along with oak, alder, pine and hazel.

It is likely the wood from hearth *[550]*, of *Phase 4iii*, was fallen material collected from the immediate vicinity for the small fire: oak and alder make up the majority, with some rowan (Sorbus aucuparia) and ivy (Hedera sp.).[3]

Early Anglo-Saxon period (Phase 5)

The majority of the evidence came from the fills of cremation graves, and associated ring-ditches and post-holes. Thirteen taxa were recorded. Oak, birch and alder make up the greatest proportions. They add to those taxa present in the preceding phases, willow (*Salix* sp.), and in small amounts crab apple (*Malus sylvestris*), blackthorn (*Prunus spinosa*), elder (*Sambucus nigra*) and gorse (*Ulex europaeus*).

Discussion

by C.J.R. Fern and C.R. Cartwright

The majority of the charcoal wood and charred plant macrofossil evidence came from the cremation graves. In some burials this material appeared to be with the bone, though the disturbance the graves had suffered makes it uncertain if this was originally the case in all instances, because similar material was also frequently incorporated in grave backfills and in associated features (Tables 5.6–5.7). It seems very likely most derives from pyre fuel: Bronze Age cremation 33 contained 115g of wood charcoal, and eleven Anglo-Saxon cremation burials (including 'cremation' 12) had between 5–105g each. For cremation 11, the whole 105g was found with the bone, contained in an urn (Fig. 3.9), though in other cases the total includes material from the surrounding fill also. The frequency of occurrence and the quantities for the Anglo-Saxon cremations are greater than recorded at other sites (though, of course, the assemblages still only account for a tiny fraction of the original fuel used). At Spong Hill, Norfolk, only a small minority of the over 2000 cremation burials had any charred material, with 3g the maximum found in any single burial (McKinley 1994a, 82). Similarly, at Mucking II, Essex, in most cases less that 1g was recorded, though one unurned grave contained 108g (Hirst and Clark 2009, 586–87). Possibly, the higher incidence seen at Tranmer House was due to the place of the pyre and the burial being the same in multiple cases (see *Chap 8; Sect. III: Post structures and pyres* and *Ring-ditches*).

Five taxa are represented for the Bronze Age cremation, with the greatest proportions oak (*Quercus* sp.) and holly (*Ilex aquifolium*). For the early Anglo-Saxon rite, four of the largest assemblages have been compared in Figure 5.1 (although cremation 13 was heavily disturbed, and its ring-ditch was only two-thirds excavated). Overall, oak was again the majority wood. As seasoned timber would have been needed, this was perhaps felled and matured at the site, or alternatively wood from dismantled buildings, boats or furniture might have been used. Also well represented are birch (*Betula* sp.) and alder (*Alnus glutinosa*) that were probably abundant locally, whereas the lower, varying proportions of the other taxa may indicate sporadic and chance availability. The charred gorse and other macrofossil remains, including the onion couch tubers (Robinson 1988), could be from kindling or from flora burnt by proximity to the pyre (Table 5.6). This combination of select local fuel woods, together with assorted hedgerow/brushwood types, corresponds with ethnographic models of pyre construction (McKinley 1994a, 82).

Comparison with other broadly contemporary cremation cemeteries shows the Tranmer House charcoal-wood assemblage to be alike. Oak (*Quercus* sp.) was dominant at Mucking, Snape, and Spong Hill (McKinley 1994a, 82; Gale 2001, 223–26; Hather 2009), though the other woods used vary. A comparison, too, can be drawn with the continental Saxon cemetery of Liebenau (Kr. Nienburg), Germany (Häßler 1999, 34–5). Here oak was again most popular, followed by alder and birch (and nine other types), as at Tranmer House. This similarity hints at the possibility of a widespread, perhaps long- established tradition of pyre construction in early- medieval Europe.

The lime/linden wood (*Tilia* sp.) from ring-ditch *[425]* stands out as atypical of the locality (though a pollen sample came from a feature of prehistoric date: see below, *Sect. V*). It might derive from an object burnt on the pyre, with lime most famed for shield-board manufacture in the period (Dickinson and Härke 1992, 48). On the other hand, the absence of ash (*Fraxinus excelsior*) in the charcoal-wood assemblage contrasts with its frequency amongst the mineral-preserved remains on the weaponry from the site, suggesting that, whilst it was perhaps the wood of choice for spears and shields for the Tranmer House community, it was not common to the immediate landscape.

Together with the plant evidence preserved on the grave-goods, then, it is possible to glimpse the local early Anglo-Saxon floral environment. Frequent sheep's sorrel, with onion couch and other grasses, suggests open, ungrazed grass heath at the site. Where this was not maintained, bracken, heather (*Calluna vulgaris/Erica cinerea*) and gorse (*Ulex europaeus*) were probably rampant, punctuated by stands of pine and hedgerow trees (crab apple, field maple, hazel, holly and blackthorn). Woodland of oak and birch was most likely maintained through coppicing, pollarding and wood pasture. Probably along the Deben were alder and willow, as well as common reed (*Phragmites communis*).

Some of the taxa in Tables 5.5–5.7 are the same as those found at Sutton Hoo in 1984 (Carver 2005, table 89). Nonetheless, at Tranmer House the results from the two sets of evidence for the Anglo-Saxon period show differences. Sheep's sorrel, a native to the site past and present, was absent from the mineral-preserved remains on the grave-goods (Table 8.3). Conversely, cock's foot grass (*Dactylis glomerata*) was prevalent on the grave objects, but its absence in the charred assemblage suggests it was not common or not present at the cemetery site (cf. Tables 5.5 and 5.6). Cock's foot was formerly much cultivated for hay and pasture, and thus it is conceivable its presence indicates meadow hay brought to the cemetery for use in the burial ritual (see *Chap 8; Sect. IV: Coverings and linings of plant material*). Likewise, the reeds were probably dried and imported, though the bracken and heather in some graves was most likely cut at the cemetery.

Lastly, the acorn and hazelnut-shell fragments from several Anglo-Saxon features and a pit of *Phase 2* require consideration (Table 5.6). Both acorns and hazelnuts were probably eaten in the late Neolithic/early Bronze Age. Indeed, the latter can be ubiquitous at sites, though acorns are rarer and less confidently identified as food, as they are poisonous in a raw state (J. Rackham pers. comm.). Hence, those in pit *[551]* may reflect consumption in *Phase 2*. However, acorns are not a known food of the early-medieval period. In cremation burials 3 and 8 they probably represent accidental inclusions, therefore, perhaps attached to oak kindling, although as both graves were dug in areas of late Neolithic/early Bronze Age activity the remains alternatively could be residual. At Sutton Hoo similar evidence was found in pits beneath mounds 2 and 5, dated to the early Bronze Age (Hummler 2005, 446). A different explanation is possible for the hazelnut remains, as nuts have been found in Anglo-Saxon graves as food offerings (cf. Roach Smith 1868, 144; McKinley 1994a, 91). Similar arguments apply to the cereal grains from cremations 3 and 13, and ring-ditches *[404]* and *[606]* (Table 5.6), with occurrences in early Anglo-Saxon cremation burials elsewhere having attracted a ritual 'prophylactic' interpretation (e.g. at Mucking, Hirst and Clark 2009, 588).

V. Soil analysis and observation

A limited study was undertaken of soil samples from two features in Area A: one prehistoric pit (*Phase 2*) and one Anglo-Saxon ring-ditch (*Phase 5*). A further observation resulted from the identification of a naturally-formed 'root cast' in inhumation 30.

Soil micromorphology and chemistry, magnetic susceptibility, and pollen assessment

by R.I. Macphail and J. Crowther (with G.M. Cruise)

Introduction

The site was visited on 15 June 2000, and a limited soil investigation and pollen assessment were undertaken. Two features were sampled: pit *[551]* of the later Neolithic/early Bronze Age (*Phase 2*); ring-ditch *[606]* of the early Anglo-Saxon period (*Phase 5*) that surrounded 'cremation' 12. The results are presented in Tables 5.8–5.10.

Methodology

Pit *[551]* was investigated with five bulk soil samples, referenced as S1–5 in Figure 2.7: one each from contexts *(552)*, *(562)*, (*564)*, *(646)* and *(648)*. A further sample was also taken of charcoal-rich deposit *(564)* for a thin-section soil micromorphology study (M0564) and pollen assessment. Two bulk samples and one thin section (M0623) were used to study ring-ditch *[606]* (Fig. 3.8, Pls IIe, XIXa).

The chemistry and magnetic susceptibility analysis was undertaken on the fine earth fraction (i.e. <2 mm) of the samples (by J. Crowther). Phosphate-P_i (inorganic phosphate) and phosphate-P_o (organic phosphate) were determined using a two-stage adaptation of the procedure developed by Dick and Tabatabai (1977), in which the phosphate concentration of a sample is measured first without oxidation of organic matter (P_i), using 1N HCl as the extractant; and then on the residue following alkaline oxidation with sodium hypobromite (P_o), using 1N H_2SO_4 as the extractant.

In addition to χ (low frequency mass-specific magnetic susceptibility), determinations were made of χ_{max} (maximum potential magnetic susceptibility) by subjecting a sample to optimum conditions for susceptibility enhancement in the laboratory. χ_{conv} (fractional conversion), which is expressed as a percentage, is a measure of the extent to which the potential susceptibility has been achieved in the original sample, hence: (χ/χ_{max}) x 100.0 (Tite 1972; Scollar *et al.* 1990). In many respects this is a better indicator of magnetic susceptibility enhancement than raw χ data, particularly in cases where soils have widely differing χ_{max} values (Crowther and Barker 1995; Crowther 2003). χ_{conv} values of = 5.00% are often taken as being indicative of some degree of susceptibility enhancement. A Bartington MS2 meter was used for magnetic susceptibility measurements. χ_{max} was achieved by first heating samples at 650°C in reducing conditions, followed by an oxidising environment. The method used broadly follows that of Tite and Mullins (1971), except that household flour was mixed with the soils, and lids placed on the crucibles to create the reducing environment (after Graham and Scollar 1976; Crowther and Barker 1995). LOI (loss-on-ignition) was determined by ignition at 375°C for sixteen hours (Ball 1964).

For the soil micromorphology study (by R.I. Macphail), the two samples were impregnated with a clear polyester resin-acetone mixture; samples were then topped up with resin, ahead of curing and slabbing for 75 x 50mm size thin-section manufacture (Goldberg and Macphail 2006; Murphy 1986). Thin sections were analysed using a petrological microscope under plane polarised light (PPL), crossed polarised light (XPL), oblique incident light (OIL) and using fluorescent microscopy (blue light – BL), at magnifications ranging from x1 to x200/400 (Pl. XIXb–h). Thin sections were described, and ascribed soil microfabric types (SMTs) and microfacies types (MFTs) (Tables 5.9–5.10), and counted according to established methods (Bullock *et al*. 1985; Courty 2001; Courty *et al*. 1989; Goldberg and Macphail 2006; Macphail and Cruise 2001; Stoops 2003).

Four samples were selected for pollen preparations (by G.M. Cruise): two from pit *[551]*, fill *(564)*, P4/2cm and P4/5cm; two from ring-ditch *[606]*, fill *(623)*, 623/1.5cm and 623/5.5cm. The chemical preparation methods and process for determining pollen concentrations were carried out as described in the published literature (Moore *et al*., 1991; Stockmarr, 1971). The slides were scanned and the observed pollen types were noted.

Chemistry and magnetic susceptibility

The analytical results, annotated (in bold font) to highlight the key features of specific samples, are presented in Table 5.8. Here a broad overview of the individual soil properties is presented.

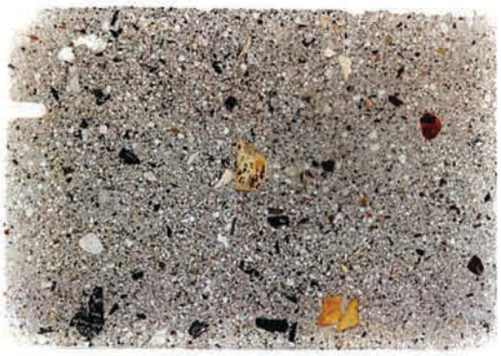
1. Loss-on-ignition (LOI)

The LOI data (range 0.391–1.90%) indicated that the samples were largely minerogenic. It should be noted that rates of organic decomposition are likely to be quite high in such sandy, well-drained contexts, and that the LOI figures recorded may therefore poorly reflect the original organic matter content. Only one sample (S4:*(564)*) from pit *[551]* had a LOI = 1.00%. This was notably darker and, presumably, slightly more humic (or possibly more ?charcoal-rich) than the other samples.

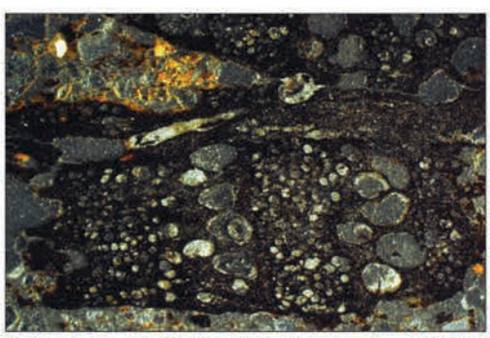
2. Phosphate (phosphate-P, P_i, P_o, P_i:P, P_o:P)

As would be anticipated in these leached sandy soils, the phosphate-P concentrations were all quite low, with six of the seven samples having values = 0.449 mg g^{-1}. Only the gully of ring-ditch *[606]* stands out, with a distinctly higher concentration (0.655 mg g^{-1}) than the others; cf. 0.429 mg g^{-1} in underlying natural. It is assumed, therefore, that this context shows signs of phosphate enrichment, which could have been ash and/or bone derived.

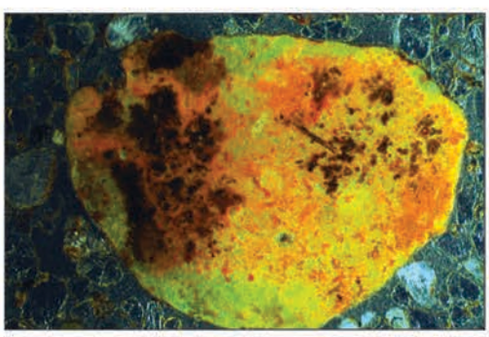
a Thin-section sample M0623 being taken from the gully backfill of ring-ditch *[606]*.



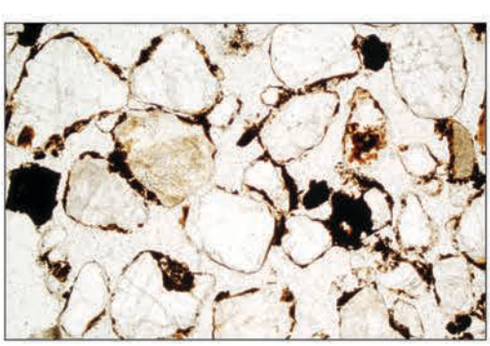
b Thin-section M0564, Pit *[551]*: weakly layered concentrations of coarse charcoal and burnt flint (frame W. 50mm).



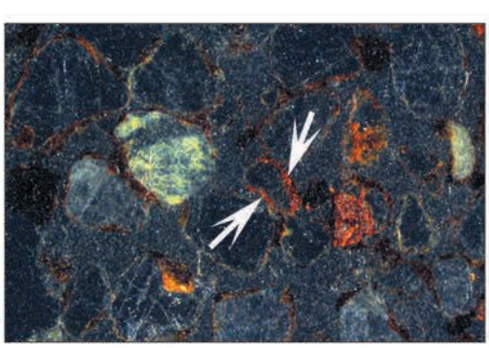
c Photomicrograph M0564: detail of coarse charcoal (OIL) (frame W. 4.62mm).



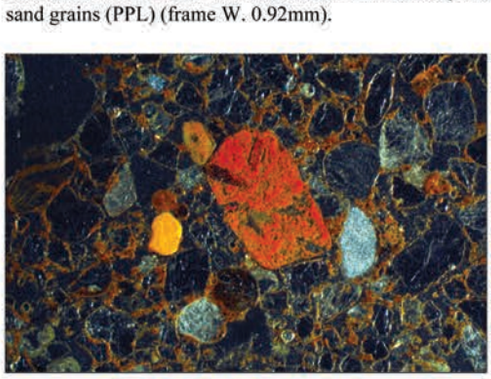
d Photomicrograph M0564: detail of burnt flint gravel (OIL) (frame W. 4.62mm)



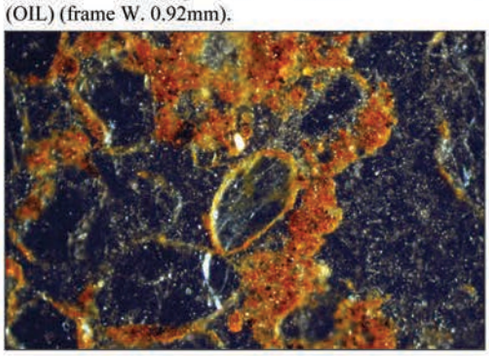
e Photomicrograph M0564: detail of fine fabric and well-sorted, rounded and sub-rounded, fine and medium, quartz sand grains (PPL) (frame W. 0.92mm).



f Photomicrograph M0564 (as 'e'): showing rubefied ferruginous mineral grains and rubefied iron coatings (arrows) — indicating burnt subsoil (Bs horizon) material (OIL) (frame W. 0.92mm).



g Photomicrograph M0623, ring-ditch *[606]*: detail of rare rubefied (burnt) mineral material, resulting from the cremation process (OIL) (frame W. 4.62mm).



h Photomicrograph M0623: detail of fine fabric; note fine charred inclusions, resulting from the cremation process (likely weathered ash/bone residues — leading to an enriched phosphate content) (OIL) (frame W. 4.62mm).

Plate XIX Soil micromorphology thin-sections. By RM

Sample	*LOI*[a] *(%)*	*Phosphate-P_i (mg g^{-1})*	*Phosphate-P_o (mg g^{-1})*	*Phosphate-P^b (mg g^{-1})*	*Phosphate-P_i:P (%)*	*Phosphate-P_o:P (%)*	*χ(10^{-8} SI)*	*χ_{max}(10^{-8} SI)*	*χ_{conv}*[c] *(%)*
Pit *[551]* (for location, see Fig. 2.7)									
S1. Fill *(552)*, uppermost	0.528	0.190	0.259	0.449	42.3	57.7	50.8	1270	4.00
S2. Fill *(646)*, 63–70cm	0.519	0.171	0.233	0.404	42.3	57.7	82.2	1480	**5.55**
S3. Fill *(562)*, 70–79cm	0.391	0.197	0.193	0.390	50.5	49.5	16.6	1410	1.18
S4. Fill *(564)*, 79–91cm	**1.90**	0.155	0.230	0.385	40.3	59.7	64.9	1270	**5.11**
S5. Fill *(648)*, 91–117cm	0.449	0.145	0.160	0.305	47.5	52.5	12.7	1280	0.992
Ring-ditch *[606]* (for location, see Fig. 3.8)									
Fill *(623)*	0.818	0.335	0.320	**0.655**	51.1	48.9	42.9	1300	3.30
Natural underlying *(623)*	0.642	0.174	0.255	0.429	40.6	59.4	18.8	1040	1.81

[a] **LOI**: the sample in bold has a notably higher LOI
[b] **Phosphate-P**: the sample in bold shows likely signs of enrichment
[c] **χ_{conv}**: the samples in bold show likely enhancement

Table 5.8 Chemical and magnetic susceptibility data

In all the samples around half of the phosphate was in an organic form (P_o:P range, 48.9–59.7%). This is higher than is generally encountered in archaeological contexts and presumably reflects the low phosphate retention capacity of these sandy soils — i.e. inorganic phosphate is leached out fairly quickly following mineralisation of organic phosphates. This being the case, then, it would suggest that the concentrations of phosphate present in these various contexts have been significantly depleted through leaching. In these circumstances, the results need to be interpreted with caution, since the concentrations present will reflect not only the original phosphate content, but also the amount of leaching that has occurred — which may be quite variable, depending on factors such as the texture of the mineral fraction, volume of water flow through the fill, etc.

3. Magnetic susceptibility (χ, χ_{max} and χ_{conv})
The χ values exhibit relatively wide variability (range, 12.7–82.2 x 10^{-8} SI) compared with χ_{max} (range, 1040–1480 x 10^{-8} SI). In these circumstances, the 'raw' χ data provide a good measure of the relative degree of susceptibility enhancement. Nonetheless, it is the χ_{conv} values (range, 0.992–5.55%) that enable the magnitude of enhancement to be assessed. Under United Kingdom conditions, a 5% threshold is often taken as being indicative of enhancement through burning in archaeological contexts (Crowther 2003). Only two samples from pit *[551]* exceeded this (S2:*(646)* and S4:*(564)*), but neither figure is sufficiently high to indicate 'strong enhancement' (Table 5.8). The absence of clear enhancement in the fill *(623)* of ring-ditch *[606]* suggests that little (if any) soil subject to *in situ* heating/burning (i.e. during cremation) was incorporated in it.

Summary

Because of the very sandy nature of the soils, the LOI and phosphate data do need to be interpreted with some degree of caution, since both organic matter and phosphate might have been depleted substantially as a result of post-depositional decomposition and leaching. Nonetheless, there is some quite wide variability in both properties, and also in magnetic susceptibility, which may be indicative of anthropogenic effects:

Pit *[551]*: sample S4:*(564)* had a notably higher organic-matter content, and both S2:*(646)* and S4:*(564)* have an enhanced magnetic susceptibility, likely related to burning.

Ring-ditch *[606]*: fill *(623)* was phosphate enriched.

Soil micromorphology

The results are presented in Tables 5.9–5.10.

Pit [551]

M0564: fill *(564)*. The thin section (Pl. XIXb–f) shows a well-sorted, mainly fine and medium, sandy make-up (including both leached and mineral-stained grains). It is very rich in wood charcoal (hence the relatively high LOI, 1.90%) and includes many burned flint flakes and gravel. It shows weak layering of coarse charcoal-rich deposits with possible concentrations of burned material (some from subsoil Bs horizons). The last is consistent with the magnetic susceptibility enhancement seen (Table 5.8).

Hence, this deposit, possibly like fill *(646)* above it (that also showed magnetic susceptibility enhancement), records inputs of coarse charcoal, burned flint and burned subsoil sands. The weak layering may have resulted from two or more erosional (?seasonal) events (cf. Wareham Experimental Earthwork ditch fill sands: Hillson 1996). Although the site is currently characterised by Typical Brown Sands (Newport 2 Soil Association: Hodge *et al*. 1983) formed on glaciofluvial drift, the identification of sand grains with (rubefied) iron coatings may infer some areas had developed podzolic subsoils in prehistory as was identified at Sutton Hoo (Dimbleby 1975; Carver 2005, 376). This would be consistent also with the pedogenic trends of East Anglian sandy soils seen elsewhere, as for example in the Brecklands landscape (Murphy 1984); equally the chemistry and micromorphology is consistent with a generally acidic and leaching environment.

Ring-ditch [606]

M0623: fill *(623)*. The thin section (Pl. XIXg–h) shows a poorly humic (with depth), well-sorted, mainly fine and medium, sandy make-up. It has an intergrain microaggregate fine fabric containing occasional-to-frequent very fine charcoal, and there are rare rubefied mineral grains and calcined (burned) flint, as well as trace amounts of charcoal of about 1mm size.

This soil is probably the result of a cremation, as evidenced by its phosphate-P enrichment (Table 5.8), likely resulting from fuel ash and/or bone residues in the fine fabric (Pl. XIXh); no bone (or ash — CaP or Ca) was recognised in the sample, however, presumably because of overall soil leaching (though this material was recorded from other sections of the gully: see above, *Sect. II: Cremated human bone;* Fig. 3.8; Table 5.1). Although burning had taken place, mineral grains were mainly leached; the likely reason for the poor magnetic-susceptibility signal (Table 5.8). The podzolisation process that causes such leaching, as identified at Sutton Hoo, is associated with the long-term effects of heathland vegetation and management (Dimbleby 1975; French 2003, figs 4.12–4.13).

Thin section	*Rel. depth*	*Phase*	*Context*	*MFT*	*SMT*	*Voids*	*Modern root*	*Coarse flint*	*Burned flint*	*Coarse charcoal*
M0564	83–91cm	2	*(564)*	A	1	40%	a	f	aaa	aaaaa
M0623	10–8cm	5	*(623)*	B	2	40%		*	a	a*

Key
* – very few 0–5%, f – few 5–15%, ff – frequent 15–30%, fff – common 30–50%, ffff – dominant 50–70%, fffff – very dominant >70%
a – rare <2% (a*1%; a-1, single occurrence), aa – occasional 2–5%, aaa – many 5–10%, aaaa – abundant 10–20%, aaaaa – very abundant >20%
MFT: Microfacies type; SMT: Soil microfabric type

Table 5.9 Soil micromorphology: samples and counts

Pollen
by G.M. Cruise
From ring-ditch *[606]*, sample 623/1.5cm produced no identifiable pollen, with only very rare unidentifiable fragments observed. Sample 623/5.5cm was similar, with the exception of a single moderately well-preserved Polypodiaceae (polypod fern). For pit *[551]*, sample P4/2cm contained two identifiable moderately well-preserved pollen grains of *Quercus* sp. (oak) and *Tilia* sp. (lime/linden). This sample was also noteworthy for its numerous dark, probable fungal spores (< 25µm). Only a single Polypodiaceae was observed in sample P4/5 cm. There was no further potential for pollen analyses of these samples because of the extreme scarcity of pollen. This contrasts with the results from Sutton Hoo, where pollen sequences were obtained (Scaife 2005, fig. 156).

Conclusion
All the soil samples had been affected by the generally leaching and oxidising environment, and hence no bone (or ash) and little phosphate and organic matter was found. There was also very scarce evidence for the survival of pollen. Nevertheless, for prehistoric pit *[551]* charcoal-rich layers with burned flint (with associated enhanced magnetic susceptibility) are proof of occupation events, with episodic in-wash of associated occupation soils. Notably, too, the presence of burned, iron-coated sand indicates both that subsoils had been disturbed and that some subsoils had developed a possible podzolic

Microfacies type (MFT)/ Soil microfabric type (SMT)	*Sample no.*	*Soil micromorphology (SM)*	*Interpretation*
MFT A/SMT 1	**M0564**	83–91cm SM: Homogeneous; *Microstructure*: massive with weak relatively charcoal-rich layering at 84–85cm and 86–88cm depth; 40% voids, simple packing voids and poorly formed fine (0.5–1mm) root channels; *Coarse Mineral*: C:F (Coarse:Fine limit at 10µm), 85:15, well-sorted fine and medium, rounded, sand-size quartz and flint (with coarse sand, opaque ferruginous grains, traces of mica and glauconite), with few angular-to-rounded gravel-size flint flakes and probable flint flakes (max. 8mm); *Coarse Organic and Anthropogenic*: many rubefied and weakly calcined (burned) flint, many fine rubefied mineral grains, and grains with rubefied mineral coatings (burned subsoil sand?); very abundant fine-to-coarse wood charcoal (max. 8mm) — including possible oak; rare fine (1mm) woody roots; *Fine Fabric*: SMT 1: black (PPL), isotropic (coated and intergrain aggregates, undifferentiated b-fabric, XPL), golden, very dark brown and black (OIL); much browned and blackened amorphous organic matter, trace pollen and spores; *Pedofeatures*: *Amorphous*: trace of possible very thin sesquioxidic grain coatings.	**Pit *[551]* (*Phase 2*)** Sample S4: fill *(564)* Relatively humic (1.90% LOI), well-sorted, mainly fine and medium sandy fill (including both leached and mineral-stained grains); very rich in wood charcoal and including many burned flint flakes and gravel, and showing weak layering of coarse charcoal-rich layers with possible concentrations of burned material (some from subsoil Bs horizons) — consistent with likely magnetic susceptibility enhancement (Tab. 5.8). Modern fine woody (conifer?) roots present. *This fill, possibly like fill (646), 63-70 cm, shows inputs of coarse charcoal, burned flint and burned subsoil sands, weak layering possibly recording two or more events/occupations. Fill could likely be the result of local in-wash from surrounding occupations.*
MFT B/SMT 2	**M0623**	26–34cm SM: Homogeneous; *Microstructure*: massive, 40% voids, simple packing voids, open vughs and channels; *Coarse Mineral*: C:F, 80:20 (becoming 85:20 with depth), as M0564, with very few flint gravel (max. 5mm); *Coarse Organic and Anthropogenic*: rare fine charcoal (max. 1mm); rare rubefied mineral grains and calcined flint; *Fine Fabric*: SMT 2: very dark brown to black (PPL), isotropic (coated grain and intergrain microaggregate, undifferentiated b-fabric, XPL), dotted reddish-orange brown (OIL); relict humic and occasional amorphous organic matter with occasional-to-many very fine charcoal and traces of fine rubefied mineral, trace pollen; *Pedofeatures*: *Amorphous*: rare possible sesquioxidic staining.	**Ring-ditch *[606]* (*Phase 5*)** Fill *(623)* Moderately poorly humic to very poorly humic (with depth), well-sorted, mainly fine and medium sandy fill, with microaggregate fine fabric (shows relative phosphate-P enrichment), containing occasional-to-many very fine charcoal; trace amounts of charcoal (1mm) and rare rubefied and calcined flint. *Weakly humic fill with very fine charcoal and burned material, probably remnant from cremation activity.*

Key: PPL – plane polarised light; XPL – cross polarised light; OIL – oblique incident light

Table 5.10 Soil micromorphology: descriptions and interpretations

character. The soil *(623)* infilling Anglo-Saxon ring-ditch *[606]* was more leached and thus had only a weak magnetic susceptibility; its fabric included much very fine charcoal, however, and this may be remnant of a cremation. The phosphate-P enrichment of fill *(623)* may be the result of much-weathered (and unidentifiable) bone ash.

'Root cast' from inhumation 30

by C.R. Cartwright

A tubular 'root cast' (or rhizoconcretion) was found at the head-end of inhumation 30, approximately at the level of the grave-goods. It is very light but has a compact structure, a mix of fine-grained ash and fine-particle clay with originally quartz inclusions (now dissolved). Such structures form naturally, by the infilling with fine sediments of a void left by a root. This is thought to occur as the result of a transpiration-driven flow of nutrients to the roots, in excess of what the plant requires (R. Mallett pers. comm.). Subsequent cementation of these sediments around the root mould takes place through the formation of carbonates (M. Cramer pers. comm.). Its location within the grave, furthermore, is evidence for the extent of tree-root penetration.

Endnotes

1 In 2007/8 it was realised that a number of OP contexts had been overlooked for environmental assessment, specifically the contents of the pots (or urns) from cremation 1, 'cremation' 12 and inhumation 15, and the charred wood from inhumation 19 (see *Chap 3; Sect. II–III*). Repeat searches of the SCCAS stores (in 2008/09/10) failed to find the samples (R. Goffin/S. Boulter pers. comm.). However, in mid 2011 some were found, including the bone from the cremation 1 urn and the soil fill *(527)* of the inhumation 15 pot. These samples were processed by Wessex Archaeology, adding osteological data for cremation 1, but no evidence was forthcoming for fill *(527)*.

2 Everything held by SCCAS in 2007, returned from Val Fryer, was submitted to Caroline Cartwright at the British Museum for analysis.

3 *Hedera* sp. is represented by a single piece of charcoal sent for radiocarbon dating in 2001.

Chapter 6. North Field

I. Introduction

On multiple occasions between 1984 and 2000, finds of Anglo-Saxon date and of other periods have been made in the enclosure to the north-west of Area A, known until recently as North Field (now Garden Field; HER: BML009/10). Significant above all is the 'Bromeswell bucket', a 6th-century east Mediterranean import, named for the parish (Fig. 6.3, no. 30; Pl. XX; Mundell Mango *et al*. 1989). It is relatively well preserved, suggesting it could have been disturbed directly from its context of deposition — probably an early Anglo-Saxon grave. The other artefacts of the same period also most likely represent disturbed grave-goods, though in contrast many are abraded from a duration in the ploughsoil, and the rite of cremation is suggested by examples of heat-affected metalwork.

The field has not been subject to excavation (at least not in modern times), and hence the preservation of its archaeology is unknown. Today it is 'set aside' (i.e. not ploughed), conserved and protected as part of the Sutton Hoo National Trust estate.

II. Discoveries

As part of Martin Carver's campaign at Sutton Hoo (1983–92) and the 'Kingdom of East Anglia Project' over 5000ha of arable landscape surrounding the River Deben was systematically fieldwalked (Wade and West 1983; Carver 2005). This was undertaken over six winters, largely by John Newman (1992; 2005).[1] The methodology comprised the investigation of fields by 20m interval transects, with areas deemed to have potential subsequently intensively searched by 25m grid-squares with 5m transects (Newman 2005, 479). North Field was twice surveyed in this way, in 1984 and 1986–7. Activity was located in the north-west and south-east corners of the enclosure (Fig. 6.1a–b). The finds range in date from the Neolithic to later medieval periods: specialists at SCCAS assessed the material (Jude Plouviez, Roman; Edward Martin, prehistoric; Keith Wade/John Newman, Anglo-Saxon). In the north-west was found Roman material, including a possible amphora sherd, a brooch, and some daub, perhaps from oven/kiln lining (Fig. 6.1c, no. 29). In the south-east a distribution of prehistoric finds, mainly worked flint, was overlapped by a small quantity of Anglo-Saxon pottery, comprising both 5th- to 7th-century sherds and later Ipswich Ware.

The Anglo-Saxon pottery found in 1984 was first thought to indicate heavily disturbed settlement remains (Carver 1986, 33, fig. 22). However, a site of different character was indicated in November 1986 by the turning up, by a tractor harrow, of the exotic 'Bromeswell bucket'. A subsequent metal-detector survey undertaken by SCCAS added a gold coin-pendant and Anglo-Saxon brooch fragments, together with a fragment of Bronze Age spearhead (Fig. 6.4, nos 31–7). Later, this collection was further increased, at the end of the Tranmer House excavations, in July 2000, when the field's south-east portion was once again metal-detector surveyed (Fig. 6.1c). Twenty-eight further objects were found (Fig. 6.2), including several Roman artefacts (nos 3, 16, 22), six early Anglo-Saxon objects (nos 1, 2, 4, 20, 21, 28), and one later ansate brooch (no. 27).[2]

III. Finds catalogue

Most of the small finds (i.e. metal artefacts) were deposited with the British Museum shortly after discovery, but regrettably many from the 2000 survey were not locatable at the time of writing (2007–12) despite repeated efforts to find them (A.C. Evans/J. Newman/A. Wainwright pers. comm.). Absent were most of the non-Anglo-Saxon finds, as well as multiple fragments and objects described as 'burnt'. It is fortunate that immediately following the survey, Dr Helen Geake (2000) examined the uncleaned objects, so there exists at least a provisional record of those misplaced.

All the available finds from 1986–87 and 2000 have been examined, the most relevant have been drawn, and the two gold items (nos 28, 31) subject to scientific investigation. The 'Bromeswell bucket' was published soon after its discovery (Mundell Mango *et al*. 1989), but it is briefly reappraised below in the light of the Tranmer House finds and other material.

Finds, 2000
(Fig. 6.2)
Finds from SCCAS metal-detector survey. For locations see Figure 6.1c.

1. Copper-alloy **saucer** or **disc brooch** fragment (BML009/1000). Cast, flat, with part of an animal art design in Style I, originally in a circular field and probably around a central roundel. Reverse has stub remains of an integral hinge/catch-plate lug. Heavily abraded. L. 25mm; W. 17mm; Th. 1.5mm
2. Copper-alloy ?**cruciform brooch** fragment (BML009/1001). Burnt and distorted, cast bow-section; some iron corrosion adhering. Heavily abraded and pitted. L. 25mm; W. 20mm
3. Copper-alloy '**Roman coin**' (BML009/1002). Unidentified (Geake 2000). Missing (not illustrated).
4. Copper-alloy ?**cruciform brooch** fragment (BML009/1003). Burnt and distorted, cast bow-section; remains of iron pin-spring on reverse. Heavily abraded and pitted. L. 34mm; W. 17mm
5. Copper-alloy '**mount**' (BML009/1004). 'Burnt' (Geake 2000). Missing (not illustrated).
6. Copper-alloy '**plate**' fragment (BML009/1005). 'Cast' and 'burnt' (Geake 2000). Missing (not illustrated).
7. Copper-alloy '**fragment**' (BML009/1006). 'Burnt?', unidentified (Geake 2000). Missing (not illustrated).
8. Copper-alloy '**fragment**' (BML009/1007). 'Burnt?', unidentified (Geake 2000). Missing (not illustrated).
9. Copper-alloy '**fragment**' (BML009/1008). 'Burnt?', unidentified (Geake 2000). Missing (not illustrated).
10. Copper-alloy '**object**' (BML009/1009). Unidentified (Geake 2000). Missing (not illustrated).
11. Copper-alloy '**object**' (BML009/1010) 'Burnt', unidentified (Geake 2000). Missing (not illustrated).

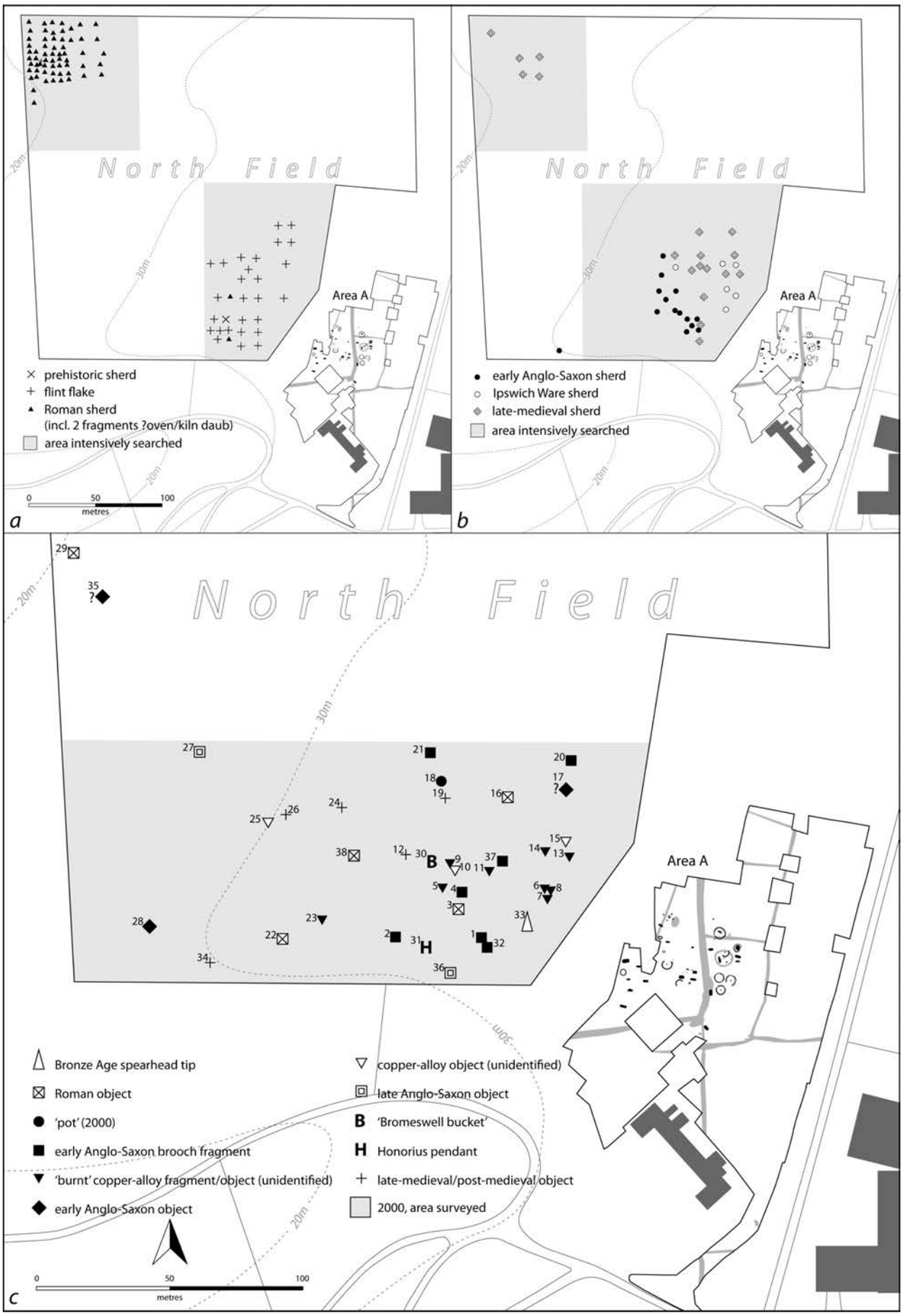


Figure 6.1 Finds from North Field: a) prehistoric pottery and flint, and Roman ceramic, found by fieldwalking in 1984; b) Anglo-Saxon and later medieval pottery found by fieldwalking in 1984–87; c) metal small finds, mainly found by metal-detector surveys, 1986–2000 (scales 1/2000, a–b; 1/4000, c). By CF. Based on Ordnance Survey mapping data.
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12. Copper-alloy '**button**' (BML009/1011*)*. ?Post-medieval (Geake 2000). Missing (not illustrated).

13. Copper-alloy '**object**' (BML009/1012). 'Burnt', unidentified (Geake 2000). Missing (not illustrated).

14. Copper-alloy '**fragment**' (BML009/1013). 'Burnt', unidentified (Geake 2000). Missing (not illustrated).

15. Copper-alloy '**object**' (BML009/1014). 'Cast', unidentified (Geake 2000). Missing (not illustrated).

16. Copper-alloy Colchester-derivative, two-piece **Roman brooch** (BML009/1015). Cast rounded bow with side flanges and a C-section crossbar (recessed to take pin-spring); part of the iron spring remains through the double-pierced lug; missing foot and catch-plate. Heavily abraded and pitted. *Bailey/Butcher Type D* (2004, 87–8). L. 30mm; W. 30mm

17. Copper-alloy **strip fragment** (sfBML009/1016). Flat, slightly curved; incised ring-and-dot within a double border. Heavily abraded. L. 24mm; W. 31mm; Th. 1.5mm

18. '**Pot**' (BML009/1017). Unidentified (Geake 2000). Missing (not illustrated).

19. Copper-alloy **late-medieval/post-medieval** '**buckle**' (BML009/1018). '15th–17th century' (Geake 2000). Missing (not illustrated).

20. Copper-alloy **annular brooch** (BML009/1019). Half-fragment, small example, cast with a moulded pin-seating on a broad, flat-sectioned ring; no decoration; no pin or perforation for the pin-hinge survives. *Leeds Type G* (1945, 46–9). Heavily abraded and pitted. Diam. 33mm; W. ring 8mm; Th. 2.5mm

21. Copper-alloy **small-long brooch** (BML009/1020). Cast plain square head-plate; missing its bow and foot; remains of iron pin-spring on reverse. Heavily abraded and pitted. L. overall 30mm; W. head-plate 16mm; W. bow 8mm

22. Copper-alloy '**Roman coin**' (BML009/1021). No other detail (Geake 2000). Missing (not illustrated).

23. Copper-alloy '**object**' (BML009/1022). 'Burnt' (Geake 2000). Missing (not illustrated).

24. Copper-alloy '**post-medieval? object**' (BML009/1023). Unidentified (Geake 2000). Missing (not illustrated).

25. Copper-alloy '**finger-ring?**' (BML009/1024). Undated (Geake 2000). Missing (not illustrated).

26. Silver '**post-medieval coin**' (BML009/1025). No other detail (Geake 2000). Missing (not illustrated).

27. Copper-alloy **ansate brooch** (BML009/1026). Of thin sheet-metal with a low bow; incised with ring-and-dot; missing its hinge and catch-plate attachments. Heavily abraded and pitted. L. 36mm; W. 12mm; Th. 1mm

28. Gold **reeded loop** (BML009/1027; T274). Strip, spilt along its lower two-thirds, forming an oval; on the unsplit part are worn filigree wires, inlaid along the grooves. Scratched surface. Gold fineness: 81%; L. 19mm; W. 15mm

Finds, 1986–87

(Fig. 6.3–6.4; Pls XX–XXI)

Finds from fieldwalking and SCCAS metal-detector survey, undertaken following the 'Bromeswell bucket' discovery (previously published, in summary, in West 1998, 13). In addition, late in 1987 a Roman brooch (no. 29) and coin (no. 38) were found separately by metal-detectorists. For locations see Figure 6.1c.

29. Copper-alloy Colchester-derivative, two-piece **Roman brooch** (BML010/private collection; location not recorded; described from drawing). Cast ?rounded bow with a C-section crossbar (recessed to

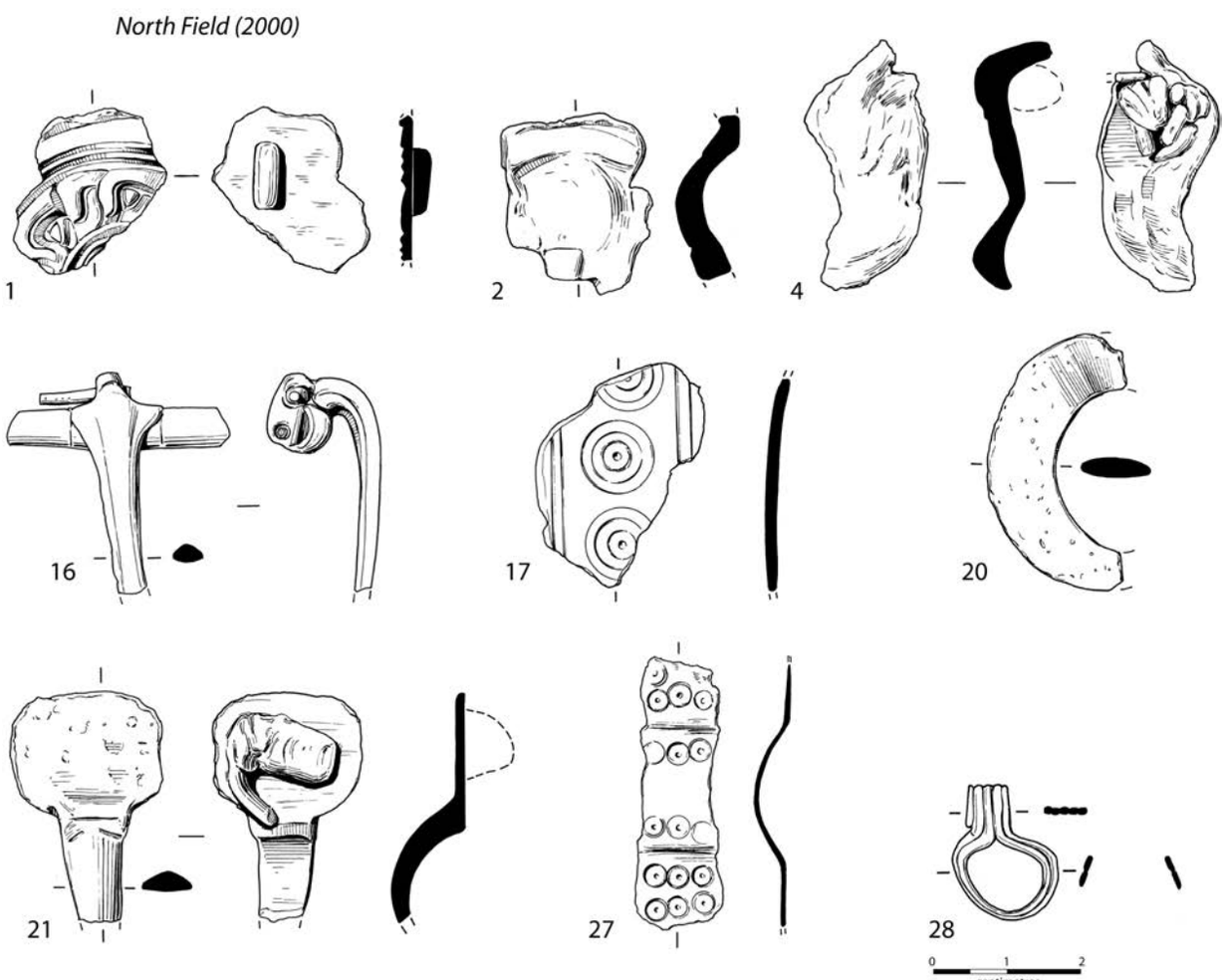

Figure 6.2 Metal-detected finds from 2000 (scale 1/1). By KM

take pin-spring) and double-pierced lug; missing foot and catch-plate, pin and spring. Similar to no. 16, but smaller. L. 19mm; W. 18mm (not illustrated)

30. Brass, Byzantine *situla*, the so-called **'Bromeswell bucket'** (NT/SHO/AR/41) Incomplete, found in several pieces, the base not recovered (see endnote 2). Remains comprise part of a vertical-walled body with a thickened lipped rim, with one complete semi-oval pierced lug and part of a second; half a rectangular-sectioned handle with one looped end. Decorated with a hunting scene, incised and punched, under a Greek inscription. Dedication (mis-spelt and ungrammatical) translates: 'Use this in good health Master Count, for many happy years'. Diam. *c.* 240mm; Ht. *c.* 140mm; Th. 1.5mm

31. Gold **coin-pendant** (BML009/A/TM2949). Solidus with an added beaded-wire frame and ribbed suspension loop (misaligned with bust and figure); one edge disfigured by a metal globule. Worn, especially at frame and loop, and on reverse. Obverse: bust of Honorius (394–402) wearing a pearl diadem, with the legend D N HONORI-VS P F AVG. Reverse: the emperor spurning a captive, holding a standard and globe (upon which Victory stands). Main legend reads VICTOR-IA AVGGG, with in field M D, and in exergue COMOB; Milan mint (Bland and Loriot 2010, no. 532, 242–43). Gold fineness: coin 99%; loop 92%. Diam. 23mm

32. Copper-alloy **saucer** or **disc brooch** fragment (BML009/B). Cast, flat, with part of an animal art design in Style I, originally in a circular field around a central collared roundel. Slight traces of gilding. Heavily abraded and pitted. L. 24mm; W. 13mm; Th. 2mm

33. Copper-alloy **Bronze Age spearhead** fragment (BML009/C). Cast, upper blade and tip only, with a prominent central hollow mid-rib; blade probably leaf-shaped, with grooved edging. Heavily abraded and pitted. L. 46mm; W. 22mm; Th. 11mm

34. Copper-alloy **post-medieval shoe-buckle** (sfBML009/D). Cast double-oval loop with moulded, scrolled terminals and incised line ornament; missing its pin and central bar. Heavily worn, traces of a red surface coating. L. 35mm; W. 22mm; W. loop 5mm

35. Copper-alloy ?**Anglo-Saxon/Roman buckle** (BML009/E). Cast D-shaped loop; missing its tongue and mis-shapen; two worn-down lugs on back of axis. Heavily abraded. L. 33mm; W. 15mm; Th. 3mm

36. Copper-alloy **pin** (BML009/F). Cast, with a facetted head (polyhedral), missing most of its shaft. Heavily abraded. L. 14mm; W. 7mm

37. Copper-alloy **annular brooch** (BML009/J19/0587). Half-fragment, cast D-sectioned ring with ribbed ornament (or 'bead-and-reel'); missing its pin. *Leeds Type F* (1945, 46–9). Heavily abraded and pitted. Diam. 36mm; W. ring 5mm; Th. 2.5mm

38. Copper-alloy **Roman coin** (BML009/private collection). Reported by Jude Plouviez as a 4th-century laureate: 'probably House of Constantine and fallen horseman, very worn'. No measurements (not illustrated).

IV. Artefacts

Prehistoric and Roman finds

(Figs 6.2, 6.4)

The spearhead fragment (no. 33) can be compared to late Bronze Age examples from Royston, Cambs, and Sedgefield, Co. Durham, that date between the 11th to 9th centuries BC (TAR 2005/6, nos 51, 53.2). All three have leaf-shaped blades with a hollow central rib, and the Sedgefield example also has a grooved blade-edge like the North Field fragment.

Both the Romano-British brooches (nos 16, 29) are Colchester-derivative, two-piece types, examples of which have been dated at Colchester, Essex, to *c*. 50–65 (Bailey and Butcher 2004, 157, fig. 170). The brooch form is rare in Suffolk, however. No. 16 is possibly a Bailey/Butcher Type D (2004 87–8, fig. 67, no. 195).

Two of the Roman coins (nos 3, 22) were not identified to type before they went missing, and another was probably a 4th-century issue (no. 38). All were copper-alloy. A fourth in gold (no. 31) was mounted as a pendant in the early Anglo-Saxon period and is discussed below.

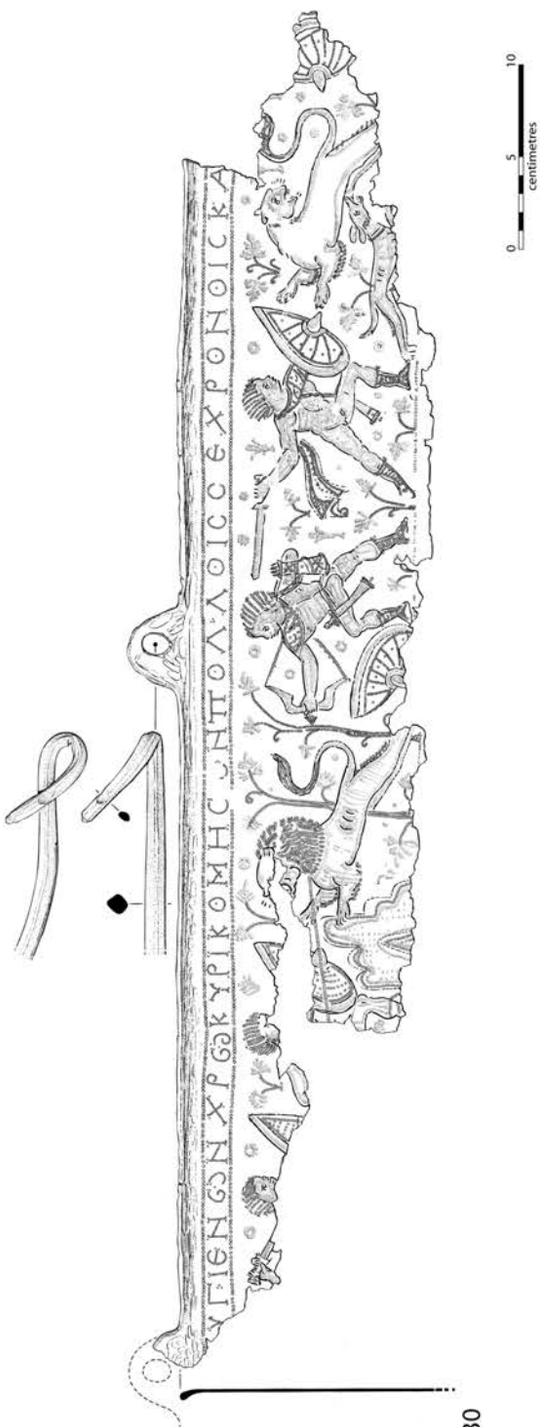

Figure 6.3 The 'Bromeswell bucket', found in 1986 (scale 1/4). By JF. Copyright Trustees of the British Museum

Plate XX The 'Bromeswell bucket', a Byzantine *situla* of brass from the east Mediterranean found in North Field in 1986 (scale 5/8). By SCCAS

Anglo-Saxon coin-pendant and reeded loop
(Figs 6.2, 6.4; Pl. XXI)
The solidus of Honorius (394–402) converted to a pendant (no. 31) has been published in Bland and Loriot's catalogue (2010, no. 532, 242–43: under 'Bromeswell'). The obverse shows the bust of the emperor wearing a diadem, the reverse shows him spurning a captive. Ultimately, the form it takes, with an applied loop and beaded frame, may be said to mimic the character of Scandinavian bracteates (Axboe 2007), examples of which reached England from the late 5th century. It demonstrates considerable wear, especially to its loop and frame, suggesting it was in use for some time. A metal droplet on its edge, furthermore, may be evidence that it had been exposed to a cremation event, prior to its loss or burial (see below, *Scientific examination*).

The early Anglo-Saxon fashion for coin-pendants covers the whole period, though most examples are of base-metal with drilled holes for suspension, that date to the 5th to mid 6th centuries (White 1988, 98–101). Gold examples are rare and were usually mounted with a suspension loop and often a frame. Bland and Loriot (2010, tables 36–7) concluded that those with only a loop date from the 5th century, whilst coin-pendants with applied frames, like the North Field example, are mostly of the 6th and 7th centuries. Two Norfolk examples are the well-known Bacton pendant (Maurice Tiberius, *c*. 598) and Wilton cross (Heraclius and Heraclius Constantine, 613–32), both of which have garnet-cloisonné frames and are of the 7th century (*ibid*., table 37, nos 828, 861). Besides the Honorius coin-pendant, only two others with frames are known from Suffolk (*ibid*., table 37, nos 837,

Plate XXI Coin-pendant of Honorius found in North Field in 1986 (scale 2/1). By CF

843), from Bloodmoor Hill (Justinian I, 527–65) and from the 'Suffolk/Essex border' (Maurice Tiberius, 582–602).

The oval reeded loop (no. 28) was perhaps the frame for a pendant jewel. Its filigree decoration suggests manufacture, at the earliest, from the late 6th century (Coatsworth and Pinder 2002, 118, 125).

Scientific examination of the metal of the Honorius coin-pendant and reeded loop

by S. La Niece

The coin-pendant (no. 31; Pl. XXI) and reeded loop (no. 28) were analysed using XRF spectrometry. The analyses were calibrated with known composition alloy standards and normalised to 100%. The precision (a measure of reproducibility) of the analysis is *c*. 1–2% relative for gold, *c*. 5–10% relative for silver and *c*. 50% relative for copper. Figures cannot be quoted for the accuracy of the analysis due to the unknown extent of any potential loss of silver and copper from the surface during manufacture, subsequent burial or cleaning. The results are summarised in Table 6.1.

The coin is of high fineness, being 99% gold, which is consistent with published metal compositions for the coin type (i.e. Callu *et al*. 1985). Its pendant loop is of relatively high fineness, being 92% gold. Its silver content is higher than that of the coin, but, surprisingly for a jewellery fitting, there is little copper (suggesting in this case it is an accidental impurity). The unattached reeded loop (no. 28), on the other hand, would have had better wear properties because of the addition of copper, at 5%. It is usual for gold jewellery fittings to be alloyed with copper to make a more hard wearing metal than high purity gold. The metal droplet on the edge of the pendant is considerably richer in both copper and silver. It has a silvery colour, a cast structure and would have had a significantly lower melting temperature than the pendant, by more than 100° Celsius. It could be interpreted as a stray droplet of the solder used in manufacture, but it very much disfigures the pendant and so it seems unlikely it was worn in this condition. A funeral pyre can reach 800° Celsius (McKinley 1997b), which would have been hot enough to melt base gold items of the composition of the droplet.

	wt% normalised		
	Au	*Ag*	*Cu*
Reeded loop (no. 28):			
loop – *abraded*	81	13.8	5
Honorius solidus (no. 31):			
coin – *surface*	99	0.7	0.3
pendant loop – *abraded*	92	7.5	0.5
metal droplet – *surface*	59	28	13

Table 6.1 XRF analysis of the gold reeded loop and Honorius coin-pendant

Anglo-Saxon brooches and pin

(Figs 6.2, 6.4)

Seven early Anglo-Saxon brooches are represented by fragments, some burnt. The forms include annular brooches (nos 20, 37), cast saucer or disc brooches (nos 1, 32), one small-long brooch (no. 21), and probably cruciform brooches (nos 2, 4). As a whole they date from the mid/late 5th to mid 6th centuries. In addition, an ansate brooch (no. 27) is of the 7th to 9th centuries, and a worn pin-head (no. 36) of facetted type is of the 8th to 10th centuries (Haldenby and Richards 2009).

The two fragments (nos 1, 32) with Style I animal art might be parts of cast saucer brooches (cf. Dickinson 2002, 176). However, as they are flat and without surviving evidence for rims, they could also be examples of a rare form of disc brooch known from East Anglia (Dickinson pers. comm.). The Style I design on fragment no. 1 is not unlike that on a brooch of this type from Great Blakenham, Suffolk (BLG004: TM 11375136). The other (no. 32) has only a small portion of its design surviving, from which part of a head and toed foot/leg can be suggested. Both probably date from *c*. 500 (cf. Dickinson 2002, 176). In Suffolk, the distribution of the related cast saucer brooches is small and focuses between the Rivers Alde and Gipping (Dickinson 2010, figs 8–10).

The flat annular brooch fragment (no. 20) is an example of Leeds' Type G (1945, 46–9), the same type as found in inhumations 19 and 30 at the cemetery (see *Chap. 4; Sect II: Brooches and pendants*). The other (no. 37) had a 'bead-and-reel' moulded ring. Leeds (1945, 48) believed this form was late classical (i.e. Romano-British) in inspiration and hence of the 5th century, though Hirst has proposed a 7th-century date for the type (1985, 55–7, Type VI).

Two heat-affected bow fragments (nos 2, 4) are probably parts of cruciform brooches. In the absence of head- and foot-plate remains, however, this identification is not definite, although the bow sections would be large if from small-long brooches.

Fragment no. 21 is the square head-plate from a small-long brooch. The type is *sm1* in the East Anglian 'Four Cemeteries' study, a brooch form of Phase FA1 (*c*. 450–480: Penn and Brugmann 2007, 24–5, figs 5.9, 5.20–5.21).

The ansate brooch (no. 27) almost certainly post-dates the cemetery. It is a common dress-fastener form in Suffolk, with a similar example known from Bramford, near Ipswich (West 1998, 11, fig. 10.15, cf. figs 12.1, 12.3).

Byzantine *situla*

(Fig. 6.3; Pl. XX)

The *situla* (Latin 'pail') was found without its base, which would have been flat, and only part of the handle was recovered (Mundell Mango *et al*. 1989; see endnote 2). It was perhaps made in Antioch, Syria, soon after *c*. 500, the vessel raised by hammering, probably from a single sheet of brass (*ibid*: Cu 79%; Zn 20%). It is decorated with a scene of naked warriors, armed with various weapons and with hunting dogs, that fight lions against a background of stylised plants and trees. A Greek inscription runs above the scene, around the top, dedicated to the health and happiness of a 'Master Count' (*ibid.*).

Three other *situlae* are known to come from early Anglo-Saxon cemeteries. At Chessel Down, on the Isle of White, two examples were found, in graves 26 and 45, both 'wealthy' burials and those of a male and female, respectively (Arnold 1982, 24, 27, 58–60, figs 7, 10). The third was discovered by a metal-detectorist at Breamore, Hants (Harris 2003, 167–69). Like that from North Field, its original context of deposition is not known, but was probably a grave. One of those from Chessel Down (grave 45) and the Breamore find have hunting scenes like the North Field example, and the latter has a closely related inscription also, making it likely all three originate from the same Byzantine workshop (Mundell Mango *et al*. 1989, 298). Another of its products is in the Ashmolean Museum, but is unprovenanced. Importantly, however, this further example provides a *terminus post quem* from three coins of Anastasius (512–18) that were soldered to its base to keep it level (*ibid.*, 300). Therefore, allowing for a notional use-life of one or two generations, the burial of these vessels seems unlikely before the mid 6th century. This matches well the date proposed by Brugmann (1999) of *c*. 530/40–560/70 (Kentish Phase III) for the female

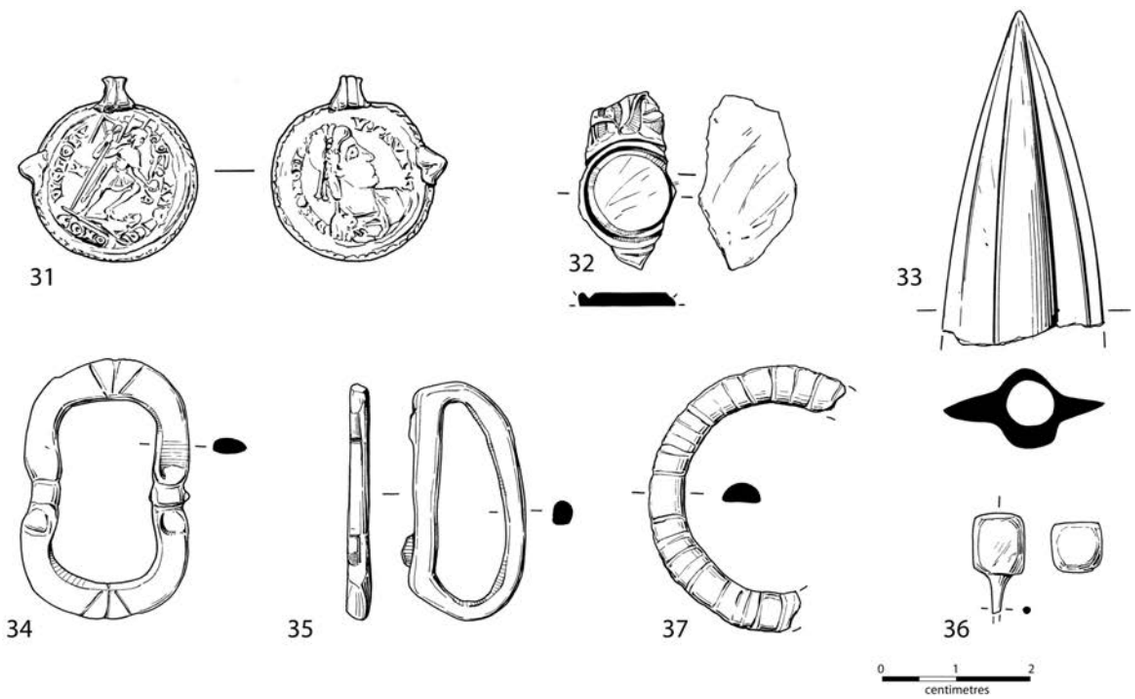

Figure 6.4 Other metal-detected finds from 1986 (scale 1/1). By KM

costume in grave 45 at Chessel Down. Nonetheless, since such exotic items probably reached England via indirect trade across Europe, i.e. 'down the line exchange', multiple episodes of foreign and local ownership could have been possible prior to their final burial. Lastly, given the use of a hanging bowl and other metal vessels as cinerary containers at the Tranmer House and Sutton Hoo cemeteries, it is possible the *situla* could have fulfilled the same ultimate function, albeit no cremated remains were reported when it was found.

Finds from the late-medieval period and after
(Fig. 6.4)
Objects of the late-medieval and early post-medieval periods may relate to the commencement of small-scale farming in the vicinity from the 16th century (see *Chap. 1; Sect. X*). They include a post-medieval silver coin (no. 26: not illustrated), a copper-alloy buckle (no. 19: not illustrated) of the 15th to 17th centuries (Geake 2000), and a worn shoe-buckle (no. 34) of the 16th or 17th centuries (cf. Egan 2005, 35).

Miscellaneous finds
(Figs 6.2, 6.4)
The distorted buckle loop (no. 35) does not match known early Anglo-Saxon types (Marzinzik 2003). The two lugs at the rear of the axis suggest it possibly had a belt-plate originally, therefore, a Roman identification is possible, though it might also be medieval. The copper-alloy strip (no. 17) with incised ring-and-dot decoration is equally uncertain.

Nine finds from the 2000 survey were described as 'burnt', or possibly so (nos 5–9, 11, 13–4, 23). The 'fragments', 'objects', a 'mount' and 'plate' are all now missing, but it seems conceivable that this material is from artefacts burnt in cremations, like the heat-affected brooches (see endnote 2).

V. Discussion

The late Bronze Age spearhead (Fig. 6.1c, no. 33) and the prehistoric flint (Fig. 6.1a) suggest the westward continuation into the North Field enclosure of the prehistoric activity seen in Area A at Tranmer House. Possibly this might include further barrows, as proposed by Carver (2005, 467), though none was corroborated by the English Heritage magnetometry survey undertaken in 2001 (Fig. 1.3; Linford 2002).

The Roman pottery, daub and metalwork (Fig. 6.1a, c) suggests a peripheral presence in the period that agrees generally with the archaeological evidence from Tranmer House. Also, it is not unusual to find Roman coins and brooches associated with early Anglo-Saxon sites (White 1988). However, except for the Honorius coin-pendant (no. 31), there was no evidence of the reuse of Roman material.

The early Anglo-Saxon finds, though relatively small in number, add considerably to our understanding of the Tranmer House burial-ground. They most likely represent disturbed material from the western portion of the same cemetery, and when plotted they show a focus some 50m back from the escarpment edge (Fig. 6.5). This is an area of slightly raised ground, which, it is argued in *Chapter 2* (*Sect. V*), probably lay within a large Iron Age enclosure (Fig. 2.15). Specifically, the brooches imply the presence of 'folk' graves belonging to the mid 5th to mid 6th centuries, and include typical 'Anglian' dress-fastener forms absent at the excavation site: the small-long (no. 21) and probable cruciform brooches (nos 2, 4). Also, the heat-affected material strongly suggests cremation was practiced across the larger cemetery. The dating of the brooch types hints, furthermore, that the earlier part of the burial-ground may be located in North Field, since by contrast the graves of Area A mainly belong to the second half of the 6th century (see *Chap. 7*). Lastly, the Byzantine *situla* (no. 30), Honorius coin-pendant, and reeded gold

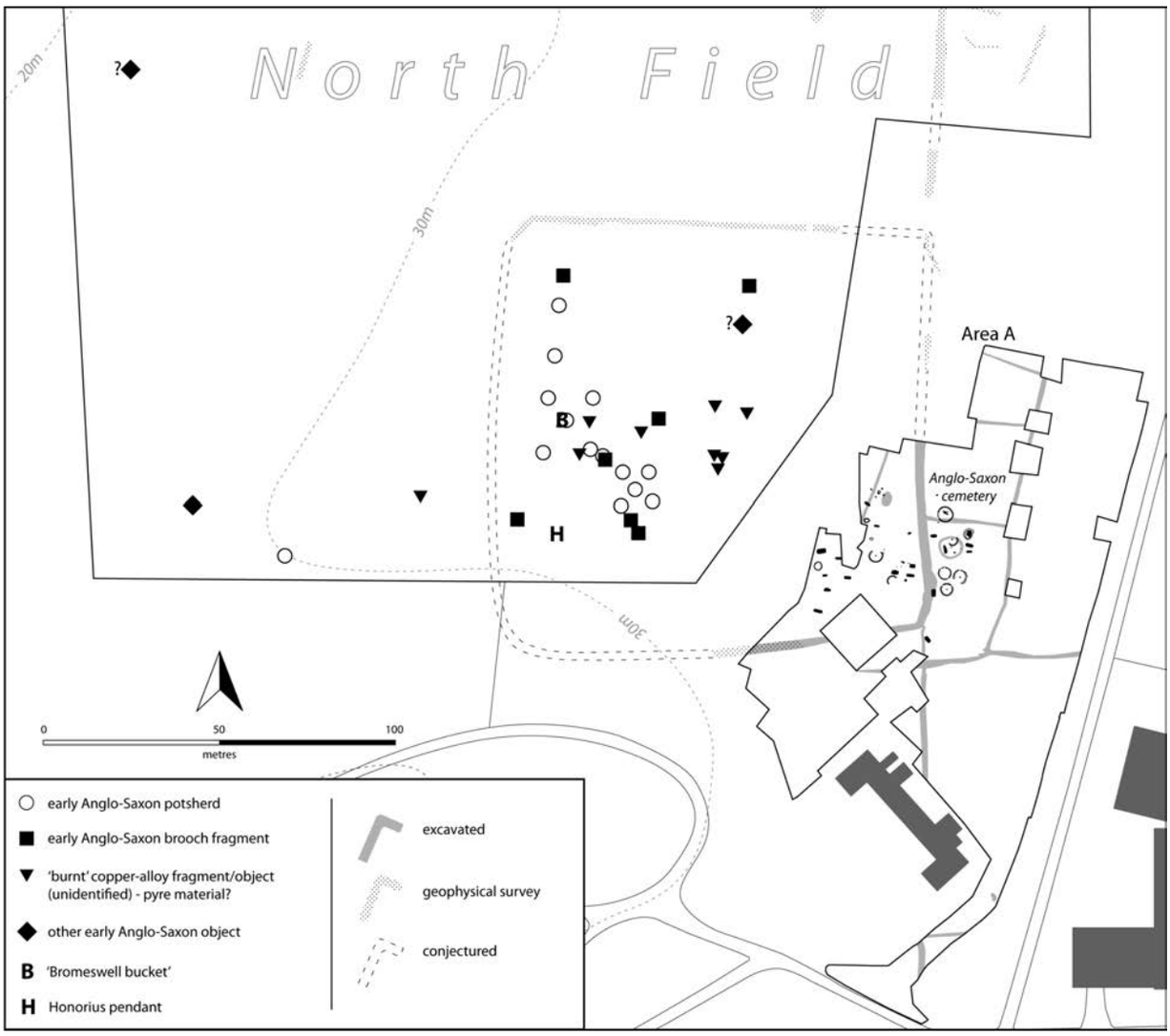

Figure 6.5 Early Anglo-Saxon finds, 1984–2000, plotted against the possible extents of the Iron Age enclosure (scale 1/2000). By CF. Based on Ordnance Survey mapping data. © Crown Copyright. All rights reserved. Suffolk County Council Licence No. 100023395 2013

loop (no.28) imply that some 'wealthy', more pretentious burials took place in the same area.

The medieval and later pottery, and personal effects (buckles and buttons) may derive from manuring or chance losses associated with farming. However, the Ipswich Ware considerably pre-dates the use of the land spur in this way. Together with the ansate brooch (no. 27) and facetted pin-head (no. 36) it might instead attest to sporadic visits to the site after the cemetery was closed to burial, but around the same time the Sutton Hoo cemetery was used as a place of execution (Carver 2005, 347–49).

Endnotes

1 John Newman provided the records of the 1984–87 surveys, as well as other information for the text and Figure 6.1.

2 In the summer of 2012, as this work was being finalised for peer review, a further metal-detector survey was completed in North Field/Garden Field. Preliminary examination suggests further 'melted bronze droplets', a 'few fragments of a thick walled [?bronze] vessel, possibly partly melted' and most significantly some more potential fragments of the Bromeswell bucket. The survey went to the edge of the promontory but did not extend the known distribution (A. Wainwright pers. comm.).

Chapter 7. Anglo-Saxon Chronology

I. Introduction

In this chapter a chronological model is put forward for the graves of *Phase 5*. There was only one instance of a physical relationship between burials (see below, *Sect. III*), therefore typological dating of the grave-goods forms the foundation of the sequence for the inhumation burials in the context of both regional (i.e. Penn and Brugmann 2007) and national studies (Bayliss *et al*. 2013). However, as the cemetery's cremation burials had far fewer artefacts, they were less well served by this means of analysis, which until very recently had also favoured the inhumation rite.[1] To counter this, it was decided to study the cremation rite by radiocarbon dating, with its chronology interpreted using Bayesian methodology (see below, *Sect. II*).[2]

II. Scientific dating

by P.D. Marshall, C.J.R. Fern, C. Bronk Ramsey, G. Cook and W.D. Hamilton

Eight Anglo-Saxon cremation burials (cremations 3, 4, 5, 6, 8, 9, 11 and 13) were analysed by AMS radiocarbon dating from a total of nine cremated bone samples (Table 7.1). Two were submitted for cremation 8, and cremation 13 had two analyses from a single sample (as a substitute for a failed analysis on a piece of large ungulate bone from cremation 7). Samples were selected on the basis of preservation, associated finds (e.g. a decorated urn) and animal remains, with a view to the objectives below. For cremation 8, a combination of horse (*Equus* sp.) and human bone samples was submitted; the other Anglo-Saxon samples altogether comprised a 4:3 ratio of human to animal bone (i.e. large ungulate: *Equus* sp./*Bos Taurus*).[3] They were analysed at the Oxford Radiocarbon Accelerator Unit (ORAU), University of Oxford. The results were then submitted to Dr Peter Marshall for Bayesian modelling. In addition, analysis was undertaken for three features of other periods. Two charcoal samples were submitted early in the post-excavation process, in 2001, for hearth *[550]* and cremation 33 (see *Chap. 2*). Both were analysed by the Scottish Universities Environmental Research Centre (SUERC), East Kilbride. However, it was later decided, at the time of analysing the Anglo-Saxon graves, to also test a piece of cremated bone from cremation 33 (submitted to ORAU), due to the risk of the first charcoal sample being residual or intrusive. The two measurements proved statistically consistent ($T'=0.3$; $\nu=1$; $T'(5\%)=3.8$; Ward and Wilson 1978) and could be of the same actual age.

Recent advances in the dating of cremated bone (Lanting *et al.* 2001; van Strydonck *et al*. 2005), in the mathematical modelling of archaeological chronologies (Bayliss 2009), and improvements to the calibration data for the Anglo-Saxon period (McCormac *et al.* 2004; 2008) mean that robust chronological frameworks for burials in the Anglo-Saxon period can now be routinely achieved (Bayliss *et al*. 2009; Hamilton *et al.* 2009; Marshall *et al.* 2009). These reasons made the scientific dating programme at Tranmer House feasible.

Objectives

The dating programme was designed to address the following questions:

- When did cremation burial at the site start and finish?
- How long did the cremation rite at the cemetery (i.e. excavation site) last?
- Do the cremation burials show any spatial development, i.e. north and south of the Bronze Age barrow, east of ditch *[513]*?
- What is the probability that cremations 3, 5, 9 and 11 date before *c*. 550?
- What is the probability that the burials in ceramic urns without ring-ditches (cremations 3, 5, 9 and 11), predate those with ring-ditches (cremations 4, 6 and 13)?
- How do the cremation burials relate to the Sutton Hoo cemetery (Carver 2005)?

Sampling strategy

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

- Cremated bone from deposits believed to represent single episodes.
- Single fragments of charred, short-lived, plant remains which appear to be functionally related to the context from which they were recovered (i.e. fuel from a hearth or cremation pyre).

The validity of radiocarbon dating cremated bone, by using the content of re-crystallised bio-apatite, has been proven in international inter-comparison tests (Naysmith *et al*. 2007), as well as by the dating of duplicate samples of charcoal and cremated bone (Lanting *et al.* 2001; van Strydonck *et al.* 2005; De Mulder *et al.* 2007; Olsen *et al*. 2008). Therefore, it was not felt necessary to submit paired samples of cremated bone and charcoal (assumed to be from pyre fuel) in this instance.

Radiocarbon methods

The two charcoal samples submitted to SUERC were pre-treated using the acid-base-acid protocol (Stenhouse and Baxter 1983). The samples were both converted to carbon dioxide in pre-cleaned sealed quartz tubes (Vandeputte *et al*. 1996), and graphitised as described by Slota *et al*. (1987). They were measured by Accelerator Mass Spectrometry (AMS) at the University of Arizona (Donahue *et al*. 1997).

The human and animal cremated bone samples submitted to ORAU were processed following Brock *et al*. (2010), and measured by AMS as outlined in Bronk Ramsey *et al*. (2004).

Both laboratories maintain a continual programme of quality assurance procedures, in addition to participation in international inter-comparisons (Scott 2003). These tests indicate no laboratory offsets and demonstrate the validity of the precision quoted.

Results and calibration

The radiocarbon results presented in Table 7.1 are quoted in accordance with the international standard known as the Trondheim convention (Stuiver and Kra 1986). They are conventional radiocarbon ages (Stuiver and Polach 1977). The radiocarbon measurements have been calibrated to calendar dates, shown in Figure 7.1. All have been calculated using the calibration curve of Reimer *et al.* (2009) and the computer program OxCal v4.1.5 (Bronk Ramsey 1995; 1998; 2001; 2009). The calibrated date ranges cited in the text are those for 95% confidence. They are quoted in the form recommended by Mook (1986), with the end points rounded outwards to 10 years if the error term is greater than or equal to 25 radiocarbon years, or to 5 years if it is less. The ranges quoted in italics are *posterior density estimates* derived from mathematical modelling of the archaeological problems (see below). The ranges in plain type in Table 7.1 have been calculated according to the maximum intercept method (Stuiver and Reimer 1986). All other ranges are derived from the probability method (Stuiver and Reimer 1993).

Bayesian methodology

A Bayesian approach has been adopted for the interpretation of the chronology derived from the cremations at this cemetery (Buck *et al.* 1996). Although the simple calibrated dates are accurate estimates of the dates of the samples, this is usually not what archaeologists really wish to know. It is the dates of the archaeological events represented by those samples that are of interest. In the case of the cremation cemetery, it is the chronology of the mortuary activity that is under consideration, not the dates of the samples themselves. The dates of this activity can be estimated not only by using the scientific dating information from the radiocarbon measurements on the samples but also by using archaeological information about the relationships between samples.

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

The technique used is a form of Markov Chain Monte Carlo sampling, and has been applied using the program OxCal v4.1.5 (http://c14.arch.ox.ac.uk/). Details of the algorithms employed by this program are available from the on-line manual or in Bronk Ramsey (1995; 1998; 2001; 2009). The algorithm used in the models described below can be derived from the structures shown in Figure 7.2.

Cremation 33 (Phase 3)

The measurements on single fragments of charcoal (*Alnus* sp.) and human bone from, respectively, cremation deposits *(915)* and *(906)* are statistically consistent (T'=0.3; ν=1; T'(5%)=3.8; Ward and Wilson 1978) and could therefore be of the same actual age. The best estimate for the date of the cremation is *1490–1320 cal BC* (OxA–20183).

Hearth [550] (Phase 4iii)

The sample of charcoal (AA–43641; *Hedera* sp.) from deposit *(549)*, from a hearth set in the half-backfilled Iron Age ditch *[513]*, provides a date of *cal AD 240–540* for the continued existence of the boundary as an earthwork.

Early Anglo-Saxon cremation burials (Phase 5)

The model shown in Figure 7.2 shows good agreement between the radiocarbon results and prior information (Amodel=92.9%). We have assumed a uniform rate of burial in the part of the cemetery excavated, i.e. that once cremation burial started it sustained an approximately continuous rate until it stopped (Buck *et al.* 1992). This

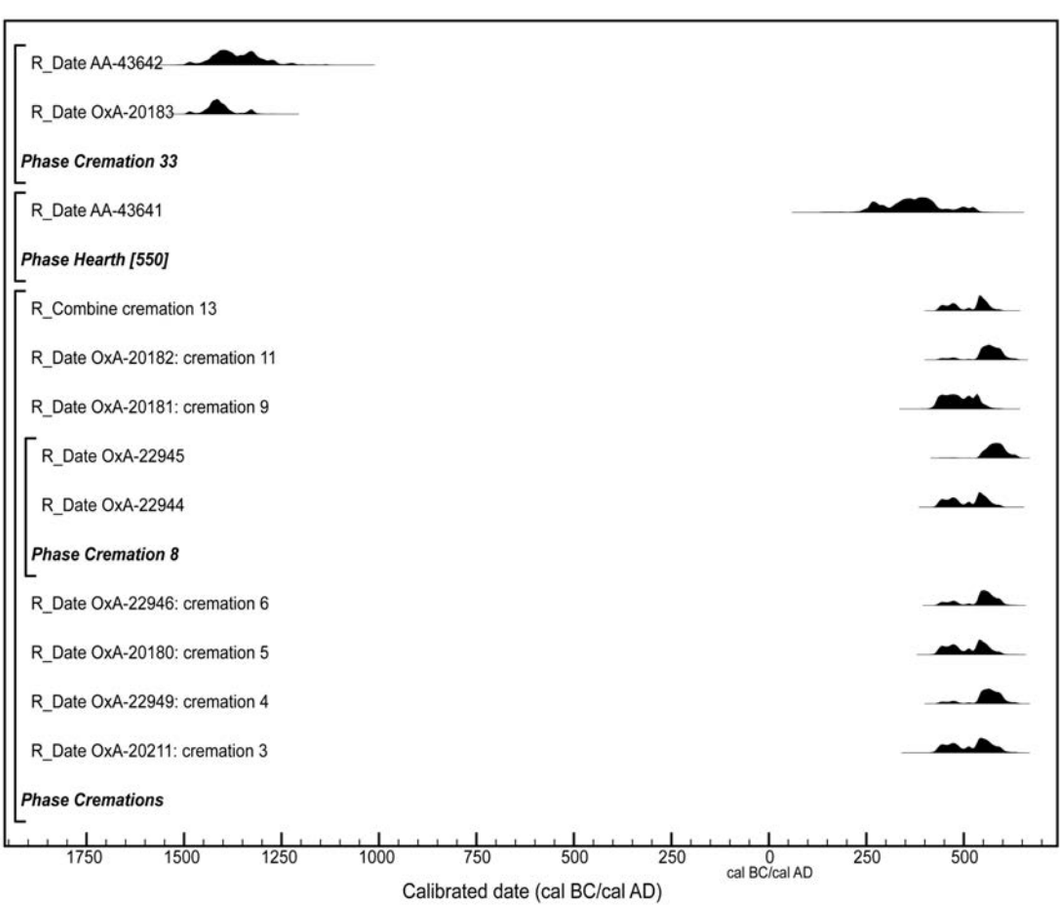

Figure 7.1 Probability distributions of dates from Tranmer House: each distribution represents the relative probability that an event occurred at a particular time. These distributions are the result of simple radiocarbon calibration (Stuiver and Reimer 1993)

Feature	*Laboratory no.*	*Context sampled*	*Sample material*	*Context description*	δ*C (‰)*	*Radiocarbon age (BP)*	*Weighted mean*	*Calibrated date (95% confidence)*	*Posterior Density Estimate (95% probability)*
Hearth *[550]*	AA–43641	*(549)*	charcoal: *Hedera* sp.	hearth set in Iron Age ditch *[513]*	-25.6	1670±55	–	cal AD 240–540	–
Crem. 33	OxA–20183	*(906)*	cremated human bone	bone in uppermost fill of grave-pit	-21.5	3132±30	–	1490–1320 cal BC	–
	AA–43642	*(915)*	charcoal: *Alnus* sp.	pyre material in tertiary fill of grave pit	-27.1	3100±50	–	1500–1260 cal BC	–
Crem. 3	OxA–20211	*(389)*	cremated human bone	bone fill of crushed ceramic urn	-21.3	1531±33	–	cal AD 420–610	*cal AD 530–580*
Crem. 4	OxA–23026	*(396)*	cremated animal bone: *Equus* sp./*Bos taurus*	disturbed burial; originally ?urned	-22.5	1506±27	–	cal AD 460–620	*cal AD 535–585*
Crem. 5	OxA–20180	*(430)*	cremated human bone	bone fill of ceramic urn	-24.7	1538±26	–	cal AD 430–600	*cal AD 530–580*
Crem. 6	OxA–22946	*(440)*	cremated animal bone: *Equus* sp./*Bos taurus*	disturbed burial; unurned bone deposit	-23.5	1519±25	–	cal AD 430–610	*cal AD 530–580*
Crem. 8	OxA–22944	*(489)*	Cremated human bone	bone fill of hanging bowl	-21.5	1538±24	–	cal AD 430–595	*cal AD 530–580*
	OxA–22945	*(486)*	cremated animal bone: *Equus* sp.	bone fill of ceramic urn; beside hanging bowl	-18.6	1486±24	–	cal AD 540–640	*cal AD 535–585*
Crem. 9	OxA–20181	*(637)*	cremated human bone	disturbed burial; spread of bone and potsherds, originally ?urned	-21.8	1563±26	–	cal AD 420–570	*cal AD 520–575*
Crem. 11	OxA–20182	*(657)*	cremated human bone	bone fill of ceramic urn	-22.1	1504±26	–	cal AD 470–620	*cal AD 535–585*
Crem. 13	OxA–22947	*(697)*	cremated animal bone: *Equus* sp./*Bos taurus*	disturbed burial; originally urned	-24.5	1540±24	1536 ±18 BP (T'=2.3; v=1; T'(5%)=3.8)	cal AD 430–580	*cal AD 530–570*
	OxA–22948				-24.6	1532±25			

Table 7.1 Radiocarbon results

Grave	*AD 490*	*AD 500*	*AD 510*	*AD 520*	*AD 530*	*AD 540*	*AD 550*	*AD 560*	*AD 570*	*AD 580*	*AD 590*	*AD 600*	*AD 610*
Crem. 3	*0.6%*	*0.7%*	*0.9%*	*1.4%*	*2.2%*	*9.4%*	*44.0%*	*80.4%*	*94.5%*	*98.2%*	*99.4%*	*99.8%*	*100.0%*
Crem. 4	*0.2%*	*0.2%*	*0.2%*	*0.3%*	*0.4%*	*4.5%*	*35.6%*	*74.0%*	*91.0%*	*96.6%*	*98.8%*	*99.7%*	*99.9%*
Crem. 5	*0.8%*	*0.9%*	*1.2%*	*1.7%*	*2.6%*	*11.0%*	*48.3%*	*83.2%*	*95.9%*	*98.9%*	*99.7%*	*100.0%*	*100.0%*
Crem. 6	*0.4%*	*0.4%*	*0.5%*	*0.6%*	*0.9%*	*5.7%*	*40.2%*	*78.3%*	*93.4%*	*97.8%*	*99.3%*	*99.9%*	*100.0%*
Crem. 8	*0.7%*	*0.9%*	*1.1%*	*1.6%*	*2.4%*	*10.8%*	*48.1%*	*83.9%*	*96.5%*	*99.1%*	*99.8%*	*100.0%*	*100.0%*
Crem. 9	*1.0%*	*1.4%*	*2.0%*	*3.1%*	*5.8%*	*20.1%*	*56.7%*	*88.4%*	*98.2%*	*99.7%*	*99.9%*	*100.0%*	*100.0%*
Crem. 11	*0.2%*	*0.2%*	*0.2%*	*0.3%*	*0.4%*	*3.8%*	*35.4%*	*73.3%*	*90.7%*	*96.5%*	*98.8%*	*99.7%*	*99.9%*
Crem. 13	*0.6%*	*0.7%*	*0.8%*	*1.1%*	*1.5%*	*9.6%*	*48.8%*	*85.2%*	*97.4%*	*99.5%*	*99.9%*	*100.0%*	*100.0%*

Table 7.2 Cumulative probabilities for the estimated date of each cremation burial dated by radiocarbon (e.g. the probability that cremation 3 dates to before AD 550 is 44.0%), taken from the *posterior density estimates* calculated by the model in Fig. 7.1

prior information acts to counteract the statistical scatter on radiocarbon measurements (Bayliss *et al.* 2007). The two results from cremation 8 are grouped together, although this is not included as prior information in the model and therefore has no effect on the results.

The model provides an estimate for the start of cremation at *cal AD 495–565* (*95% probability*; Fig. 7.2) and probably *cal AD 530–555* (*68% probability*). The end of the rite is estimated to have occurred in *cal AD 540–605* (*95% probability*; Fig. 7.2) and probably *cal AD 545–575* (*68% probability*). Its duration is estimated at between *1–90 years* (*95% probability;* Fig. 7.3) and probably *1–35 years* (*68% probability*). Further evidence for the extremely short-lived nature of the cremation rite at the site is provided by the fact that all the radiocarbon determinations are statistically consistent (T'=7.0; ν=9; T'(5%)=16.9). That they are almost chronologically indistinguishable could, in theory at least, mean they are the same actual age, but it is thought much more likely they represent cremation burial taking place over a very short timescale. This being the case, it was not possible to model the spatial development of the graves. The probability that the cremation rite had ended by 580 is *83%* and by 590 as *91%*. Lastly, the model proposes that the cremation burials without ring-ditches occurred at approximately the same time as those with them; the probability that the former pre-date the latter is only *61%*.

Cumulative probabilities for the estimated date of each grave were also calculated, shown in Table 7.2, that include the probabilities of cremations 3, 5, 9 and 11 pre-dating 550.

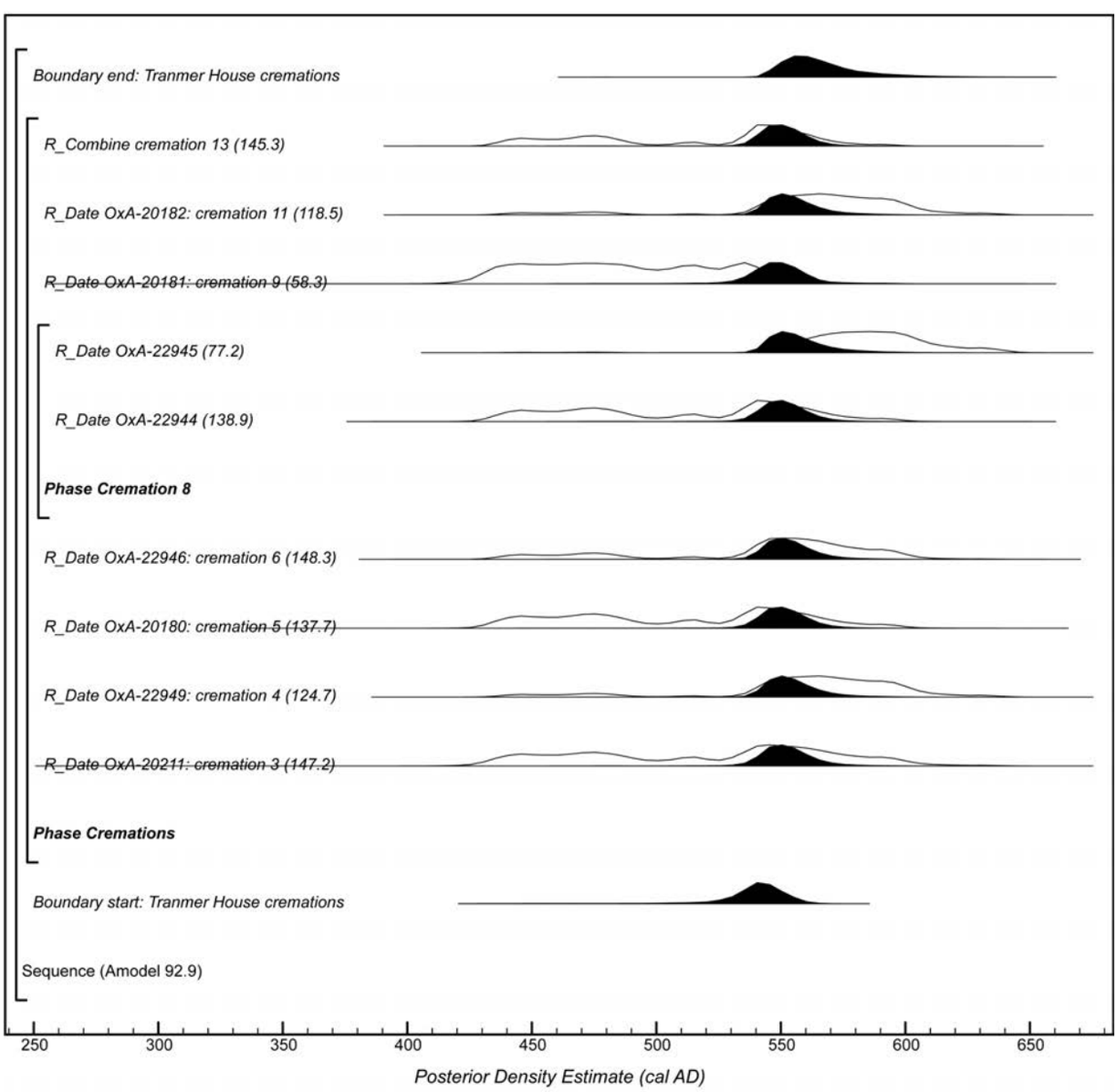

Figure 7.2 Probability distributions of dates from Tranmer House: each distribution represents the relative probability that an event occurred at a particular time. Distributions plotted in outline are the result of simple calibration; solid forms derive from the chronological model applied. Distributions other than those relating to particular samples correspond to aspects of the model, e.g. 'Boundary start' is the estimated date when cremation began. The large square brackets down the left-hand side along with the OxCal keywords define the model exactly

Results in context

In order to establish the chronological relationship of the Tranmer House cremation burials to the burial-ground at Sutton Hoo, modelling was undertaken of the published radiocarbon results from the mound cemetery (Ambers 2005). The chronological model (Fig. 7.4) estimates that burial started at Sutton Hoo in *cal AD 470–650* (*95% probability*) and probably *cal AD 560–640* (*68% probability*). The probability is 69% that the cremation rite at Tranmer House had ended before the start of burial at Sutton Hoo (Fig. 7.5), and that the gap between them is *1–80 years* (*68% probability*).

III. Stratigraphic dating

No burials were intercut, but there was one physical relationship between adjacent graves, proving that cremation 11 pre-dated inhumation 32 (for locations see Fig. 3.1). In the backfill of the inhumation grave were urn sherds, and inclusions of red and black 'burnt' earth, most likely fired, that originated from the cremation burial and probably a residual pyre surface. A scenario might be envisaged, therefore, whereby soil from the fresh grave was temporarily piled over the older burial (cremation 11), which was subsequently disturbed when the earth was returned to the grave pit during backfilling. The burying party was perhaps unaware of the older cremation grave. The modelled-radiocarbon *posterior density estimate* of *cal AD 535–585* (95% probability; OxA–20182) for cremation 11 provides a *terminus post quem* for this event (i.e. inhumation 32). Furthermore, as the shield-boss from the inhumation is a 6th-century type, it may be fairly estimated that cremation 11 pre-dates *c.* 550.

IV. Artefact dating

The typological study of the grave-goods in *Chapter 4* (see *Sect. II*) provides the basis for assessing the chronology of the inhumations in particular. Reference throughout has been made to the 'Four Cemeteries' study for East Anglia (Penn and Brugmann 2007), which sets the site's artefact culture in its regional context, and for the female-gender burials, Brugmann's bead chronology especially provides a foundation (see Table 4.10). However, further chronological refinement to the understanding of early Anglo-Saxon material has now been achieved by the recently published English Heritage project — *Anglo-Saxon England c.570–720: the chronological basis* (Bayliss *et al*. 2013). Its chronology is founded on the high-precision radiocarbon dating of human remains from burials with grave-goods, modelled in an applied Bayesian framework.

The date phases in the East Anglian study have separate schemes for 'female' (F) and 'male' (M) grave-goods and burials, the phase-divisions being based on coin-dated chronologies on the Continent. They are: FA1/MA1a *c*. 450–480; FA2a/MA1b *c*. 480–510; FA2b *c*. 510–530/50; MA2 *c*. 510–560/70; FB *c*. 530/50–650; MB *c*. 560/70–650 (Penn and Brugmann 2007, 42–71, fig. 5.20). The female/male sequences are 'not entirely contemporary' regarding the end of Phases FA2b/MA2 and the start of Phases FB/MB (Penn and Brugmann 2007, 71). A period of social and cultural transition took place across Europe at this time, *c*. 530/50–560/70, when certain aspects of Migration-period culture were abandoned and new fashions emerged (Hines 1999). In 'Anglian' regions of England, characteristic female dress accessories went out of fashion, including cruciform and small-long brooches, and wrist-clasps (Penn and Brugmann 2007, 24–5, 28–9, 98). Figure 7.6 shows the East Anglian Phases and Brugmann's Bead Phases relative to the model proposed for Tranmer House. The majority of the artefact culture at the site suggests interments of the 6th century, and in particular graves that date around the era of transition.

The weaponry types as a whole suggest graves of no earlier than East Anglian Phase MA2 (*c*. 510–560/70), though around half of the thirteen weapon-burials are probably of the second half of the 6th century (Table 7.3). This agrees with the typological dating put forward in the English Heritage *chronological basis* (Bayliss *et al*. 2013, fig. 8.16). Most of the burials are of Phases p (525–550 to 550–570) and q (550–570 to 565–595), albeit certain objects hint at a later possible dating in Phases r (565–595 to 585–615) and s (585–615 to 610–645). Inhumation 17 may be the earliest, as the shield-boss from the grave retains characteristics of forms current in Phase MA1b (Type SOC3: Penn and Brugmann 2007, 22–3, fig. 5.26), and the 'bossed stamped panel' decoration on the associated pot suggests a similar date, with burial taking place perhaps as early as the first third of the 6th century (Myres 1977, 22, 41–3, figs 116–19, 244–46).

The shield-boss and spearhead combinations in three other graves indicate a roughly similar date, or slightly later within Phase MA2 (inhumations 16, 20 and 23). The Swanton Type D2 spearhead in inhumation 20 would have to fit around the limit of the phase, however, at the start of the spearhead's continental date range (*c*. 565–610/20), or it is possible the accompanying shield-boss was an outmoded type in a later burial (Müssemeier *et al*. 2003, 48, Abb. 7, Type S-Lan 1.3A).

The increasing tendency towards larger spearheads with the course of the 6th century, noted by Swanton (1973, 144), seems to be well represented at Tranmer House (Fig. 4.11). The East Anglian study has confirmed this trend for the region (Penn and Brugmann 2007, 93):

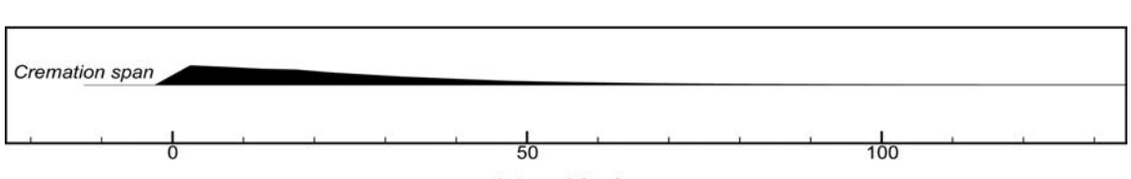

Figure 7.3 Probability distribution showing the number of calendar years during which the cremation rite was practiced at Tranmer House. The model is derived from that shown in Figure 7.2

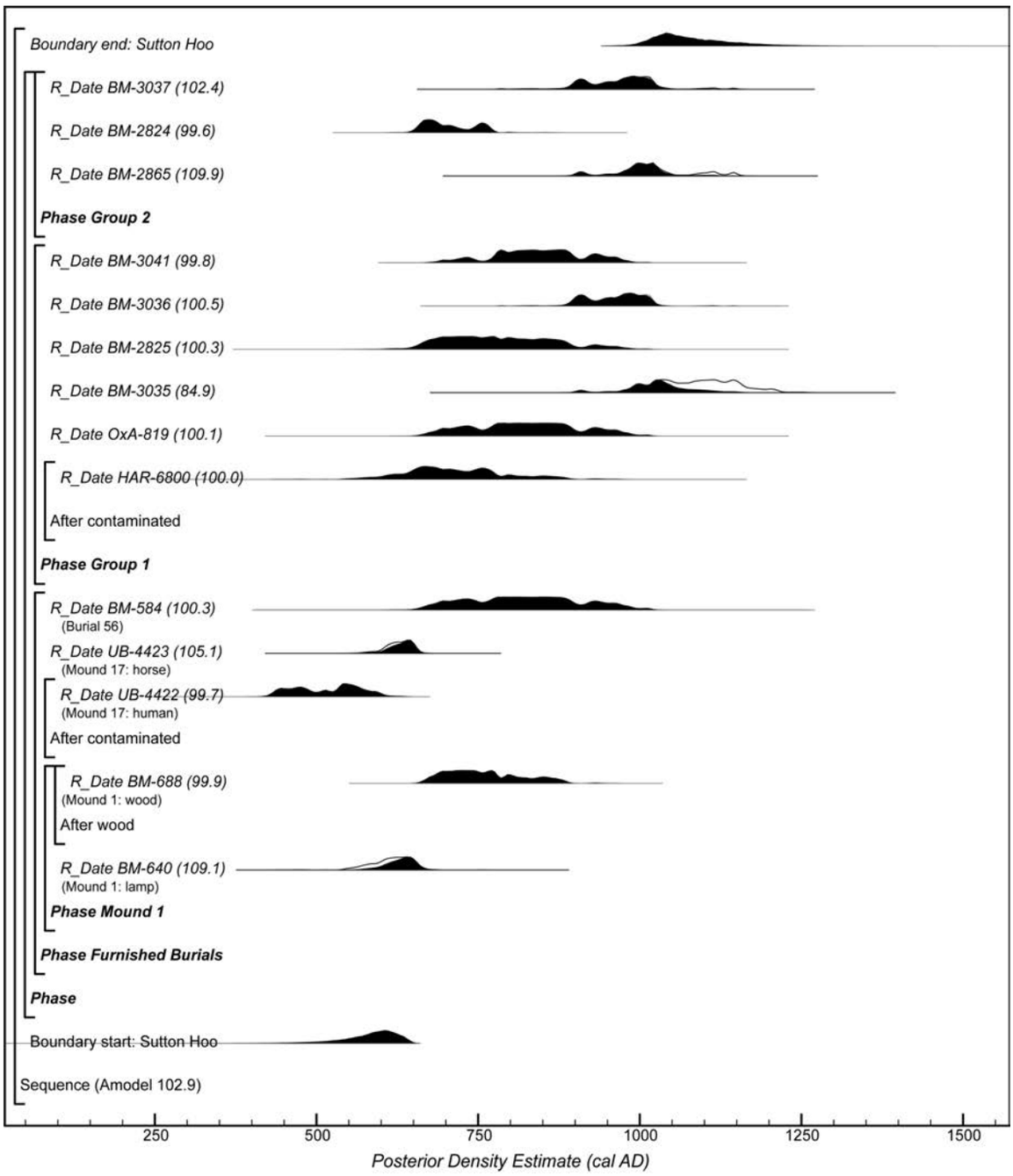

Figure 7.4 Probability distributions of dates from Sutton Hoo: each distribution represents the relative probability that an event occurred at a particular time. Distributions plotted in outline are the result of simple calibration; solid forms derive from the chronological model applied. Distributions other than those relating to particular samples correspond to aspects of the model, e.g. 'Boundary start' is the estimated date when activity began. The large square brackets down the left-hand side along with the OxCal keywords define the model exactly

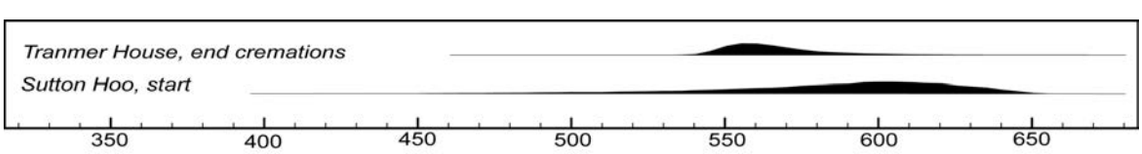

Figure 7.5 Probability distributions for major archaeological events at Tranmer House and Sutton Hoo, derived from the models in Figures 7.2 and 7.4

Grave	Combination			Shield			Spear			Sword	Knife	Chronological Phase			c. Date
	spear	shield	sword	Dickinson/ Härke (1992)	East Anglian study (Penn and Brugmann 2007)	English Heritage study (Bayliss et al. 2013)	Swanton (1973)	East Anglian study	English Heritage study		Evison (1987)	East Anglian study	English Hertiage study	Tranmer House	
Inhum. 18	•						E1	AnMed1	SP2-a1a2		1	MA2	p, q	A–C	510–610
Inhum. 25	•		?				E2	AnMed2b	SP2-a2b2	?	3	MA2	p	A–C	510–610
Inhum. 14	•	•		3*	unclassified	SB3-c	E3	CoLo1a	SP2-a2c/SP3-a		1	MA2	p, q	B	550–600
Inhum. 16	•	•		3	COS	SB3-b3	E3/H3	CoLo1a	SP2-b1a3		3	MA2	p	A	510/20–550/70
Inhum. 17	•	•		1/3	COS	SB3-b3	D1	AnMed1	SP1-a1a2		1	MA2	p	A	510/20–550/70
Inhum. 20	•	•		3	COS	SB3-b1	D2	unclassified	SP1-a4		1	MA2	p	B	550–600
Inhum. 23	•	•		3	COS	SB3-b3	D1	unclassified	SP1-a2		?1	MA2	p	A	510/20–550/70
Inhum. 28	•	•		3*	unclassified	SB3-c	E4	PaLo2	SP3-a		3	MB	p, q	B	550–600
Inhum. 29	•	•		3	COS	SB3-b2	socket only				-	MA2	p	A	510–610
Inhum. 32	•	•		3	COV	SB3-b3	D3	unclassified	SP4		1	MA2	p	B	550–600
Inhum. 24	••	•		3*	unclassified	SB3-a	E3 + E4	CoLo1a, PaLo2	SP3-a (2)		3	MB	p	B	550–600
Inhum. 21	•	•	•	3*	COV/?SOS	?SB4-a1	F1	AnMed1	SP2-a2a	SW4	2	MA2/?MB	r, s, t	B	550–600
Inhum. 27	•	•	•	3	COS	SB3-b3	D2	unclassified	SP1-a2	SW3-b	4	MA2	q, r, s, t	C	580–610
Sutton Hoo md 17	••	•	•	6	SOS	SB4-b2	D2, D3	unclassified	SP1-a2, SP4	SW2	?1	MB	s, t		610–?650

* see *Chap. 4; Sect. II: Shields*

Table 7.3 The typology and chronology of the weapon-burials, including the East Anglian 'Four Cemeteries' study (Penn and Brugmann 2007) and the English Heritage radiocarbon-Bayesian study (Bayliss *et al*. 2013)

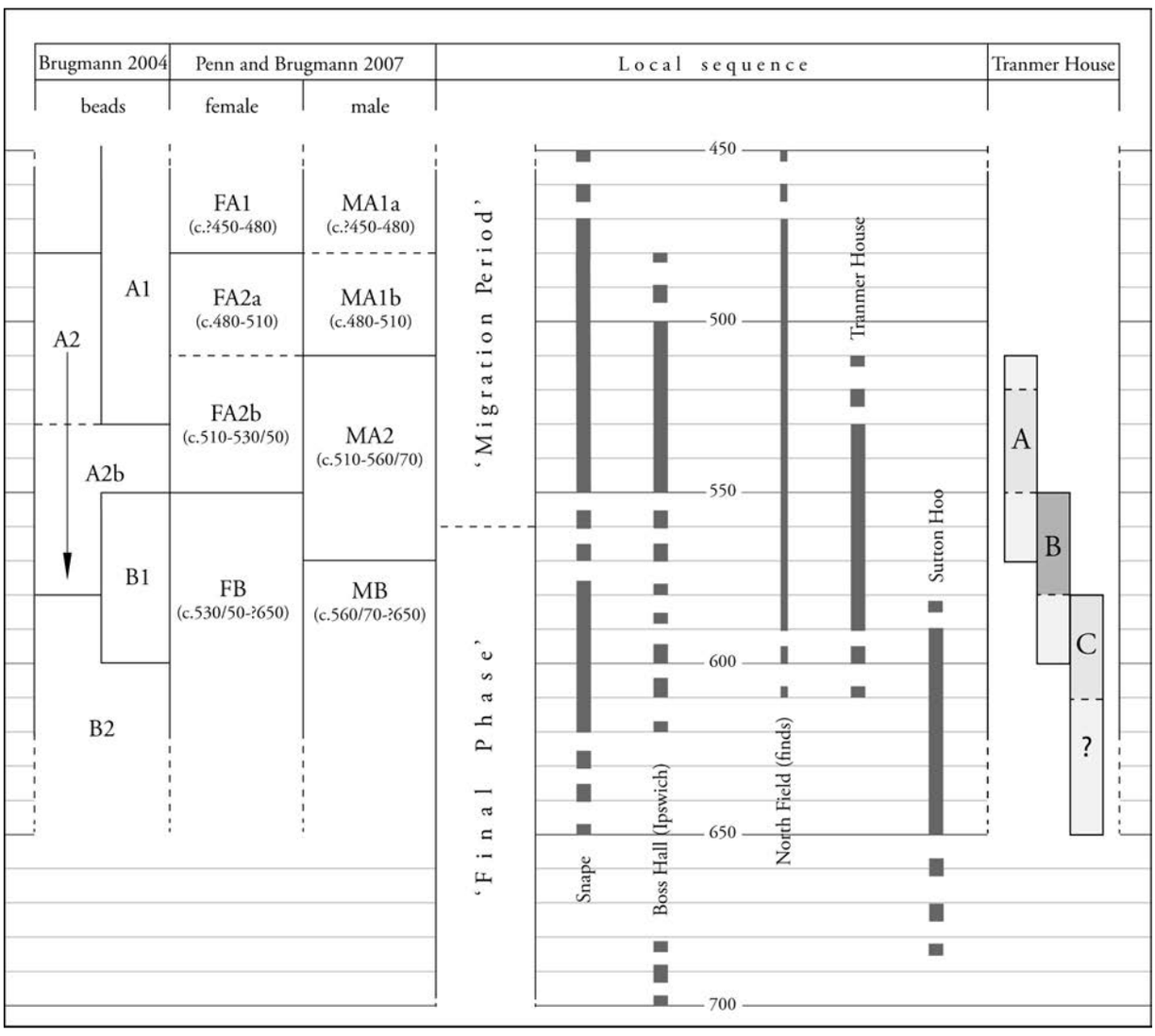

Figure 7.6 Tranmer House *AS Phases A–C*, in relation to select local sites and other chronological systems. By CF

Phase MA2 spearheads average 230mm in length; Phase MB average 410mm (*c*. 560/70–650). The Tranmer House spearheads average 376mm (Table 4.6). The smaller examples from inhumations 17, 18 and 23, are contrary to the overall trend, and two are graves of Phase MA2. However, only one of the Type E3/4 spearheads from the site (inhumations 14, 24 (two) and 28) demonstrates the parallel-sided blade (East Anglian Type *PaLo2*) typical of later examples of these long-bladed forms (Penn and Brugmann 2007, 20–1, figs 5.27–5.28). The English Heritage project classifies all four as Type SP2-a2c or SP3-a (Bayliss *et al*. 2013, 174, 179). The shield-bosses associated with these spearheads are argued to be transitional in form (Type 3*), combining characteristics of 6th-century and later 6th/early 7th-century bosses (see *Chap. 4; Sect. II: Shields*; Fig. 4.5; Table 4.3).

The decorated shield from inhumation 21 bears the only example of animal art from the site (though brooch fragments with Style I animal art were found in North Field: see *Chap*. *6*). Its bird mount has been argued as related to the first appearance of the new elite art of Style II at Sutton Hoo, around *c*. 550 (Speake 1980, 94; Dickinson 2005, 157). Its significance as one of the earliest locally-manufactured Style II objects is thus appropriate to the sword-burial in which it was found, though it was buried in a repaired, if not overly worn condition.

Inhumation 27 may be one of the cemetery's latest graves based on the sword it contained. Its iron, boat-shaped pommel indicates a sword of Type SW3-b in the English Heritage study, examples of which have been found largely in graves from the later 6th century in England and on the Continent (Müssemeier *et al*. 2003, 43, Abb. 8, Types Spa6a and Spa7C; e.g. Hirst and Clark 2009, 562–64; Bayliss *et al*. 2013, 185, 332–33). Notably, however, the associated shield-boss is not a 7th-century type, setting the upper dating limit for the grave (Table 7.3).

The four 'female' inhumation burials have a similar chronological range to the weapon-burials. They are all of East Anglian Phase FB (*c*. 530/50–650) based on Brugmann's dating (see *Chap. 4; Sect. II: Beads*). The two latest (inhumations 26 and 31: Bead Phases B1/B2) had costumes without brooches. Rather than representing 'poorer' individuals, however, it may be suggested they were buried around the time of Hines' (1999) 'Migration period/Final Phase transition', their broochless state indicating the abandonment of the shoulder-brooch costume (peplos) of the 5th/6th centuries (e.g. inhumation 19: Bead Phase A2b). Indeed, excepting annular

brooches, the excavation produced no early 'Anglian' dress accessories, though examples were found in North Field (see *Chap. 6*).

The forms and decoration of the pottery from the cremation burials show broad agreement with the date range of *c*. 520–585 indicated by the modelled-radiocarbon *posterior density estimates* (Fig. 7.2; Tables 4.12, 7.1–7.2). The cremation 9 pot with Myres' 'enclosed-zone stamped chevron' decoration suggests one of the earliest burials (1977, 25–7, figs 133–61). The upper limit for such line-and-stamp ornament is now considered the end of East Anglian Phases FA2b/MA2 (Hills 1994, 48; Penn and Brugmann 2007, 40), and this agrees, too, with the comb fragments from the same burial and the Migration-period custom they suggest.

The long-boss decoration on the jar from cremation 5 perhaps anticipates the full 'melon ribbing' style of the following century (Myres 1977, 10–11, figs 84–5, 87). A cremation burial with a melon-ribbed pot (urn 5115) from the St Mary's Stadium cemetery, Hants (Birbeck *et al*. 2005, 15, fig. 10; Mepham 2005, 26), has been radiocarbon dated to cal AD 550–680 (95% confidence, 1420±45 BP; GU–9323; Allen 2005b). In addition, the cremation 5 pot may be compared with three bossed examples from the Hadleigh Road cemetery (Ipswich), a burial-ground that is mainly of mid 6th- to mid 7th-century date (West 1998, 58, fig. 80.4/5/9; Scull and Bayliss 1999, 86–87).

The 'random' stamping on the jar from cremation 8 has an association generally with more globular, later pot forms (Myres 1977, 20, fig. 111; Hills 1994, 47; Penn and Brugmann 2007, 40). A good parallel comes again from the St Mary's cemetery (urn 5138) that, based on the burial-ground's overall chronology, is unlikely to pre-date the mid 6th century (Birbeck *et al*. 2005, 15–7, fig. 11; Mepham 2005, 26). The hanging bowl it accompanied is stylistically sub-Roman (see *Chap. 4; Sect. II: Hanging bowl*), but was heavily-patched when buried.

The two plain jars in the same fabric from 'cremation' 12 and cremation 13 are difficult to date on form alone, though they are undoubtedly contemporary (Table 4.12). They may fit with the trend, noted for East Anglia, towards the increased use of undecorated pots as urns with the course of the 6th century (Penn and Brugmann 2007, 40). Both could have been cooking or storage vessels originally, as the sooting on one suggests (see Myres 1977, 4–5, figs 19–20).

The one significant disagreement between the artefact dating and the modelled-radiocarbon estimates is the burnt glass beads from cremation 3. Brugmann (see *Chap. 4; Sect. II: Beads*) has allocated them to her Bead Phase A1 (*c.* 450–530), or less likely Bead Phase B2 (*c.* 580–650). But the *posterior density estimate* date is *cal AD 530–580* (95% probability). Moreover, the probability that the burial pre-dates *c*. 520 is only 1.4%, and this only increases to 2.2% for a date 520–530 (Table 7.2). The string of beads could represent an artefact in use beyond the normal range, an 'heirloom' perhaps, although the cremated human remains in the urn were not those of an aged individual, which might more easily explain an outmoded costume (at the end of East Anglian Phase FA2b, *c*. 510–530/50). The quandary serves, above all, as a reminder of the risks of relying on artefact dating alone.

V. Interpretation

There is good agreement overall between the scientific and artefact dating. This has indicated the graves are largely of the 6th century, and that the two rites of cremation and inhumation were practiced side by side. For the inhumations, the beads and weaponry suggest male and female graves of broad contemporaneity, with a date after the mid 6th century likely for most (inhumations 14, 20, 21, 24, 26, 27, 28, 31 and 32). The modelled-radiocarbon estimates (Fig. 7.2; Table 7.1) for the cremation burials span 520–585 (95% probability). However, the calculated *cumulative probability estimates* propose that the majority of these graves also post-date the mid 6th century (Table 7.2).

With the exception of the possible 'heirloom' beads in cremation 3, the Tranmer House graves lack clear evidence for East Anglian Phases FA1–2a/MA1 and Brugmann's Bead Phase A1, the period of the 5th to early 6th centuries. Absent are classic artefact forms of the Migration period (*c*. 425/50–550/70), such as Swanton Type H spearheads (1973, 102–14) and early 'Anglian' dress accessories, material represented at other local sites, including Boss Hall (Ipswich) and Snape (Filmer-Sankey and Pestell 2001; Scull 2009). Nevertheless, fragments of early brooches have come from the North Field enclosure, immediately to the north-west (see *Chap. 6*), which suggests an earlier presence elsewhere in what was probably a larger North Field/Tranmer House burial-ground. But missing entirely, to date, are typical grave-goods of the 7th-century 'Conversion period' or 'Final Phase' (Geake 1997), such as buckles with triangular plates and Dickinson/Härke Type 6/7 shield-bosses, types known from Hadleigh Road (Ipswich) and Sutton Hoo (West 1998, 52–67, figs 58–95; Evans 2005, 215–49). Rather, the Tranmer House graves appear to focus in the era of the 'Migration period/Final Phase transition' (Hines 1999).

On the combined evidence (*Sects. II–IV*) the graves have been assigned to a site-specific system of three 'AS' phases (*A–C*). This allocation is shown in Table 7.4, and based on it a cemetery-development model is offered in Figure 7.7. The relationship of *AS Phases A–C* to other chronological systems and the burial-ground's suggested duration compared to other local sites is shown in Figure 7.6. The start date of *c*. 510/20 for *AS Phase A* corresponds with that of East Anglian Phases FA2b/MA2. In addition, 520 is the earliest possible date for the cremation burials according to the *posterior density estimates* (Table 7.1). It is likely most of the graves of *AS Phase A* pre-date the mid 6th century, though a slightly later dating may be possible for some of the inhumation burials (in line with the upper limits of East Anglian Phase MA2 and Bead Phase A2b). *AS Phase B* (*c*. 550–580/600) takes the emphasis of the *cumulative probability estimate* dating of the cremation burials (Table 7.2), but is equivalent also with Brugmann's Bead Phase B1 that allows for inhumation graves of this phase to *c*. 600. The majority of the cremation and inhumation burials are argued to be of *AS Phase B*, including most of the weapon-burials and the dated cremations with ring-ditches and multiple animal offerings. (The weapon-burials of *AS Phase B* are thus argued to date from the very end of East Anglian Phase MA2 into Phase MB). Also allocated to *AS Phase B* are the ring-ditches without graves and other related burials that are not dated by independent means (see below;

Figure 7.7 Proposed cemetery development in *AS Phases A–C* at Tranmer House (scale 1/700). By CF

cremations 1 and 7, and ring-ditches *[342]*, *[665]*, *[698]* and *[932]*), though in absolute terms only a broad 6th-century date can be applied to them, in line with the general date range of all the excavated graves. Only two inhumations are assigned to *AS Phase C* (*c*. 580–610/?650).

Two different cremation groups can be suggested at the site (see *Chap. 8; Sect. III*). The urned burials without ring-ditches (cremations 2, 3, 5, 9, 10 and 11) have been mainly allocated to *AS Phase A* (Table 7.4). This dating has some supporting artefactual (cremations 3 and 9) and stratigraphic evidence (cremation 11: see above, *Sect. III*). The other group (cremations 1, 4, 6, 7, 8, 13, and

	Tranmer House Cemetery Phases			
	AS Phase A	*AS Phase B*	*AS Phase C*	*Unphased*
***Sex/Gender*[1]**	*c. 510/20–550/70*	*c. 550–580/600†*	*c. 580–610/?650*	*6th century*
Female	*3, 10**, **19**[2], **30**[2]	*4*, *7**, *8*, *13*, **31**	**26**	
Male	**16**, **17**, **23**	*5*, **14**, **20**, **21**, **24**, **28**, **32**	**27**	**18**, **25**, **29**
Ungendered	*2*, 9, 11*	*6,* 12, *1**, *[342]*[3], *[665]**[3], *[698]**[3], *[932]**[3]		**15**, **22**
Total	10	18	2	5

Cremations; **inhumations**; **weapon-burials**
* *AS Phase A–B* (assigned date-phase is conjectured)
† Cremation ended by 580/90
[1] Includes burials sexed as '(?)probable' and '(??)possible'
[2] Bead Phase A2b (*c*. 530–580)
[3] Ring-ditch with cremation evidence, but no surviving burial

Table 7.4 Cemetery phasing

'cremation' 12), it is argued, occurred after the mid 6th century (*AS Phase B*). The artefact evidence for this was poor (except for cremation 8), but it is well founded in the modelled-radiocarbon dating (see above, *Sect. II*; cf. Table 7.2). However, the scientific dating was not able to chronologically differentiate these two groups, probably because the graves belong to too narrow a timescale — maybe in real terms less than half a century (*c.* 35 years: see above, *Sect. II*; cf. Table 7.2). Very probably, too, there was some overlap between them. In particular, the style of the cremation 5 urn (in a grave without a ring-ditch) suggests a date around the mid 6th century, at the earliest.

Most significant, ultimately, is the chronological relationship of Tranmer House to Sutton Hoo. The modelled-radiocarbon end date of *c.* 580/90 for the rite of cremation at Tranmer House approximates with the currently accepted start date of the primary phase of cremation at the mound cemetery (see *Chap. 9*; Carver and Fern 2005, 309–12). Important is the observation that, prior to this juncture, the rite at Tranmer House was most likely at its apogee (*AS Phase B*), and at the same time the weapon-burial custom was dominant in the inhumation rite. The latter possibly continued after cremation had ceased (i.e. *AS Phase C*), but probably not for long. Therefore, it is conceivable the majority of the Tranmer House burials belong to a climactic end phase of the cemetery, concluded by the very start of the 7th century, that is before the great ship-burials of mounds 1 and 2 at Sutton Hoo.

Endnotes

1 In 2013, after the final draft of this report was completed, a major advance in the dating of the cremation rite in England was marked by the publication of the chronological study of the Spong Hill cemetery (Hills and Lucy). However, the rite at this site and its accompanying material culture is largely limited to the 5th century, and hence its application to the majority of the somewhat later cremations at Tranmer House is limited.

2 The scientific dating was funded by the Sutton Hoo Society.

3 Jacqueline McKinley selected the human bone, and Julie Bond the animal bone.

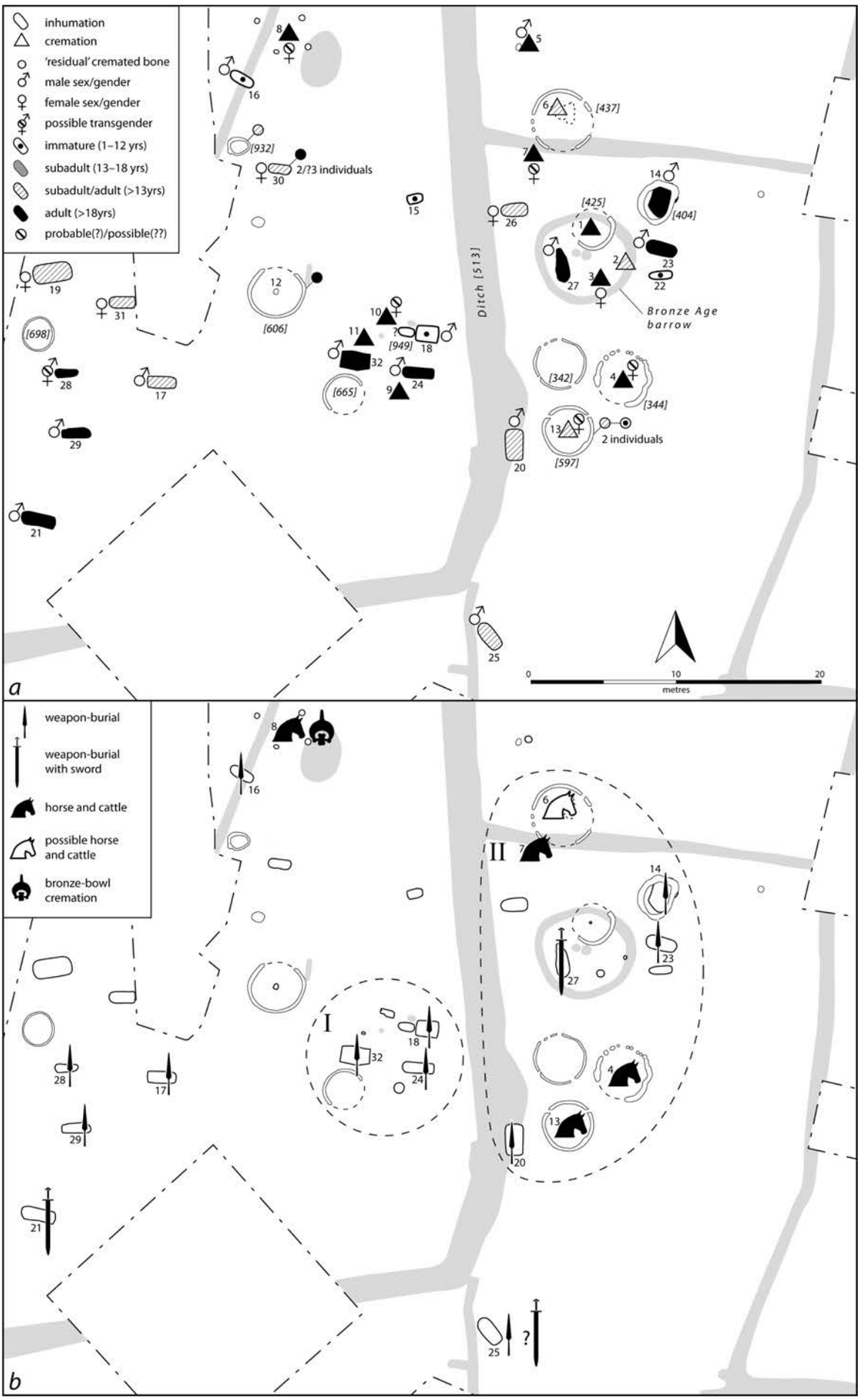

Figure 8.1 Social status at Tranmer House: a) age and gender/sex by burial rite; b) specific funerary rites — weapon-burial, horse/cattle cremation and hanging-bowl burial (scale 1/380). By CF

Chapter 8. Anglo-Saxon Cemetery and Burial Rites

I. Introduction

For archaeologists, graves represent structured and complex phenomena, produced by significant human activity. In the past, as today, funerals and burials were emotive, important events, concerned with commemoration and spiritual belief, and might also serve as expressions of ancestry, group mores and sometimes ideology (Parker Pearson 2003). During the early Anglo-Saxon period, very considerable investment of a social and material nature was possible in the rites of both cremation and inhumation. Through the use of grave-goods, animal offerings and other rituals, status and cultural identity could be signalled. At Sutton Hoo each 'princely' grave has been likened to a text — a rich 'palimpsest of allusions' — akin to the heroic poetry of the age (Carver 2005, 503; cf. Price 2010). Each mound probably memorialised an important forebear, whilst, it has been argued, the monumentality and separateness of the cemetery as a whole spoke for the overarching ambition of the burying dynasty to regional supremacy (Carver 2005). Therefore, as the Tranmer House graves closely pre-date the founding of this elite cemetery, they are unquestionably of significance for our understanding of the emergence of the social order locally.

Each burial at Tranmer House was the result of multiple actions. First the grave was dug, with a wooden lining or burial-container constructed in some cases, or for a cremation the pyre was built. In both rites the body was placed dressed and grave-goods were added as appropriate to status. For the inhumation rite, there is evidence that some bodies were covered with blankets or cloaks and occasionally a pelt also. In male burials, shields (where provided) were put in after these covers, typically over the head. A layer of plant material was then added. Fabrics and cut vegetation might have been laid over the body in the cremation rite, too, but we have no evidence. Normally following a cremation, only a proportion of the remains was collected and buried (human, animal and artefact), usually in a pot, and sometimes further unburnt grave-goods were added (see *Chap 5; Sect. II: Cremated human bone*). After committal, certain graves were demarcated with small ring-ditches, and covered presumably by small mounds. Finally, although we know nothing of the accompanying ceremonies, where animal sacrifice was a part (i.e. the cremation rite) communal participation and feasting may be particularly suspected, given the highly conspicuous nature of the act and the potential meat yield (e.g. of cow/horse killings).

II. The cemetery

Setting

The cemetery's location could have been influenced by multiple factors. Both the Tranmer House and Sutton Hoo sites have partial, 'framed' views to the River Deben from close to the promontory edge (Williamson 2008, 105), though these are obscured today by tree plantations. But at Tranmer House no views are possible from much of the flattish ground across which the burial-ground extended. However, a general riverine location fits with other sites in the Deben and Gipping valleys at the period (Scull and Newman 2009, 306–9), as does a position on waste heathland, in this case beside the productive river and its arable land (Williamson 2008, 65). Similar settings were chosen for the local burial-grounds of Buttermarket (Ipswich) and Snape (Filmer-Sankey and Pestell 2001, 1; Scull 2009, 315).

Ultimately, intervisibility with a settlement could have been a key factor, as at other sites (e.g. Mucking, Essex; Hirst and Clark 2009, 760–62, fig. 233). Across the river, *Wudebrgge* (Woodbridge) is a possibility for an accompanying site. There are good views of both Sutton Hoo and Tranmer House from parts of the modern town (Martin and Satchel 2008, 140), albeit the case for early Anglo-Saxon occupation remains unproven (see *Chap. 9; Sect. III*). Also, the two cemeteries are to an extent intervisible with one another, and this might have been an important consideration on the placement of the later mounds of Sutton Hoo (Pl. I).

The past landscape was most demonstrably an influence on the choice of burial place, as was common in the period (Williams 1997). Carver has suggested the layout of Sutton Hoo was planned with a view to the locally remnant Iron Age field-system, and this is argued to have been true at Tranmer House also (Carver 2005, 457; Carver and Fern 2005, 309). It is suggested that a large enclosure earthwork of the same prehistoric system probably existed on the North Field/Tranmer House spur (see *Chap. 2*), within which the cemetery was established (Fig. 6.5). Parallels for this include the cemeteries of Spong Hill, Norfolk, and Wasperton, Warks, which were both founded inside Roman enclosures (Hills 1977, 31; Rickett 1995, 41, fig. 60; Carver *et al*. 2009, 4, fig. 1.2). Additionally, the small Bronze Age barrow (ring-ditch *[351]* and cremation 33) at the edge of the enclosure was a focus for one grave group at the site (Fig. 3.1), and it is possible there were other barrows in the vicinity originally (see Carver 2005, 467).

Population

The thirty-two graves of *Phase 5* probably represent only a small sample from a larger North Field/Tranmer House cemetery (see *Chap. 6*), perhaps *c.* 5–20% of the original buried population.[1] They are summarised in Table 8.1, and social status and key ritual attributes are illustrated in Figure 8.1a–b.

The analysis of the cremated human bone is reported in *Chapter 5* (*Sect. II*; Table 5.1). One certain male (cremation 5) and five '(?)probable' or '(??)possible' females

Grave (rite)	*Sex*	*Gender*	*Age*	*Maximum no. individuals*	*Ceramic pot/urn*	*Metal-bowl burial (urn)*	*Animal <15g*	*Animal >80g*	*Horse and cattle*	*Pyre-structure*	*Ring-ditch*	*Internal grave structure**	*Beads/ Brooches*	*Weaponry*	*Vegetation layer*
Crem. 1 + R-d *[425]*			adult >50	1	•						•				
Crem. 2			subadult/adult >13	1	•										
Crem. 3	?F	F	adult *c.* 23–35	1	•		•						•		
Crem. 4 + R-d *[344]*	?F		adult >18	1	•			•	•		•				
Crem. 5	M		adult *c.* 30–40	1	•		•								
Crem. 6 + R-d *[437]*			subadult/adult >14	1				•			•				
Crem. 7	??F		adult *c.* 25–45	1				•	•						
Crem. 8 + *[488]*, *[500]*, *[505]*, *[557]*	?F	F	adult *c.* 25–35	1	•	•		•	•	•			•		
Crem. 9			adult >18	1	•										
Crem. 10	??F		adult *c.* 18–35	1	•		•								
Crem. 11			adult *c.* 20–29	1	•		•								
'Crem. 12' + R-d *[606]*			adult >18	1	•		•				•				
Crem. 13 + R-d *[597]*		?F	1) subadult/adult >13 2) immature 1–12	2	•			•	•		•				
R-d *[665]*											•				
R-d *[698]*							•				•				
R-d *[932]*			subadult/adult >13	1							•				
Inhum. 14 + R-d *[404]*		M	*adult*	1							•	•		•	•
Inhum. 15			*immature*	1	•										
Inhum. 16		M	*older juvenile*	1										•	•
Inhum. 17		M	*subadult/adult*	1	•							•		•	•
Inhum. 18		M	*?immature*	1			•					•		•	
Inhum. 19		F	*subadult/adult*	1								•	•		
Inhum. 20		M	*subadult/adult*	1								•		•	•
Inhum. 21		M	adult (mature)	1										•	•
Inhum. 22			*juvenile*	1											
Inhum. 23		M	*subadult/adult*	1								?•		•	•
Inhum. 24		M	adult (mature/old)	1										•	•
Inhum. 25		M	*subadult/adult*	1										•	•
Inhum. 26		F	*subadult/adult*	1									•		
Inhum. 27		M	adult (?young)	1								•		•	•
Inhum. 28	??F	M	adult (?young/mature)	1										•	•
Inhum. 29		M	*adult*	1										•	•
Inhum. 30†		F(?2)	1) ?*subadult/adult* 2) ?subadult/adult 3) adult >18 (cremation)	2/?3	?•							•	•		•
Inhum. 31		F	*subadult/adult*	1	?•							•	•		
Inhum. 32	?M	M	adult (mature)	1										•	•
			TOTAL	**35/?36**	**13/?15**	**1**	**7**	**5**	**4**	**1**	**9**	**9**	**6**	**13**	**13**

Non-italics: age osteologically determined; *Italics*: age-range suggested from grave size/body stain
* includes coffins/containers/linings/lids
† see *Chap. 8; Sect. IV: Multiple burials*

Table 8.1 Summary of the early Anglo-Saxon graves. For details of costume and other textile evidence see Table 8.5

(cremations 3, 4, 7, 8 and 10) were identified. Remains from six graves could not be sexed (cremations 1, 2, 6, 9, 11 and 13). Associated gender-indicating objects were rare. However, the burnt beads from cremation 3 support a female identification, as does the burnt amethyst bead from cremation 8. In addition, a sixth female may be suggested in the case of cremation 13, an unsexed burial, based on the burnt ivory fragments found associated, which are most likely to have come from a bag frame (see *Chap. 4: Sect. II: Ivory*).

The majority of the cremated remains were those of adults (cremations 1, 3, 4, 5, 7, 8, 9, 10 and 11). No bone was recorded in the 'cremation' 12 pot (see *Chap 3; Sect II*), but its ring-ditch *[606]* contained bone from an adult. Two other ring-ditches, *[597]* and *[932]*, add the only example of an immature individual (1–12 yrs), as well as subadult/adult remains. As ring-ditch *[597]* surrounded cremation 13, the remains from the ditch and urn combined (immature and subadult/adult) could indicate a double cremation, the child's remains perhaps overlooked for collection, though this interpretation assumes the ditch marks the site of only a single pyre episode (see below, *Post structures and pyres* and *Ring-ditches*). Furthermore, adult bone fragments from inhumation 30 might indicate another cremation, provided this redeposited material is not from one of the cremations already counted (a possibility for all the redeposited bone, except the singular immature remains).

In sum, the minimum number of cremated individuals (MNI) for the period (*Phase 5*) is thirteen, but with a possible maximum of sixteen if all the redeposited material is counted as separate. With just one infant/juvenile and only one elderly individual (cremation 1) this group does not appear 'normal', as McKinley has stated (*Chap. 5*; *Sect. II: Human remains from cremation burials*), comprising largely adults and potentially a high proportion of females. But it is also a small sample, and need not be representative of the rite of cremation at the cemetery as a whole.

A total of nineteen or twenty individuals may be suggested from the inhumation burials, making a possible total population of thirty-six (Table 8.1). Two interpretations of inhumation 30 are proposed, as a single or double female interment (Fig. 3.35; see below *Sect. IV: Multiple burials* and *Sect. V*). None of the other graves had evidence for more than one individual. Teeth remains provided limited information of sex and age for six burials (inhumations 21, 24, 27, 28, 30 and 32: see *Chap 5; Sect II: Human remains from inhumation burials*). For those burials without skeletal evidence, age-range estimates have been suggested based on the recorded body stains/sand bodies and grave sizes (see below, *Sect. IV*), with gender attributed according to grave-goods. This indicates thirteen 'males' and four 'females', and suggests four immature or juvenile individuals (inhumations 15, 16, 18 and 22). In all, seven adults are proposed (inhumations 14, 21, 24, 27, 28, 29 and 32), but for the majority only a broad age-range is possible of 'subadult/adult'. Inhumation 15 comprised a small grave with a small pot, both of which suggest an infant or juvenile burial. In East Anglia similar instances, implying a rite particular to younger children are not uncommon, including at the Morning Thorpe cemetery, Norfolk (Green *at al*. 1987), and Snape (Filmer-Sankey and Pestell 2001, 31–3, fig. 18). In addition, pit *[949]* at the head of inhumation 18 may be cautiously interpreted as a further infant grave, on the basis of its form and proximity to a cluster of burials, though it contained no remains or finds.

Lastly, the identification from teeth remains of a possible female in inhumation 28 is notable given the associated weaponry from the grave. This implies a possible transgender burial, although such individuals have been rarely proved (Lucy 2000, 89–90). Normally, gender was strictly defined (Stoodley 1999, 90; Härke 2011), and so this hint of deviancy should be treated with scepticism, on the basis of an identification from teeth alone.

Character and development

The greater part of the cemetery very probably remains unexplored, but the Tranmer House and North Field evidence provides some appreciation of the complexities of the larger site. The Area A graves together with the North Field finds (see *Chap. 6*) may suggest a spread of some 100m (north-south) by 130m (west-east), in all *c*. 13,000m² (Fig. 6.5). As argued above (see *Setting*), burial and cremation activities might have been initially focused within a large prehistoric enclosure (Fig. 6.5). Conversely, there is no evidence (*pace* Hills 2000) that the site, with Sutton Hoo, was one vast burial-ground extending over half a kilometre. Rather, the mixed status and rites of the Tranmer House burials (Fig. 8.1a–b) together with the North Field material suggests an origin as a 'folk' cemetery, a definition offered by Carver (1990, 19) to contrast with the socially-exclusive site of Sutton Hoo. Other 'folk' sites locally include Boss Hall and Hadleigh Road (both Ipswich), and Snape (West 1998, 52; Filmer-Sankey and Pestell 2001; Scull 2009).

Multiple factors may have acted on the development of the cemetery, including the total area available for burial and the association of graves in groups over time, perhaps as the result of kin relations (e.g. Evison 1987, 19–20, 142–45, fig. 98). The excavated burials in the northern half of Area A (Fig. 1.4), with their generally well-spaced distribution may suggest the south-east limit of burial. A similar 'sprawling' layout was observed locally at Snape, where the distance between graves increased away from the core area of earliest burial (Filmer-Sankey and Pestell 2001, 234). In this case the spatial character of the graves seems also to agree with their later dating (see *Chap. 7; Sect. V*), with the implication that the cemetery's primary focus was indeed originally to the west, as is hinted by the finds from North Field (see *Chap. 6*).

The three-phase model produced in *Chapter 7* (Fig. 7.7) suggests a complex process of expansion, but with no straightforward progression from west to east, from core (North Field) to periphery (Area A). Two burial clusters can be proposed, hereafter *Plots I* and *II* (Fig. 8.1b). The earliest burials of *Plot II* were focused on the Bronze Age barrow, graves 2, 3 and 23 (Figs 2.9, 7.7). In particular, the later cremations of the group with their uniform ring-ditches and animal offerings give a strong sense of contemporaneity (Figs 2.12, 8.1b), which has been confirmed by the scientific dating (see *Chap. 7; Sect. II*). Perhaps these small monuments were intended to imitate the small, ancient mound. For these more pretensious graves, location outside of the prehistoric enclosure-earthwork might have been as important as their association with the barrow (Figs 6.5, 8.1b). Contrastingly, however, the also significant cremation 8

took a different form (burial in a bronze bowl), and was set away from the *Plot II* cremations of the same phase (*AS Phase B*). The two latest interments (*AS Phase C*) were within *Plot II* as well, the grave-goods suggesting a male and female (inhumations 26 and 27). This model of polyfocal development is in keeping with other East Anglian burial-grounds (Penn and Brugmann 2007, 86–7; Scull 2009, 295–301). However, not all graves in proximity were necessarily intentionally associated, as the disturbance of cremation 11 by inhumation 32 within *Plot I* implies (see *Chap. 7; Sect. III*).

In *AS Phase B*, the mainly 'male' inhumation burials (i.e. weapon-burials 14, 20, 21, 24, 28 and 32) contrast with the predominance of females identified from cremated remains. This might suggest largely sex-specific funerary customs in the later life of the cemetery. However, an equal number of the cremations could not be sexed, and none of the 'female' identifications in the rite was certain (see *Chap. 5; Sect. II: Demographic data*). All the same, the higher investment in this phase indicated by the preponderance of weapon-burial and the rich animal offerings in the cremations (i.e. graves 4, 7, 8 and 13) seems less appropriate to Carver's 'folk' cemetery definition.

III. Cremation rite

The large cemeteries of Lackford (Suffolk) and Spong Hill (Norfolk) suggest that cremation was the majority rite in East Anglia in the 5th century (Lethbridge 1951; Hills 1977; Hills and Penn 1981; Hills *et al*. 1987; 1994; Hills and Lucy 2013). For Spong Hill, Hills and Lucy's study (2013) of the 2000-plus cremations argues for a date to *c*. 500 for the majority, with thereafter the cemetery used mainly by a smaller, probably local population practicing inhumation. At Lackford, the finds from the 500-plus cremations (only a part of the cemetery) suggest a date for most graves up to the end of East Anglian Phase FA2b (*c*. 530/50: Penn and Brugmann 2007). There are relatively few cremation burials in Suffolk and Norfolk that can be certainly dated to the 6th century's second half, since by then it seems inhumation had become the orthodoxy of the majority of the populace. The exceptions are mainly high-status burials, including, local to Tranmer House, the cremations at Sutton Hoo and Brightwell Heath, of the late 6th to early 7th centuries (Reid Moir 1921; Carver and Fern 2005, 289).

Most cremation burials yield few artefacts, often only heat-affected fragments, and Tranmer House is no exception, but this does not necessitate a 'poorer' rite (McKinley 2006). Evidence from across the regions of Anglo-Saxon settlement indicates that bodies were placed on pyres dressed (McKinley 1994a, 86–92; 2006, 83), though, in contrast to the inhumation rite, weaponry is rarely found with cremated remains (Williams 2005). Furthermore, the labour and fuel required to construct a pyre represents a considerable investment (McKinley 2006), and this would have been the greater still if large animal offerings were included (as at Tranmer House).

Two cremation groups have been suggested for the site. The cremated remains buried in ceramic urns (cremations 2, 3, 5, 9, 10 and 11) without ring-ditches fit with the multitude of 5th/early 6th-century cremation burials, though the cremation 5 pot suggests a late example. In contrast, the remainder (cremations 1, 4, 6, 7, 8 and 13, and 'cremation 12') stand out for their combination of rich animal offerings, ring-ditches, and one instance of a hanging bowl used as a bone container (Fig. 8.1b). Most of these used pots as containers also, though the unurned remains of cremations 6 and 7 might originally have been in wooden bowls or bags. It is argued these customs started later at the cemetery, in *AS Phase B* (see *Chap. 7; Sect. V*).

Preservation

The preservation of the cremated bone is discussed in *Chapter 5* (*Sect. II: Human remains from cremation burials*). All the graves had suffered some disturbance, variable by degree. Cremation 8 with its hanging bowl fortunately survived largely intact, though only just (Fig. 3.4). However, the absence of burials from four ring-ditches (*[342]*, *[665], [698]* and *[932]*) containing occasional residual sherds and burnt bone strongly implies the loss of other cremations. The 'spread' that was cremation 9 also suggests that very shallow graves could have been entirely lost, including any made within the small mound of the Bronze Age barrow, levelled at some time after the early-medieval period.

Backfills

Charred wood and plant remains were frequent inclusions in the cremation graves (see *Chap. 5; Sect. IV*). Additionally, in multiple cases fine-fraction charcoal was possibly present, where grave backfills were recorded as grey or black. Several different wood types, as well as acorn fragments, cereal grains and hazelnut shell have been confirmed (Table 5.6). Other pyre-debris included 'worn and chalky' cremated bone, artefact fragments, burnt stones and fuel-ash slag.

Animal offerings

Nine cremation burials included animal remains, with further fragments from associated ring-ditches and post-holes, and one inhumation burial (Table 5.2). This material has been analysed by Julie Bond (*Chap. 5*; *Sect. III*). In sum, four cremations (3, 5, 10 and 11) contained only small amounts of burnt animal bone (1–11g) that probably represent food offerings or meat cuts. In contrast, cremations 4, 6, 7, 8 and 13 had higher quantities from 'whole' large animals, especially cattle and horse together (cremations 4, 7, 8 and 13). These were sacrifices — ritual killings — probably brought 'on the hoof' to the pyre side, butchered as part of the funeral and then burnt. Cremations 7 and 8 had the 'richest' assemblages, including a horse, cow (or steer), sheep and perhaps a small dog each (i.e. 'small/medium mammal'), as well as a bird and pig, respectively. It is possible all the cremations with horse and cattle were female memorials (Table 8.1), with the graves' ring-ditches and certain effects (i.e. cremation 8) strengthening the clear impression of status indicated by the offerings. Furthermore, it seems likely these graves with rich assemblages post-date the mid 6th century (see *Chap. 7*).

The custom of animal cremation is well paralleled in early 'Anglian' burial-grounds in eastern and north-eastern England. At the cemeteries of Sancton I, East Yorks, and Spong Hill, Norfolk, faunal remains were present in *c*. 40% of the cremation graves (McKinley 1994a; Bond 1993; 1994b; 1996). At both sites, horse was the most frequent offering (*c*. 20%), with whole animals suggested, as at

Tranmer House (Bond 1993; McKinley and Bond 1993; McKinley 1994a, 92–100, table 2; Bond 1994b, 123–26; Bond and Worley 2006, 92–4). However, the combination of horse and cattle is rare. At Spong Hill it occurred in just 2% of cases (thirty-eight burials). Over half of these included sheep as well, like at Tranmer House, and in two instances bird offerings (cf. cremation 7), but none included pig, like cremation 8. The horse offerings were associated predominantly with adults (male and female), with high social status indicated in many cases by associated pyre-goods of glass and bronze vessels and gaming counters (Ravn 1999, 46, 51; Fern 2007b, 99). But there is a considerable chronological gap between these graves and those from Tranmer House, with a date in the 5th century likely for the vast majority (see above).

The practice seems to have been rarer in southern England. For example, at St Mary's (Southampton), Hants, 28% of graves had animal remains and at Ringlemere, Kent, the figure is 11% (McKinley 2005; 2009)[2]. Also, the small quantities of animal bone at these sites probably indicate meat joints, not the sacrifice of whole animals, and furthermore horse offerings are not recorded. Neither does the rite appear to have been common in Suffolk. At Snape, eleven cremation burials (34%) had remains, but again most suggest cuts of meat (Filmer-Sankey and Pestell 2001, 258), and only a small number have been recorded at Eriswell (RAF Lakenheath; Caruth and Anderson 2005; J. Bond pers. comm.). However, a few locally can be confidently dated to the second half of the 6th century, contemporary with the animal-rich cremations of *AS Phase B* at Tranmer House (cremations 4, 7, 8 and 13, and possibly 6). A parallel for cremation 8 is that from Brightwell Heath (Reid Moir 1921), 6km south-west of Tranmer House/Sutton Hoo (Fig. 1.1b). This comprised a cremation burial inserted into a prehistoric barrow. The cremation was of two adults, one possibly a female, and maybe also an infant and foetus, together with a cow and dog, the bone placed in a metal cauldron with grave-goods including glass beads and a comb (Reid Moir 1921; Davidson and Webster 1967, 12; West 1998, 12–3, figs 11.4–11.8). Another came from Little Wilbraham, Cambs (just outside Suffolk), that also comprised cremated remains in a cauldron, with 'across the mouth of the vessel' the unburnt leg-bones of a horse and ox (Neville 1852, 28.X(1), 23, pls 16, 23; Vierck 1970/71, 192–93, 218–19). It included a comb of late 6th- to 7th-century date. Above all, though, the Tranmer House examples are important parallels for the cremations at Sutton Hoo. Cremated horse remains were found in the graves under mounds 3, 4, 7 and possibly 5, but only the mound 7 cremation burial definitely combined horse with cattle, and had sheep/goat and pig also (Gejvall 1975; Bond 2005). Notably, the richest of the animal assemblages at Tranmer House are at least equivalent to those at Sutton Hoo, and indeed the frequency of combined horse and cattle offerings is greater in this case (see Table 9.1). The ultimate origin of the custom, however, seemingly lacking in 6th-century Suffolk, must be looked for elsewhere.

Cremation with animals had a long tradition in early-medieval Scandinavia. This is especially true in Sweden, where graves containing remains and covered by small mounds, not unlike those at Tranmer House, are very common in 'farmstead' cemeteries of the period, such as Vårby-Vårberg and Lunda, in the Mälaren valley (e.g. Ferenius 1971; Iregren 1972, tables 34–6; Petré 1984).[3] From the start of the Vendel period (*c*. 550–800) in Sweden, the custom increased in popularity, along with the variety of animals offered (Iregren 1972, 122; Petré 1984, 217, fig. 17; Sigvallius 1994, 61, 133–34). Studies of cremation cemeteries in the Mälaren and in North Spånga parish, Sweden, have shown that several species occur in the majority of cremations with animals (Iregren 1972; Sigvallius 1994, table 18). Dogs were the most common sacrifice, with the proportion of graves containing horse ranging from 10–50% between sites (Iregren 1972, 122, fig. 9; Sigvallius 1994, 67, 70, 106–8, table 2:3; see also Petré 1984, 217). Cattle remains were not common (<15%), as in England, and when present were usually associated with horse offerings (Iregren 1972, fig. 9, table 36; Sigvallius 1994, 71, 97, table 2:3, fig. 35). The richest animal assemblages have been found in elite barrow burials (Sten and Vretemark 1988), such as the 'royal' east and west mounds at Gamla Uppsala, of *c.* 550–600 and *c.* 575–625, respectively (Duczko 1996; Ljungkvist 2008). The west mound had dog, horse, cattle, sheep, chicken and goshawk (Sten and Vretemark 1988, table 3). In Denmark, a cemetery at Lindholm Høje (Jutland) has demonstrated similar findings (Ramskou 1976, 135–36; Høilund Nielsen 2009, 89–90).

The possible exclusively female association at Tranmer House with the rare act of sacrificing both a whole cow and horse may be particularly significant. The horse-burial custom in the inhumation rite in England and on the Continent was male dominated, as in the case of mound 17, Sutton Hoo (Müller-Wille 1970/1, 135–46; Carver and Fern 2005, 298–301; Fern 2007b). By contrast, both in England and Scandinavia, in the cremation rite horses could be attributed to both sexes (Petré 1984, 216; Sigvallius 1994, 83, table 2:9; McKinley 1994a, 99). Nonetheless, in Scandinavia the combined offering of both animals is mainly associated with the graves of male elites (Sten and Vretemark 1988, 156).

In sum, the cremations with rich animal offerings of *AS Phase B* stand out in 6th-century Suffolk and England, except by comparison with those of a slightly later date at Sutton Hoo and a few other local, contemporary graves. They bear close comparison, however, to the cremation customs of early Vendel-period Scandinavia. From the mid 6th century in Sweden (coincident with the start of *AS Phase B* at the site), animal sacrifice was emphatically employed at the funerals of elites, but was widespread too at a popular level. Furthermore, the combination of animals seen at Tranmer House indicates status. The horse was a valuable and iconic animal in the period (Davidson 1964, 60, 97; Fern 2010). Cattle husbandry also was important. In particular, the animal may have played an important role in the developing wealth of estate centres around this time, as evidenced locally at Bloodmoor Hill (Lucy *et al.* 2009, 429–30). That such assets were disposed of in more-or-less consecutive funerals at the cemetery is striking. They could, therefore, suggest a faction or factions (i.e. cremation 8) determined to assert their status when occasion demanded, a status probably linked with the control of a local livestock surplus and possibly stables.

Metal-vessel burial

The use of a metal bowl as a cinerary container in cremation 8 (Fig. 3.4) has been identified as a mainly 'Anglian'

custom in England, of which some twenty examples are known, mostly from East Anglia, though the specific use of a hanging bowl in this case is rare (Vierck 1972; Dickinson and Speake 1992, 119–20, table 1; Filmer-Sankey and Pestell 2001, 250, fig. 149; Carver and Fern 2005, 285–87). In multiple instances, the vessel was also covered or wrapped with cloth after being filled with bone (e.g. Crowfoot 1967; Dickinson and Speake 1992, 119–20, table 1). The majority indicate a late 6th- or early 7th-century date, including the local Brightwell Heath and Little Wilbraham burials, detailed above, in which 'Gotland' cauldrons were used to hold the cremations. Five instances have been suggested at Sutton Hoo, in mounds 4, 5, 6, 7 and 18, albeit from fragmentary evidence in each case (Bruce-Mitford 1975, 111–12, 124–25; Carver 2005, 69–104; Carver and Fern 2005, 285–87).[4] Also, at nearby Snape a flat-bottomed bowl was used in grave 68 (Filmer-Sankey and Pestell 2001, 157, fig. 115), a vessel form that on the Continent is dated to the 6th century (Müssemeier *et al*. 2003, Type BrgF, Phases 4–5). Importantly, cremation 8 is now a further rare example of early date, and is notable too within the corpus as the burial of a probable female (see *Chap. 5; Sect. II: Human remains from cremation burials*), an attribute it shares again with the cremation from Snape and that from Brightwell Heath (see Davidson and Webster 1967, 12). In contrast, male identities have been suggested for most of the Sutton Hoo cremations (Carver and Fern 2005, 288–89).

Only two other cases of cremated remains in hanging bowls are known for certain, both from the cemetery of Loveden Hill, Lincs (Fennel 1957, 171–72; 1964, 122–24, 127, 133, 136–37, 279; unpublished; Wells unpublished). They share similarities with cremation 8, but both contained the bone of adult males. 'Bowl 1' was 'brimful' of bone, that included cattle, bird and possibly dog remains, as well as a piece of unburnt double-sided comb, shards from a glass palm cup and a squat jar, and drinking-vessel mounts; and the burial probably also contained a pot like cremation 8. In addition, other finds from the vicinity might have been associated originally, though the record is problematic (Dickinson 1977; Dickinson and Speake 1992, 120, table 1): a sword, iron bucket bindings, copper-alloy bucket fittings, parts from a 'Coptic' bronze pan, another bronze bowl, a horse-bit and spearhead. It could, therefore, represent a very high-status grave of the early to mid 7th century. 'Bowl 2' also possibly had dog remains, together with an unburnt strike-a-light and belt-plate. The hanging bowl from this grave is of Bruce-Mitford's Group A (Bruce-Mitford with Raven 2005, 202–7), which may indicate a burial broadly contemporary with cremation 8. In addition, there is the possibility of a further burial of similar type from Baginton, Warks, however, it is not definite in this case that the hanging bowl held a cremation (Brenan 1991, 57–8, 67; Geake 1999, 3).

The custom of using a metal vessel as a cinerary container may have originated in Scandinavia (Vierck 1972). From the late Roman period to the 6th century, copper-alloy 'Vestland' cauldrons (with triangular lugs and a flared, carinated base) were used in this way, mainly in western Norway, though also in Sweden (Mendelpad) and occasionally Denmark (Vierck 1972, 31–2; Oestigaard 1999, 357; Ljungkvist 2009, 39–40). The 'Gotland' cauldron type (with triangular lugs and a globular body) is a later form, as found at Brightwell Heath and Little Wilbraham. Numerous examples have been found in Sweden (i.e. Gotland), in graves dated from the later 6th century (Ljungkvist 2009, 40). Despite their nomenclature, it is believed both cauldron forms were imported to Scandinavia and England from the near Continent (*ibid*.). Likewise, hanging bowls are non-Anglo-Saxon in origin, and as exotic items it is most likely they were owned by those at the top of society (see *Chap. 4; Sect. II: Hanging bowl*; Brenan 1991; Geake 1999). Despite the wear common to these bowls, and the repaired, adapted or damaged condition of many, they may have remained treasured items at burial, their significance perhaps increased with each legacy, from generation to generation (Oestigaard 1999, 349–50).

Post structures and pyres

No well-preserved *in situ* pyre remains have been found for early Anglo-Saxon England, as they have on the Continent and in Scandinavia (e.g. Cosack 1982; Sjösvärd *et al*. 1983). However, residual spreads of cremated material and structural evidence associated with the rite can be suggestive. For example, at the Suffolk cemetery of Snape a discrete scatter of pottery, calcined bone and flint, charcoal and melted fragments was recorded (Filmer-Sankey and Pestell 2001, 252–55, figs 6, 150). Likewise, the burnt brooches and metal waste from North Field could represent dispersed pyre debris, though ploughed-out cremation graves are an alternative (see *Chap. 6; Sect. IV*).

At the Tranmer House cemetery, most of the cremation burials, surrounding ring-ditches and other features included some pyre debris, comprising 'worn and chalky' bone, burnt object fragments, fuel-ash slag, potsherds and charcoal. Also, in some of these, greyish and blackened backfills were recorded that suggest the inclusion of fine-fraction charcoal, whilst red or reddish soils could imply exposure to heat. Cumulatively, this evidence may indicate that the site of pyre and burial was the same in multiple cases, and that where ring-ditches were present these demarcated both ritual processes. No intact scorched surfaces were recognised at the time of excavation. However, red sand recorded as overlying the natural subsoil around cremation 13 might point to one, and further possible evidence came from the backfill of inhumation 32 (see *Chap. 7; Sect. III*). Furthermore, for ring-ditch *[606]* the case for a site of cremation is strengthened by the results of a micromorphological study (see *Chap. 5; Sect. V*).

Post-holes were associated with three cremation burials. A single example occurred to one side of cremation 5, and on the grave's opposite side was a small patch of burnt surface (Fig. 2.14). Another was identified within the gully of ring-ditch *[932]*. However, most convincing as the remains of a pyre structure were the four small pits that surrounded cremation 8, the hanging-bowl burial, which may represent holes for uprights, for a structure roughly 2m by 3.5m (Figs 2.6, 3.4, 8.3). The pits contained charcoal-rich soils, as well as bone and object fragments linking them with the main burial (See *Chap. 3; Sect. II: Cremation 8*). By contrast, the central grave pit had no charred material (or very little). This perhaps indicates the post-hole pits were backfilled (with any charred stumps removed) and the site swept before the burial was made, though this final act might not have immediately followed the actual cremation, as some bone

from the post-holes was 'worn and chalky'. Figure 8.2a illustrates how ground-surface truncation at the site could explain the lack of survival of fired surfaces (the grave edge in cremation 8 was reduced to the level of the bronze bowl: Fig. 3.4).

Anglo-Saxon parallels for the cremation 8 structure have come mainly from 'Saxon' southern England. Most examples are square or rectangular and with four posts, though not all had evidence for graves. Over thirty were recorded at Apple Down, W. Sussex (Down and Welch 1990, 25–33). None of these demonstrated burning and only limited pyre debris was found, however, so an interpretation as small 'houses of the dead' was favoured (*ibid*., 32). But horizontal truncation of the archaeology had occurred across this site also, sufficient to remove burials and presumably fired surfaces (cf. Fig. 8.2). Further examples (Fig. 8.3), limited to one or two per cemetery, have been found at Alton, Hants (Evison 1988, 35–6, table 19), Berinsfield, Oxon (Boyle *et al*. 1995, 62, 123–24), Collingbourne Ducis, Wilts (Stoodley and

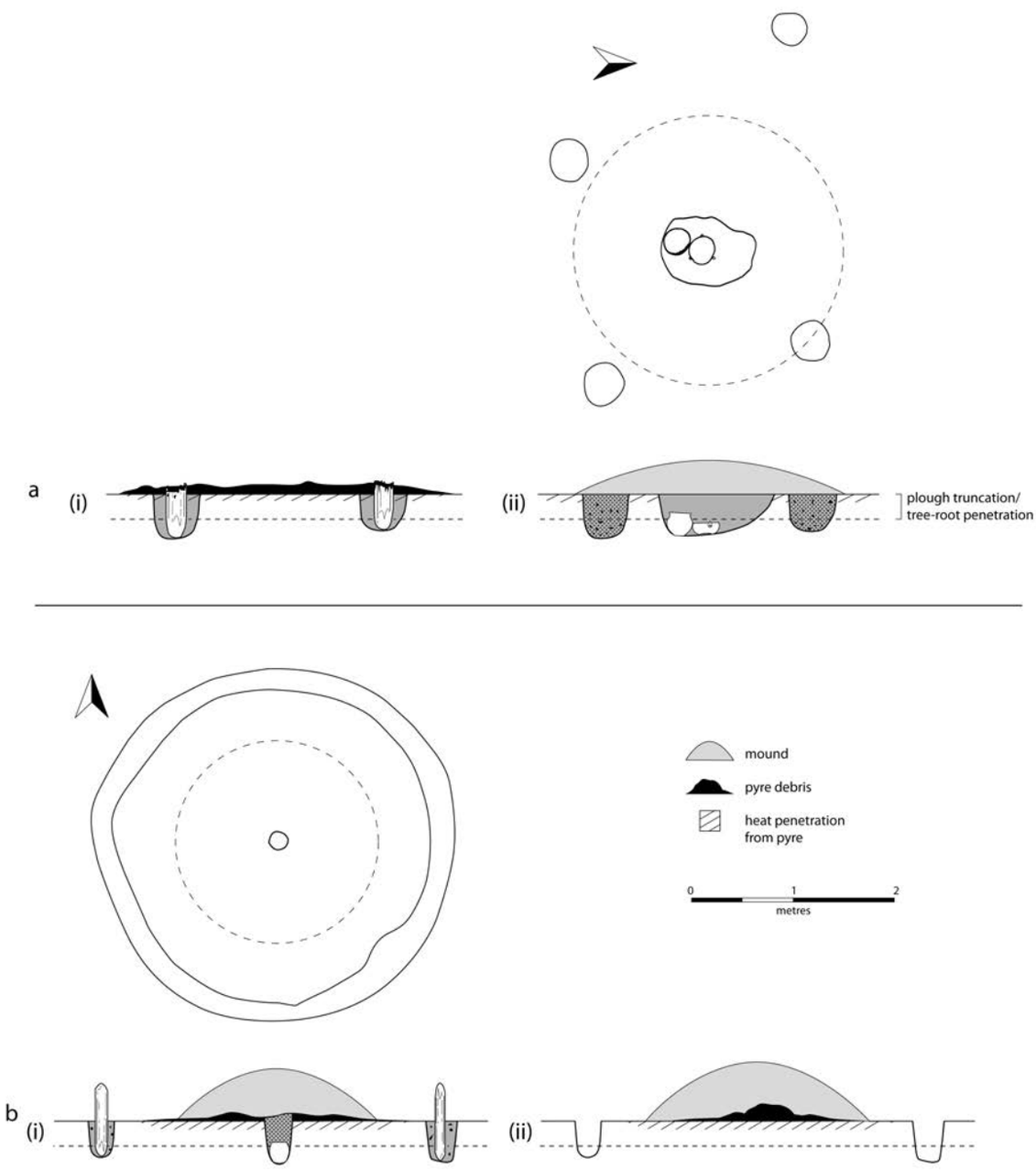

Figure 8.2 Schematic cross-sections, conjecturing the original form of some of the cremation burials at Tranmer House, prior to post-depositional processes (i.e. ploughing) (scale 1/67). By CF

a) cremation 8: i) the pyre site with post remains *in situ*; ii) the debris might have been tidied prior to burial with some used to infill the post-holes left after the removal of the burnt timber uprights. The grave was then perhaps dug through the fired surface, and a mound possibly added.
b) cremations inside ring-ditches: i) a central urned burial and surrounding low palisade; ii) in some cases the *in situ* pyre remains might have been interred in a mound at surface level. Ploughing would leave few traces of such a rite.

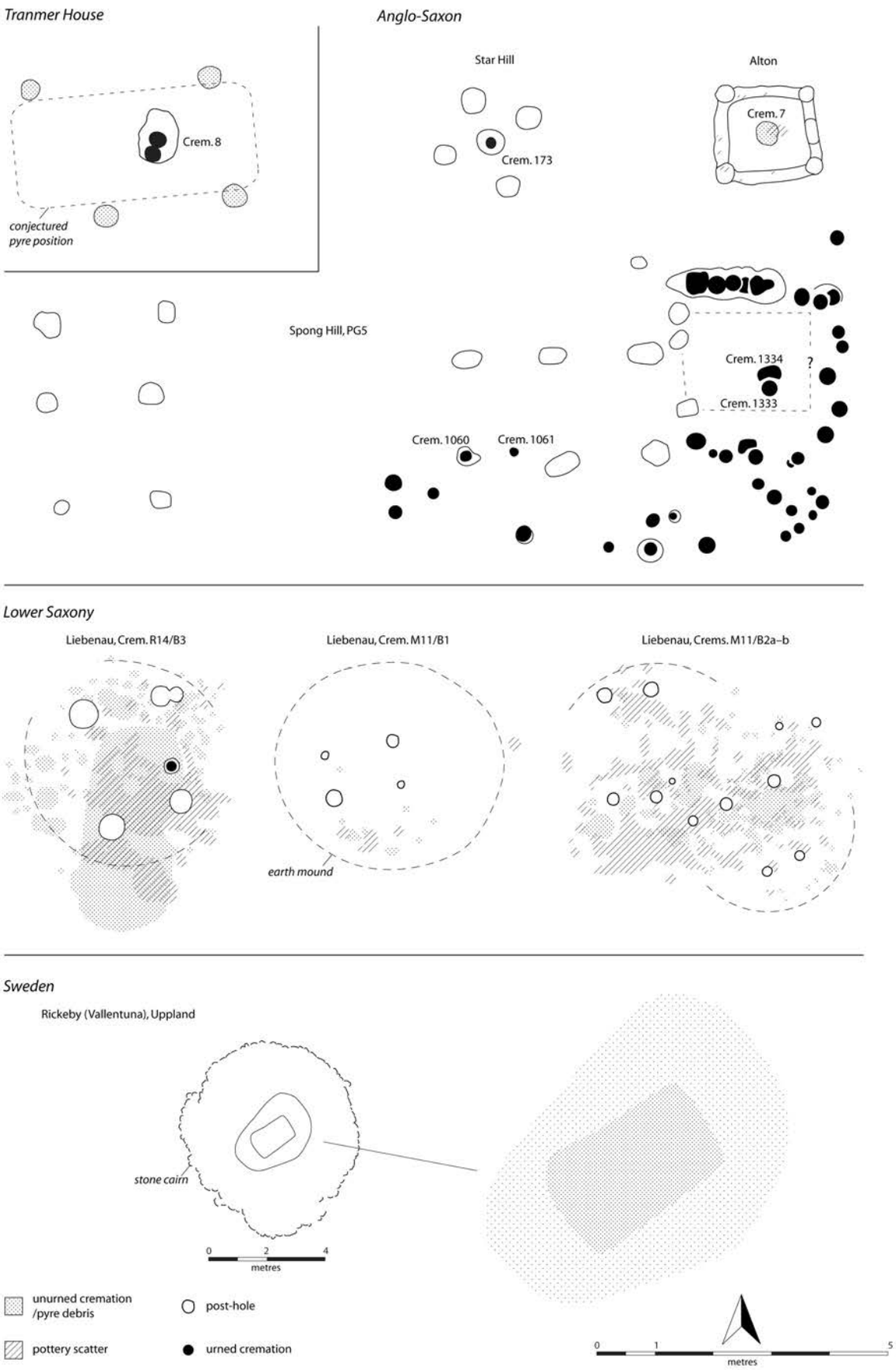

Figure 8.3 Examples of post structures and cremations with pyre evidence from Anglo-Saxon England, Lower Saxony and Sweden, of the 5th–7th centuries (scales 1/100 and 1/200). By CF (redrawn after Sjösvärd *et al*. 1983; Häßler 1985; 1990; Evison 1988; Rickett 1995)

Schuster 2008), Lechlade, Glos (Boyle *et al*. 1998, 35–8), Spong Hill, Norfolk (Rickett 1995, 47, figs 60, 75) and Star Hill, Kent (Wilkinson 2008, 18). The Alton and Lechlade structures have been dated to the mid 5th to 6th century, but at Apple Down some may be as late as the 7th century. At Alton also no *in situ* burning was recorded with the structure that surrounded a grave (cremation 7), though dispersed burnt objects and sherds could have been pyre debris, and the grave had a black and greasy fill. But again an interpretation as an above-ground 'tomb' was proposed (Evison 1988, 37, 85, fig. 49). The only Anglo-Saxon burial for which an interpretation of *in situ* 'total' cremation has previously been argued is Asthall barrow, Oxon, of the 7th century (Dickinson and Speake 1992, 118). The large mound covered a cremation spread (human and horse), post-holes and one charred post, and included assorted 'princely' grave-good fragments.

By contrast, on the Continent and in Scandinavia there is unequivocal evidence for the practice of *in situ* cremation burial, and for pyres with and without post-holes (Fig. 8.3). Cremations associated with post-holes are characteristic above all of Saxon cemeteries. Over 300 were recorded at Liebenau (Kr. Nienburg), Germany, dating from the late Roman period to the 9th century (Cosack 1982; Häßler 1983; 1985; 1990; 1999, 31–3; Brieske and Schlicksbier 2005). The cremation places (*Scheiterhaufenplätze*) had been preserved by low mounds, covering mixed spreads of burnt bone, charcoal, fired grave-goods and smashed pottery, post-holes, and in some instances scorched soil and charred posts. Sometimes some of the cremated remains had been collected and buried in an urn. Similar post structures have been found in cemeteries in Westphalia, for example at Beckum II, Dorsten-Lembeck (Kr. Recklinghausen) and Lünen-Wethmar (Kr. Unna) (Winkelmann 1962, Abb. 2; Schubert 1999, 162–65, Abb. 12; Hernö 2007, 13–7), and their distribution extends to cemeteries in Holland (Van Es 1964, 225; 1967, pl. XI).

Post structures associated with cremations are known from Scandinavia, but are less common. In Jutland, Denmark, arrangements of eight to twelve post-holes were found at Østergård that date to the 4th century (Sørenson 2011), and a small number from Okholm include a four-post structure with a central urned cremation of the 6th century (Høilund Nielsen 1998b). On the island of Funen several sites have examples, some with extensive charcoal layers and others with urned burials (Sørenson 2011, 256). A rare example from Sweden was found in the 'royal' east mound, at Gamla Uppsala. Of later 6th-century date, it comprised an *in situ* cremation with eight timber uprights set into a clay base that had scorched to brick (Lindqvist 1936, 146–47). More widespread in Sweden are examples of pyre remains without post-holes, indicating pyre construction without the use of timber uprights. One from Rickeby (Vallentuna), Uppland, dated to *c.* 600, suggested a rectangular structure of similar size (1.8m by 3m) to that possible for cremation 8 (Fig. 8.3). The cremation layer (0.3m thick) preserved, roughly in their original positions, the remains of a 'warrior' surrounded by a horse, four dogs, numerous birds of prey and cuts of meat (Sjösvärd *et al*. 1983).

The pyre sizes suggested for cremation 8 and Rickeby are larger than the pyres indicated by most Anglo-Saxon and continental post structures (which are proportionate with a human body laid flat). This difference is almost certainly due to the rich animal offerings evidenced in both cases (see above, *Animal offerings*), since considerably more fuel would have been necessary for a successful cremation, as well as a larger pyre platform, if the animals were to be grouped around the deceased, as was the case at Rickeby. This explanation could fit, too, the larger size of two six-post structures from Spong Hill (Fig. 8.3: 'Post-Group [PG] 5'), a site well-known for its animal cremations (Rickett 1995, 47, figs 60, 75). Furthermore, the cremation 8 pyre suggests a broadly west-east (or east-west) alignment (Fig. 8.3), possibly indicating its conformity with the prevailing orientation of the cemetery's inhumation burials. An agreement in orientation between pyres and burials was also a feature of the Saxon cemetery at Liebenau (Cosack 1982, 10–14).

The manifold ways that cremated remains were treated in Scandinavia may be informative for the interpretation of the Tranmer House burials. As at Rickeby, whole pyre remnants could simply be covered by a cairn with no sorting or removal of remains. A variation on this are the 'cremation patches' recorded at Lindholm Høje, in Jutland, where it has been suggested the pyre debris was swept (or shovelled) together, before being covered by a cairn (Høilund Nielsen 2009, 84–8). Urned and unurned burials occur too. Sometimes the graves were cut through the pyre surface and sometimes they were dug beside it, or the urned remains could be interred within the cairn at surface level, and occasionally food vessels were added (Gräslund 1981, 50–62; Petré 1984, 215; Høilund Nielsen 2009, 90–3). Some of these customs are similar to those seen with the *Scheiterhaufenplätze* ('pyre-burials') of Saxon regions.

Therefore, the cremation 8 remains are argued to represent a burial on the pyre site, as was practiced across north-west Europe. However, as Scandinavian cremation evidence shows (e.g. Rickeby), timber uprights were not a necessity for pyre construction. Indeed, pyres without posts were possibly the dominant form at Tranmer House. Other aspects of cremation technology perhaps transferred between regions, too. Similar wood species were associated with the rite at both Tranmer House and Liebenau, maybe indicating types traditionally regarded as best for fuel or most ritually appropriate (see *Chap. 5; Sect. IV: Discussion of the plant and wood remains*). It might be suggested, furthermore, that cremation 8 was originally marked by a small mound (Fig. 8.2aii), in line with continental and Scandinavian practice. Lastly, it is notable how these conclusions contrast with the apparent absence of pyre evidence at Sutton Hoo.

Ring-ditches

Ring-ditches surrounded four cremation burials (1, 4, 6 and 13) and 'cremation' 12. In addition, four others (*[342]*, *[665]*, *[698]* and *[932]*) were without graves (Figs 2.12, 2.14, 3.1, 3.8–3.9, 8.4). In two cases (*[342]* and *[665]*) central burials could have been destroyed by modern trench features. Also, ring-ditch *[698]* had within it a spread of pottery from a single early Anglo-Saxon vessel, but no cremated bone was associated. Nevertheless, it could be all that was left of a grave. Most of the gullies were shallow and some survived only partially, with a diameter range of 1.5–4.5m. They varied in form, too, from irregular ovoid *[932]*, to annular *[*e.g. *597]* and possibly penannular (*[342]* and *[437]*), though several were more uniform (Fig. 2.12).

It was reported at the cemetery's discovery that the larger ring-ditches might have held timber palisading (Fig. 8.2bi; Topham-Smith 2000; Hills 2000, 742). Most convincing for this interpretation are the narrow 'slot' ring-ditches, *[342]* and *[437]*, which originally were perhaps *c*. 0.40m deep or more, allowing for a depth of topsoil. Also, the excavator of ring-ditch *[597]* thought it 'possibly' had been deliberately backfilled, though no post or plank stains were recorded in any instance. The shallow post-hole-like features that punctuated the rings of *[437]* and *[344]* are equally uncertain, and were probably the result of truncation of the features themselves (Figs 2.12, 2.14). What is certain is that the ring-ditches were not quarries for large mounds, like at Sutton Hoo, where mound 2 is estimated to have been *c*. 22m wide (Carver 2005, 171). This suggests their main purpose was to define a ritual space, possibly the site of the original pyre (see above, *Post structures and pyres*), and perhaps each had a 'barrowlet' originally. Subsequent site activities, of course, would have removed these without trace (Fig. 8.2bii).

Figure 8.4 shows a *comparanda* of monuments, both earth and cairn built, from contemporary sites in north-west Europe. Only a small number of cremation graves with ring-ditches are known for early Anglo-Saxon England. Most are from southern 'Saxon' regions, like the four-post structures discussed above (see *Post structures and pyres*). Only one site had a comparable number, that of Apple Down, W. Sussex (Down and Welch 1990). At this cemetery, three ring-ditches had enclosed unurned cremations buried in charcoal-rich soils, and a fourth had marked the ploughed-out remains of two graves, though the majority were without burials (*ibid*., 25, figs 2.13, 2.61, pl. 26: ring-ditches F, H, Q and S). Other examples include three from Portway, Hants: one enclosed an urned burial, one was unurned and another was without a grave (Cook and Dacre 1985, 59, fig. 15). The ring-ditches at these sites were *c*. 1.5–5m diameter, close to the size of the Tranmer House examples. In addition, locally several ring-ditches at Snape were found without central burials (Filmer-Sankey and Pestell 2001, 236–38). The repeat occurrence of examples without evidence of graves is notable, suggesting, as is argued here, the loss of shallow or surface burials to later ground disturbance (Fig. 8.2bii). However, none of the cremations with ring-ditches at these sites was associated with the custom of animal cremation, as at Tranmer House.

A brief comparison with the use of ring-ditches in the inhumation rite in the region suggests that they were no more common in the 6th century. Some marked high-status burials, including the two 'horse-and-warrior' graves found in separate cemeteries at Eriswell, Suffolk (RAF Lakenheath: HER: ERL046/104; Fern 2007b, fig. 2). However, at Morning Thorpe, Norfolk, two ring-ditches marked unremarkable graves (Green *et al*. 1987, 46, 97, fig. 6: graves 38, 227), and the same is true of several examples at Snape (Filmer-Sankey and Pestell 2001, 61–3, 67–8, 81, 183–90: graves 20, 25, 34). In addition, inhumation 14 at Tranmer House had a surrounding gully, the only example with the rite.

On the Continent, cremation burials inside ring-ditches are well attested in Saxon cemeteries, and as in England often occur at the same sites as four-post structures (Winkelmann 1962; Assendorp 1987; Hornig 1993, 182–83; e.g. Down and Welch 1990, fig. 2.13). At Lüneburg-Oedeme (Ldkr. Lüneburg), north Germany, penannular ditches surrounded cremation burials of later Roman and Migration-period date (Fig. 8.4; Mohnike 2008, 141–42), and at Rullstorf (in the same district) examples were of the 8th/9th centuries (Hornig 1993, 182–83).

In Scandinavia, as previously noted, cremation graves were typically marked by small mounds (of circular, triangular, oval or boat-shaped form), though most were cairn-built rather than of earth (Gräslund 1981, 64–71; Muller-Wille 1993). In Sweden especially they are abundant, as at the cemeteries of Birka (Björkö; Gräslund 1981) and Lunda (Lovö; Petré 1984). Notably, certain examples with outer 'edge chains' appear similar in conception to the ring-ditches (with barrowlets) at Tranmer House, the differences in their material formation notwithstanding (Fig. 8.4; Petré Type 4; 1984, 215).

In sum, the custom of marking cremation burials with small ring-ditches and/or mounds is evidenced in southern England, in Scandinavia and on the Saxon Continent. However, the associated animal-cremation rite at Tranmer House suggests, in this case, that the principal influence was perhaps Nordic (see above, *Animal offerings*). It is possible the cemetery's cremation burials with ring-ditches were located on the pyre sites. In particular, the charcoal-rich and reddish backfills of cremations 4 and 13 may hint at graves inserted through burnt surfaces (Fig. 8.2bi). Perhaps any remaining, unburied bone and other fragments were then swept together in each case and enveloped by a barrowlet, out of which small quantities could have weathered, to become trapped in the ring-ditches. Any above-ground remains, of course, would not otherwise have survived (Fig. 8.2bii). If 'cremation' 12 was without cremated bone, it may represent a food offering, as seen in Scandinavian custom also (Gräslund 1981, 53); the pot was the only example with a sooted exterior, showing it had been used for cooking (see *Chap 3; Sect II; 'Cremation 12'*). Nevertheless, the bone and the phosphate-enriched, burnt soil from ring-ditch *[606]* that had surrounded the 'burial' is slight yet compelling support for a cremation site (see *Chap. 5; Sect. V*). Lastly, the Tranmer House ring-ditches vis-à-vis the mounds at Sutton Hoo now appear to exemplify Shephard's theory (1979, 47–9, figs 1–2), that clusters of small monuments in 6th-century 'folk' cemeteries preceded larger barrows marking elite burials in the 7th century.

IV. Inhumation rite

Inhumation became the predominant rite in East Anglia in the 6th century (see above, *Sect. III: Cremation rite*). Tranmer House in particular demonstrates a prevalence of weapon-burials amongst its small grave sample, as well as possibly a 'cunning woman' from the remains in inhumation 30 (after Meaney 1981, 249–62; Dickinson 1993; cf. Geake 2003, 262–67).

Preservation

Although almost no bone survived in the graves (see *Chap 5; Sect II: Human remains*), the burials themselves were largely intact. Only inhumations 15 and 25 had been substantially truncated, by a pit and building, respectively. However, the unassociated site finds of the spearhead ferrule (no. 1) and sword fragment (no. 2) from Area A

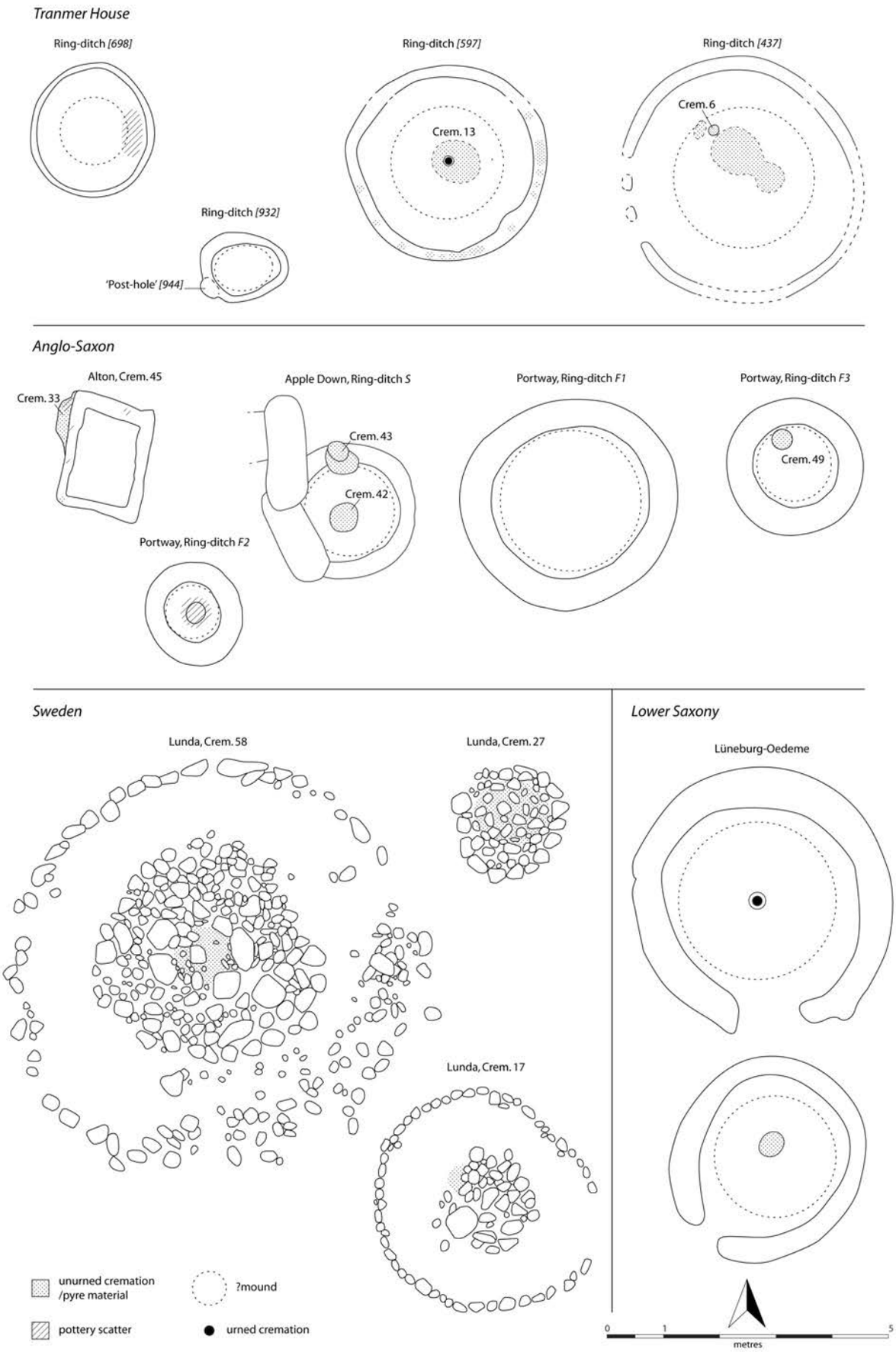

Figure 8.4 The ring-ditches of Tranmer House compared with examples with cremation graves from Anglo-Saxon England and Lower Saxony, and cairn monuments of similar form from Sweden, of the 5th–7th centuries (scale 1/100). By CF (redrawn after Cook and Dacre 1985; Evison 1988; Down and Welch 1990; Petré 1984; Mohnike 2008)

could indicate the loss of some burials to later disturbance (see *Chap. 3; Sect. IV*).

In place of skeletal remains, body stains or 'sand bodies' were recorded in all cases, together with the stains of possible linings, coffins and similar. In addition, there was quite extensive textile and other organic preservation, including clothing remains, found mineral-preserved from contact with metalwork (see *Chap. 4; Sects. III–IV*, and below, *Sect. V*).

Backfills

The grave section recorded for inhumation 14 allows the following interpretation of the complex fill sequence (Fig. 3.10): prior to the burial, the gap between the constructed wooden lining *(511)* and the grave edge was backfilled with natural sand *(523)* excavated from the grave pit; the fill *(574)* inside the lining suggests sand washed into the structure, with stain *(512)* being the collapsed lid; finally, the slump of dark brown soil *(493)* in the upper part of the cut, resulting from this structural decay, most likely represents the settled upper backfill *(503)*, perhaps incorporating material that had originally formed a mound above ground.

A difference between fills inside and outside of burial-containers/linings was observed in three further cases (inhumations 18, 19 and 20).

Burnt and cremated material

In cemeteries that practiced cremation, remnant pyre debris is sometimes found in the grave backfills of inhumation burials, as was the case at nearby Snape (Filmer-Sankey and Pestell 2001, 242–46). This can include burnt stones and soil, bone, charcoal, and heat-affected object fragments. Whilst 'mystical and religious' agency may explain certain instances (*ibid.*), accidental inclusion seems plausible for most, including as the result of disturbance by later grave digging (i.e. inhumation 32).

The backfills of four graves (inhumations 18, 29, 30 and 32) contained small quantities of cremated bone and/or metalwork. Inhumations 18 and 30 produced single fragments of burnt animal (cattle/horse) and human bone, respectively. The burnt objects (Fig. 3.38, nos 11, 16iii) from the latter grave are probably also pyre-derived. However, they were part of a scrap collection, separate from the cremated bone, so their deliberate inclusion does seem likely. Lastly, it has been suggested that the burnt soil (with urn sherds) from inhumation 32 very possibly came from a pyre surface close to cremation 11 (see *Chap. 7; Sect. III*).

Inhumations 19 and 27 contained charred wood not associated with actual cremation evidence. In the latter a piece of oak (*Quercus* sp.) was found between the 'legs' of the body stain (Fig. 3.30). The inclusion of such material has again been interpreted as possibly ritual (Filmer-Sankey and Pestell 2001, 243–44). The charred spread in inhumation 19 is discussed below (see *Grave structures*).

Prehistoric worked flint and pottery

Thirty-one worked flints, a quarter of the site assemblage, came from seven burials. Four (inhumations 14, 15, 16 and 18) had over three each, and inhumation 14 contained eleven (Table 2.4). In this last grave, the flints all came from the upper backfill, context *(493)*. By contrast, those from inhumation 18, including a scraper, were from the sand fill within the grave lining. However, none was recorded as representing a deliberate inclusion, i.e. as a grave-good. Likewise, the prehistoric pottery from six graves and two ring-ditches was most likely accidentally incorporated (Table 2.3).

Grave form and size

The graves were non-uniform in shape and size (Fig. 8.5). Most were sub-rectangular in outline, a few were rectangular (inhumations 17, 18 and 32), and two were irregular (inhumations 14 and 27). In particular, inhumations 18 and 32 stand out for their angular outlines, which may suggest some association between these close-by burials (Figs 3.1, 8.5). Also, the angling of the sides and the depths varied.

For the period, grave size has been shown to broadly correlate with age and sex (Hirst 1985, 30; Stoodley 1999, 67). This was demonstrable where the grave pit accommodated a body laid supine, although smaller graves could be used for bodies buried with the legs flexed or in a crouched position (e.g. inhumations 26 and 28), and furthermore grave size could be exaggerated to express status (Hirst 1985, 30).

The East Anglian study calculated the 'average length' of adult-sized graves by gender for four cemeteries (Penn and Brugmann 2007, 76–7, table 6.1). These varied considerably between the sites, but 'male' graves (indicated by grave-goods) were consistently larger. The Tranmer House results show general agreement with these findings. Graves ranged from 1.56–2.69m in length and 0.55–1.75m in width (Fig. 8.5), not including the truncated *c.* 1.00m length of the smallest (inhumation 15). Based on gender (i.e. grave-goods) around half of the 'male' graves were 1.97–2.18m in length. Of the three that exceeded this, at 2.35–2.50m, two contained swords (inhumations 21 and 27) and one was marked by a ring-ditch (inhumation 14), suggesting burials of above-average status. Inhumations 16, 18 and 28 were smaller graves of 1.56–1.76m in length: two very probably the burials of non-adults. Likewise, the small grave cuts of inhumations 15 and 22 imply infants or juveniles, as suggested by the grave-goods in the former case and the sand body in the latter. 'Female' inhumations 26 and 31 had graves of 'normal' size, at 1.80–1.85m, though the cut of inhumation 30 was small by adult standards at 1.57m (see Penn and Brugmann 2007, table 6.1). Lastly, inhumation 19 was the largest grave excavated, a burial with female-type grave-goods.

Grave depth was 0.15–0.72m. Inhumations 14, 19 and 21 were slightly deeper than most, matching their greater size generally, but inhumation 16 was surprisingly deep for a small grave, at 0.70m. It was cut through ditch *[34/508]*, of *Phase 2*, which, although not a substantial feature, might have survived as a sunken and possibly banked earthwork at the time of the cemetery. Of course, the recorded depth for all the graves is that measured from the excavation surface, the level of the natural sand; a depth of topsoil would have existed above this. The level of the local Anglo-Saxon ground surface was established at Sutton Hoo, where areas survived beneath the mounds, suggesting a stabilised plough-soil/topsoil of *c*. 0.40m depth, broadly commensurate with the modern level (Carver 2005, 75, 91, 161, 367–79, figs 76, 159). If the same was true at Tranmer House, then, originally the graves were dug to no more than *c*. 0.50–1.10m deep.

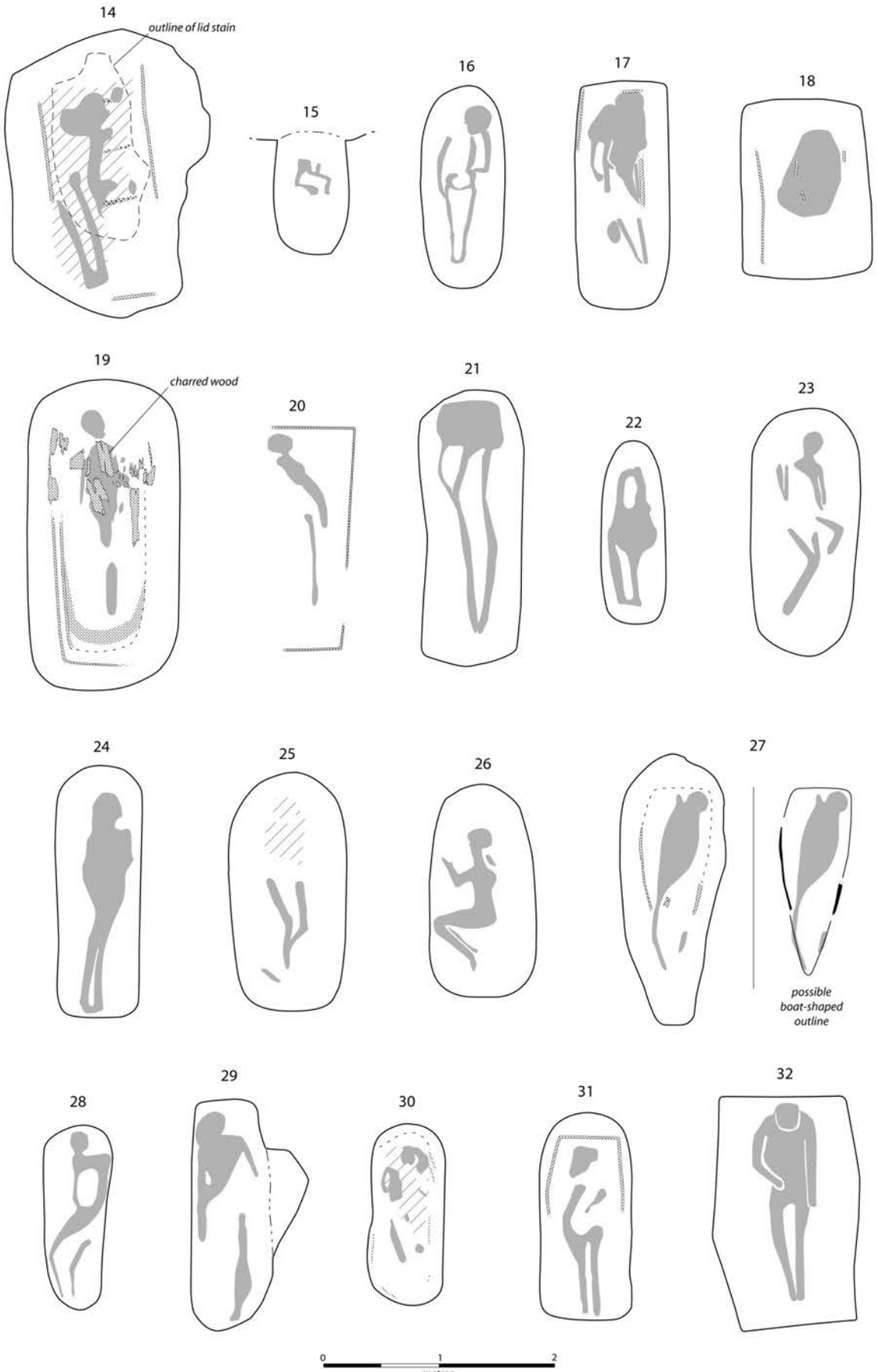

Figure 8.5 Comparison of the inhumation grave outlines, body stains/sand bodies and structural linings/burial containers (grave-goods not shown) (scale 1/50). By CF

Body position

Various body positions are suggested by the body stains and sand bodies recorded (Fig. 8.5), as is typical for early Anglo-Saxon cemeteries. A supine-extended attitude seems to have predominated (inhumations 14, 16, 17, 21, 22, 24, 29, 31 and 32; and perhaps 20 and 27). The well-defined sand body in inhumation 16 showed that the individual had been buried with the left arm flexed, and that in inhumation 32 had a flexed right arm. In inhumations 23, 25 and 28, flexed legs are suggested, and in at least two of these graves the body must correspondingly have been turned on its side. Inhumation 26 was the only certain instance of a crouched burial at the cemetery, although another example is possible for inhumation 30 (see below, *Multiple burials*; Fig. 3.35).

A supine-extended pose (sometimes loosely flexed) was most common in the period (Faull 1977, 5; Stoodley 1999, 58). It has been suggested that crouched and leg-flexed positions might have been a solution to a grave dug too small (Penn 2000, 74). This could apply to inhumation 28, and might have been true also of the crouched inhumation 26, but it does not explain the body attitudes in inhumations 23 and 25, where the graves were large enough for a fully-extended body. Furthermore, as the local sandy soil is easily excavated, ill-proportioned graves seem an unsatisfactory explanation. Ultimately, it is possible that body position contributed to the overall scene of 'a last resting place' (Turner-Walker and Scull 2009, 117), and represented a 'sleeping' pose, as is further implied by the provision in burials of pillows and blankets (as at Tranmer House), and in rare instances even beds (e.g. Coddenham; Penn 2011, 57–8).

Orientation

A broadly west-east alignment with the head to the west was most common for inhumation burials in cemeteries of the period, though any alignment can occur. Multiple factors seem to have influenced grave position, including the presence of Roman and prehistoric features (Stoodley 1999, 63–4).

In this case, grave orientation was determined relative to OS Grid North. The formless body stains in inhumations 15 and 18 makes their alignment uncertain, though the spearhead in the latter might suggest a body placed with the head to the west. In all, thirteen graves were west-east (257–284°). Of these, the three in *Plot 1* (Fig. 8.1b) showed a very similar orientation (275–76°). To their west, four graves (inhumations 17, 28, 29 and 31) likewise corresponded with one another (270–71°). Five were not west-east, all weapon-burials, and notably each was in proximity to a prehistoric feature (Fig. 3.1): inhumations 16 and 25 were northwest-southeast (300–322°); inhumations 14 and 20 were north-south (359–015°); inhumation 27 was south-north (172°).

Multiple burials

It is possible inhumation 30 originally contained two individuals, as shown in Figure 3.35. The teeth found in the 'waist' region, near a brooch (no. 2) and pin (no. 7), suggest a minimum of one female (*Individual 2*), possibly buried crouched (but see also below, *Sect. V*). The dress-fasteners are an unusual costume combination, but one that has a local parallel in grave 11 at the Snape cemetery (Filmer Sankey and Pestell 2001, 44–5, figs 27, 28, 88). However, the body stain in the burial and the position of certain other grave-goods, the belt (no. 9) and belt-ring (no. 10), beads and pendant(s) (nos 3–4), might indicate another body (*Individual 1*). In addition, mineral-preserved textile on the 'blade' (no. 15i) at the head of *Individual 1* could have derived from a head-dress (but for an alternative interpretation see Table 8.5). In Figure 3.35, *Interpretation 1* shows *Individual 1* placed in the grave first with *Individual 2* on top; *Interpretation 2* shows *Individual 2* as the lone occupant, but if this was so the position of the belt-fittings (buckle, studs and belt-ring) in a line in the 'waist' region of the grave is difficult to explain.

The practice of interring more than one individual in a grave, whilst infrequent was widespread, most likely reflecting rare instances of simultaneous deaths (Stoodley 2002). In his study, Stoodley (2002, 119) observed the tendency for women with girdle-equipment to be buried with children, their status conceivably making them preferred 'custodians'. Along with the girdle-set (nos 5, 6), in this case, there was a collection of curios (nos 11, 13–6). These may, furthermore, suggest the character of a 'cunning woman' for one individual in inhumation 30, a ritual specialist, the curios being possibly her tools for auguring or story-telling (Meaney 1981, 249–62; Dickinson 1993). Possibly, therefore, *Individual 2* was her adolescent charge, buried cradled, maybe, and perhaps also with a meal provided in the pot found.

Grave structures: burial-containers, linings and lids/ covers

Nine inhumations had evidence for grave structures, in the form of soil stains recorded in the burials, and/or as mineral-preserved remains on metal grave-goods (Table 8.2). Other Suffolk cemeteries, including Boss Hall and Buttermarket (both Ipswich), and Snape have produced similar findings, from which a variety of wooden biers, coffins, linings, lids, and other burial-containers have been proposed (Filmer-Sankey and Pestell 2001, 239–41; Scull 2009, 116, 271–77). Also, at Snape several graves had textile linings (Filmer-Sankey and Pestell 2001, 85–88, 241). At Tranmer House, however, only half of the weapon-burials had evidence for structures, not including the 'wealthy' inhumation 21, a fact that cautions against making status assumptions based on their presence or absence.

In eight cases (inhumations 14, 17, 18, 19, 20, 27, 30 and 31) staining was recorded, of typically a greyish brown/black colour (Fig. 8.5). The rectilinear outlines in inhumations 14 and 20, and perhaps 18 suggest, most probably, wooden linings constructed *in situ*, with in addition staining evidence for a plank base and a collapsed lid in inhumation 14. In contrast, the stains in inhumations 17 and 31 fitted the body more closely, in narrower graves, perhaps indicating plank coffins. The absence of metal fixings in all cases could mean the structures were built from interlocking boards, or pegged, though it is also possible some linings and covers/lids were simply of loose planks (Filmer-Sankey and Pestell 2001, 241; Penn and Brugmann 2007, 83).

The staining in inhumation 27 is considered tentative evidence for the use of part of a boat as a burial-container, the outline suggesting the prow (Fig. 8.5). 'Boat-burial' was a rare rite in England, largely restricted to Suffolk in the 6th and 7th centuries, but which derived ultimately from Scandinavia (Filmer-Sankey and Pestell 2001, 240;

Brookes 2007; Scull 2009, 274–75). Also, the shield from the grave had possibly been placed on a lid, as there was mineral-preserved wood on the underside of the hand-grip.

Mineral-preserved wood on objects from a further four burials (inhumations 14, 20, 23 and 30) could also have come from covers or burial-containers/linings (Tables 4.14, 8.2). For example, oakwood (*Quercus* sp.) on the upper surfaces of grave-goods from inhumation 23 might be from a collapsed cover, possibly without a grave lining or coffin in this case, and supported instead in a stepped cut below the grave edge: see Scull 2009, 275, fig. 3.106). Inhumations 20 and 30 very possibly had planked covers also that included old, repaired boards with metal fixings (see *Chap. 4; Sect. II: Iron fittings*). The reuse of old wood in this way has been suggested at other sites (Hirst and Clark 2009, 476), and can be viewed as similar in function at least to the custom of using old boat timbers for grave covers, as identified from finds of metal clench-nails in graves (Brookes 2007, 3–7). In addition, the lighter-coloured somewhat irregular lining stain in inhumation 30, if not from a wooden structure (cf. wood remains on several objects: nos 5i, 13i, 15i), might perhaps have resulted from a dressing of textile (see Filmer-Sankey and Pestell 2001, 85–88).

Inhumation 19 had staining suggestive of a log-coffin (a hollowed-out tree trunk) with a lid. The outline was broadly rectangular, and the structure had a U-form cross-section and concave length, *c*. 0.80m wide. A coffin of similar width was identified from staining in the mound 17 grave at Sutton Hoo, but it had iron fittings (Carver 2005, 134, fig. 60). Other local examples have been suggested for the Buttermarket cemetery (Scull 2009, 274), whilst at Mucking, Essex, log-coffins of oak were the most popular burial-container (Hirst and Clark 2009, 468–78). They were used widely on the Continent, too, for instance at the cemeteries of Liebenau (Kr. Nienburg) and Oberflacht (Kr. Tuttlingen), Germany (Scheik 1992; Häßler 1999, 36–7, Abb. 29; Scull 2009, 274). In addition, a layer of charred wood was recorded at the level of the coffin-lid stain in inhumation 19 (Fig. 3.17; Pl. IVa). This was thought by the excavator to be part of the lid. At Mucking, multiple charred coffins were recorded, including possible burnt lids (Hirst and Clark 2009, 477–78). However, a different explanation may be possible for inhumation 19, as the charred remains can be compared to the case of grave 9 at Snape, where burnt branches had been arranged over the body that were subsequently compressed flat by the soil backfill (Filmer-Sankey and Pestell 2001, 36–8, 243–44). This doubtless ritual act, in the case of inhumation 19 with the layer over the coffin-lid, has some resonance with the practice at the cemetery of laying green or dried vegetation in graves (see below).

Coverings and linings of plant material

by C.J.R. Fern and J. Hood

Fifty-three metal objects, mainly ironwork, have mineral-preserved traces and corrosion-cast pseudomorphs of plant material: grasses (or hay/straw), bracken, heather and reeds (Pls Xa, XVIII; Tables 4.14, 8.3). These come from thirteen burials (inhumations 14, 16, 17, 20, 21, 23, 24, 25, 27, 28, 29, 30 and 32). Caroline Cartwright has identified this evidence to genus/species level in *Chapter 5* (Table 5.5; see *Sect. IV: Plant remains on metalwork*). In addition, there are remains on the two unassociated finds from the site, a spear ferrule and sword fragment (not examined).

Stalks of grassy or reed vegetation form the majority. The manner of their preservation gives the impression of 'strewn' material, and the absence of flowers, fruits, internodes, leaves and roots argues against accidental incorporation too, for instance as turf clods. In particular, occurrences on multiple objects in some graves suggest covering layers. This might have included 'green' flora collected at the cemetery, though the incidence of meadow species and reeds most likely indicates also the use of pre-prepared, harvested materials (see *Chap. 5; Sect. IV: Discussion of the plant and wood remains*; see Turner-Walker 2009, 66). These might have been very similar to those commonly used in settlements for strewing floors or roofing houses.

The remains are mainly on shield-fittings and spearheads from the 'male' weapon-burials. Only one 'female' grave (inhumation 30) had traces: on a girdle-set at the upper left leg, on a belt-ring from the waist region, and on a 'blade' fragment. For the shield-fittings, remains occur on the upper (outer) surfaces, and since the shields were laid horizontal, facing outwards, this suggests a vegetation layer over the body and grave-goods. The spearhead evidence is less certain, as the plane of orientation for these objects in the grave is known in only one case: in inhumation 24 the two corrosion-joined examples had remains on their upper surfaces. Spearheads from three burials (inhumations 20, 23 and 25) have traces on both sides. This implies the possibility that plant material was used to line the bottom of some graves, too, or perhaps that the bodies were laid on palliasses.

For four graves (inhumations 16, 21, 24 and 29) the remains suggest that the plant stalks were roughly ordered. In the case of inhumation 24 a diagonal arrangement was possible, north-west to south-east, whilst for inhumation 21 the stem fragments imply a parallel alignment with the body. However, in most graves a more scattered distribution seems likely (Pl. XVIIIb). Since the majority of the weaponry bearing the evidence was found at the head-end in the graves, it cannot be said for certain that the material always covered the whole body and assemblage, but the more distributed remains in inhumations 20, 30 and 32 do suggest this was the case. (Where mineral-preserved evidence was absent on objects from the middle of the grave, such as iron buckles, this might have been due to the presence of a covering blanket/cloak; see below, *Sect. V*).

A top layer of strewn vegetation might have been intended as a final 'shroud' (Hirst 1985, 31), and in the absence of a burial-container or planked cover, could have served as a barrier between the body and the soil backfill. In this circumstance, whether it was understood or not, the covering matter would have accelerated decomposition (Mant 1987; Watson 1994, 37). However, in seven cases at Tranmer House, plant material was used in addition to a grave structure. In inhumation 14, the layer is suggested inside the lidded burial-container, and a similar situation was possibly true in inhumations 20, 23 and 30 (see above; Table 8.2). Conversely, in inhumation 27 (and possibly in inhumation 17), the covering was possibly over the burial-container and a shield placed on it. Because the vegetation cannot in this instance have hastened decay, nor was necessary as a barrier, this may strengthen the case for a ceremonial act.

Grave	*Stain*			*Mineral-preserved wood*	*Charred wood*	*metal repair fittings*	*Type*					
	Base	*Sides*	*Lid/Cover*				*Log-coffin*	*Plank-coffin*	*Wooden lining*	*Boat*	*Textile lining*	*Cover only*
Inhum. 14	•	•	•	• (lid)					•			
Inhum. 17		•						•				
Inhum. 18		•							?•			
Inhum. 19	•	•	•		• (?lid/?branches)		•					
Inhum. 20		•		• (?lid)		• (?lid)			•			
Inhum. 23				• (?cover)								?•
Inhum. 27		•		• (?lid)						??•		
Inhum. 30		•		• (?base/lining)		• (?lid/?cover)			??•		??•	
Inhum. 31		•						•				

Table 8.2 Summary of evidence for grave structures in the inhumations

Grave	*Coffin/ Lining/ Lid/Cover*	*Gender*	*Plant remains/Artefacts*					*Position in grave*			*A r r a n g e m e n t**	*I n t e r p r e t a t i o n*
			Girdle-set	*Knife*	*Shield-fittings**	*Spear-head*	*Other*	*Head -end*	*Middle*	*Foot -end*		
Inhum. 14	•	male			•			•			randomly arranged over front of shield.	covering over body and grave-goods (inside burial-container).
Inhum. 16		male			•	•		•	•		arranged roughly parallel over shield-boss.	covering/lining for body and grave-goods.
Inhum. 17	•	male			•	•		•			randomly arranged over front of shield and on one side of spearhead.	?covering over burial-container (?shield too big for container).
Inhum. 20	•	male			•	•	•	•		•	randomly arranged over front of shield and both sides of spearhead.	covering/lining for body and grave-goods (?inside burial-container).
Inhum. 21		male			•	•		•			arranged roughly parallel and aligned on front of shield and one side of spearhead.	covering/lining for body and grave-goods.
Inhum. 23	?•	male				•		•			both sides of spearhead.	covering/lining for body and grave-goods (?under cover).
Inhum. 24		male			•	••		•			arranged diagonally over objects, NW–SE; over front of shield and upper surfaces of spearheads.	covering over body and grave-goods.
Inhum. 25		male				•		•			randomly arranged on both sides of spearhead.	covering/lining for body and grave-goods.
Inhum. 27	•	male			•			•			randomly arranged over front of shield.	covering over burial-container.
Inhum. 28		male			•	?•		•			randomly arranged over front of shield and possibly on one side of spearhead.	covering/lining for body and grave-goods.
Inhum. 29		male			•						arranged roughly parallel over front of shield.	covering over body and grave-goods.
Inhum. 30	•	female	•				•	•	•		randomly arranged.	covering/lining for body and grave-goods (?inside burial-container).
Inhum. 32		male			•	•		•	•		randomly arranged on front of shield and one side of spearhead.	covering/lining for body and grave-goods.

*All shields placed in graves with front face outermost, i.e. as they were used

Table 8.3 Summary of evidence for plant remains in the inhumations

The practice has been recorded in contemporary cemeteries from Kent to Yorkshire and is well represented in East Anglia (Hirst 1985, 31; Watson 1994, 37, table 1; Haughton and Powlesland 1999, 62–3, 136–40, 142; Turner-Walker and Scull 2009, 116–17). It possibly originated in a long-lived Germanic custom (Hirst 1985, 31). Recognition of it owes much to the work of modern conservators, but accounts exist even for the 19th century (e.g. Hillier 1856, 30, grave 26, in Arnold 1982, 24). In Suffolk, instances have been recorded at Boss Hall, Buttermarket, Snape and Sutton Hoo (Filmer-Sankey and Pestell 2001, 25, 78, 105–6; Carver 2005, 128; Turner-Walker 2009, 66, 228; Turner-Walker and Scull 2009, 116–17, 278). Nine graves at Boss Hall had evidence for stalks, leaves and possibly flowers, but in contrast with Tranmer House there was no discernible order to its arrangement in burials (Turner-Walker and Scull 2009, 65–6, fig. 2.42). In grave 3871 at the Buttermarket cemetery, layers occurred both under and over the body, and in grave 1306 a layer covered a coffin-lid and shield, a parallel for inhumation 27 (*ibid*., 278). At Sutton Hoo, the mound 17 weapon-burial probably had a lining of sphagnum moss, bracken and couch grass (Evans 2005, 245–46). Examples of the rite have been predominantly, but not exclusively found in 'male' burials, as at Tranmer House, though this gender bias may not reflect the reality of the custom, since the survival of evidence favours graves with larger iron objects (e.g. shield-fittings and spearheads) that are rare in female burials.

Ring-ditches and other markers

Inhumation 14 was delineated by an irregular ring-ditch *[404]*, which doubtless had a small mound originally formed from the upcast. The lack of other examples with the rite is in notable contrast to the multiple ring-ditches associated with the cremation burials at the site (see above, *Sect. III: Ring-ditches*). Nevertheless, the lack of intercutting between the inhumation burials and their open distribution does suggest they might have been marked, possibly by small mounds in some cases (cf. Parfitt and Brugmann 1997, 13, 17–21, fig. 8). The use of burial-containers, linings and lids in the graves could have resulted in an excess of soil after backfilling, that perhaps was used to form a small barrowlet, but no quarry pits for larger monuments were identified, as they were at Sutton Hoo (Carver 2005, fig. 28). Small wooden or stone markers might have been used that likewise would leave no archaeological trace.

Weapon-burial

Thirteen of the nineteen inhumation burials contained weaponry, a high proportion, though not a large number of actual graves by comparison to other more fully-excavated sites (Table 8.4).[5] Nevertheless, they are significant for their relatively focused, late dating — the majority are burials of the second half of the 6th century (*AS Phase B*: *Chap. 7; Sect. IV–V*) — and for the uniformity of grave custom and equipment they demonstrate (Fig. 8.6; see also below, *Sect. V*).

The practice of placing weaponry in male burials became widespread in Anglo-Saxon England in the 6th century (Härke 1992a–b; Penn and Brugmann 2007, 93). Härke's studies (1990; 1992a–b) concluded the rite was symbolic of a 'warrior' status and perhaps signalled ethnicity, but was not necessarily a reflection of a real combat role. Chiefly this is shown by the fact that infants and juveniles could sometimes be buried with weaponry (Härke 1992b, 153). At Tranmer House, inhumation 16 was the burial of a child, and probably so was inhumation 18. The former had an adult weapon-set, albeit possibly a shortened spear and undersized shield (see *Chap. 4; Sect. II; Shield construction* and *Spears*), whilst the latter contained one of the smallest spearheads from the site. However, the remaining weapon-burials were either of adults (>18 yrs) or subadult/adults (inhumations 17, 20, 25 and 28), individuals of fighting age, and all the weaponry from these graves was functional.

Indeed, that the funerary symbolism of weapon-burial had a core reality should not be dismissed; the period was one of endemic warfare and an 'heroic age' (Chadwick 1912; Halsall 1989; 2003). It is possible that the grave 'wealth' seen in certain instances was a reflection of success in arms (e.g. inhumation 21), whilst juveniles and infants with weaponry might have been the offspring of a warrior class, with older individuals in training. It may follow, furthermore, that we should expect to find greater evidence of militarism — of retainers, their dependants and burial customs — in cemeteries like Tranmer House that were located at 'central places' (i.e. Sutton Hoo) of strategic economic and political importance (cf. Hawkes 1982, 76). Moreover, the reality of warfare for the Sutton Hoo elite is revealed by the blade injuries identified on the skull of the individual from mound 5 (Lee 2005, 270, fig. 126).

The figure of 68% for weapon-burial at Tranmer House compares to a normal range nationally of *c*. 10–20% (Härke 1988, 11), although in Suffolk this figure is a little higher (Table 8.4). Whilst it is possible the Area A excavation discovered a predominantly 'warrior' zone of burial (cf. Fig. 8.1b), not representative of the cemetery as a whole (see Härke 1992a, 169), given the chronological focus of the group, and the site's proximity to the 'princely' cemetery to the south, it is potentially the case that the weapon-burials are reflective of special circumstance. As a whole the weapon combinations are above average (Fig. 8.6; Table 8.4): eight of the graves had a minimum of a shield and spear, and up to three had swords (inhumations 21, 27 and possibly 25). They suggest at the least a well-equipped community, therefore. But their further significance seems to be borne out by comparison with similar, seemingly 'well-armed' communities from other Anglo-Saxon cemeteries located at or close to emergent centres (Fig. 8.7). For each of the sites, the grave sample represents only a small part of a larger cemetery, but both the frequency of weapon-burial and the dating is notable, the graves being of the second half of the 6th century into the 7th century and later. Elsewhere from this time the rite was in decline (Härke 1992b, fig. 29).

At the 7th/8th-century St Mary's cemetery, Hants, 43% of graves contained weapons, a burial-ground that might have served the important early West Saxon port of *Hamwic* (Birbeck *et al*. 2005, 192–94; Stoodley 2005). A particularly good parallel to the Tranmer House situation is that of the Prittlewell cemetery, Essex, famous for its early 7th-century chamber-grave found in 2003, an East Saxon 'royal' rival to Sutton Hoo's mound 1 (MOLAS 2004). Part of the surrounding 'folk' cemetery was excavated in 1923, with at least nineteen weapon-burials found, including six swords, against just three graves with

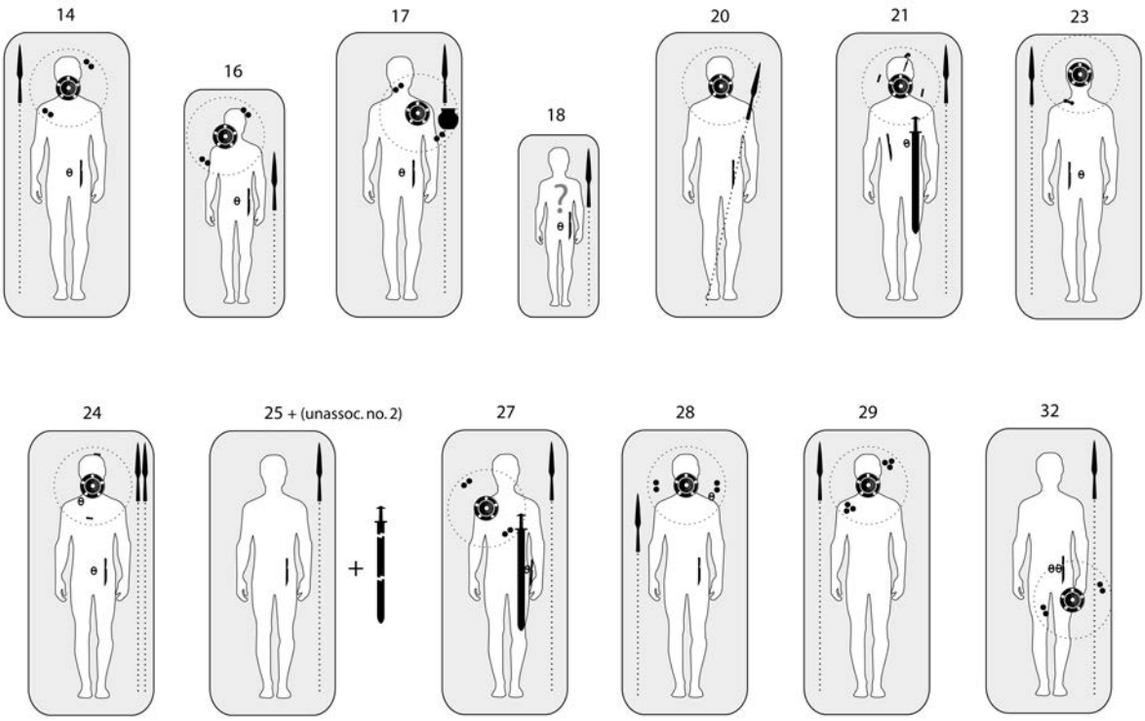

Figure 8.6 Schematics of the weapon-burials. By CF

female-type assemblages (Tyler 1988; MOLAS 2004, 13); and a seventh burial with a sword was added in 2003 (*ibid*., 15). The weaponry forms mainly suggest interments coincident with East Anglian Phase MB (*c*. 560/70–650; Penn and Brugmann 2007, 71, fig. 5.20). Hence, incomplete though the evidence is, it is tempting to propose for Prittlewell and for Tranmer House, warrior-retainer communities or even household troops in 'royal' service.

Lastly, in the context of south-east Suffolk, the findings from the cemetery of Hadleigh Road also bear comparison (Layard 1907). The site is located at the head of the River Orwell, close to where the later *emporium* of Ipswich was established. Some forty-five weapon-burials were found there, 31% of the graves excavated. The weaponry forms resemble those from Tranmer House, with a predominance of long-bladed spearheads, suggesting likewise graves of the mid 6th to mid 7th centuries (West 1998, 56–7, figs 70–6; Scull and Bayliss 1999, 87). Perhaps, then, the archaeology at both sites reflects especially militarised populations, at this time, that were conceivably attached to high-status residences at the heads of the important trade rivers of the Orwell and Deben, where in due course a 'royal' port and burial-ground were founded (see Scull 2009, 315, 317).

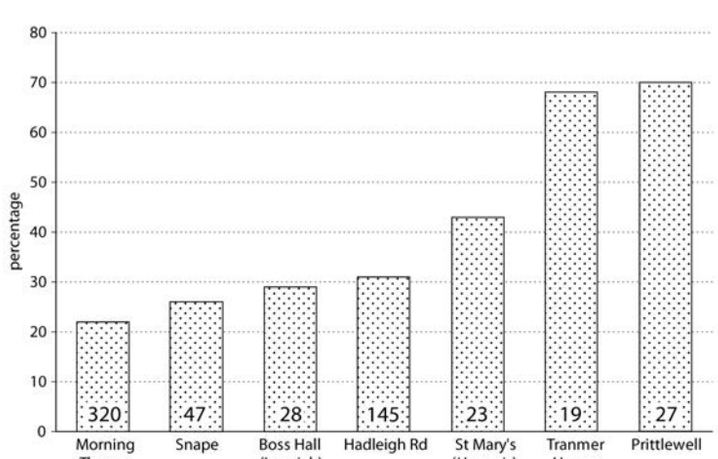

Figure 8.7 Percentages of weapon-burials at Tranmer House, at other sites in East Anglia, and at the cemeteries of St Mary's (*Hamwic*), Hants, and Prittlewell, Essex. The numbers indicate the total excavated inhumations in each case, on which the percentages are based. By CF

Cemetery	*Weapon combinations*									*Percentage weapon-burials*	*Total inhum. burials at cemetery*
	spear	*shield*	*spear + shield*	*2 spears*	*spear + 2 shields*	*2 spears + shield*	*sword/ seax/axe + shield*	*spear + shield + sword*	*3 spears + shield + sword*		
Westgarth Gardens, *Suffolk*	7	3	7	-	-	1	2	1	-	*32%*	65
Hadleigh Road (Ipswich), *Suffolk*	29	4	11	-	1	-	-	-	-	*31%*	*c.*146
Boss Hall (Ipswich), *Suffolk*	2	1	4	-	-	1	-	-	-	*29%*	28
Snape, *Suffolk*	6	1	3	1	-	-	-	-	1	*26%*	47
Morning Thorpe, *Norfolk*	38	4	25	-	-	-	1	1	-	*22%*	320
Spong Hill, *Norfolk*	5	-	6	-	-	-	-	1	-	*21%*	57
Holywell Row, *Suffolk*	7	1	11	-	-	-	-	1	-	*20%*	101
Great Chesterford, *Cambs*	11	-	6	-	-	1	-	2	-	*12%*	162
Total	**105 *(51%)***	**14 *(7%)***	**73 *(35%)***	**1 *(<1%)***	**1 *(<1%)***	**3 *(1%)***	**3 *(1%)***	**6 *(3%)***	**1 *(<1%)***	**(207) 22%**	**926**
Tranmer House, *Suffolk*	2*	-	8	-		1	-	2	-	*68%*	19

*Inhumation 25 might have originally contained a sword (see *Chap. 3; Sect. IV*)

Table 8.4 Comparison of the weapon-burial rite at select burial-grounds from East Anglia and Cambridgeshire

V. Costume and soft furnishings

by P. Walton Rogers

Introduction

The technical features of the textiles and their dating has been described in *Chapter 4* (*Sect. IV*). This section deals with their function in the burial ritual, as clothing for the body and as soft-furnishings for the grave (Table 8.5).

Male-gender inhumations

The evidence from the burials with weaponry was remarkably consistent from grave to grave. Medium-weight wool ZS twills, often diamond-patterned, were found underneath the shield-fittings in inhumations 14, 20, 21, 24, 28, 29 and 32, as were similar quality ZZ twills in inhumations 16 and 23. In each case the shield had been placed at the head-end of the grave, except for inhumation 32 where it was in the region of the hip/thigh. It is possible that some of these wool twills represent a lining for the floor of the grave, but in most cases they appear to come from a cover placed over the body, with the shield on top. In the case of inhumation 21, for example, relatively flat layers of linen tabby and wool twill separate the shield hand-grip from a different linen tabby (Fig. 4.15; Pl. XVa), which re-appears on the front of the buckle with the sword. In inhumation 14 the wool ZS diamond twill on the back of the shield is also on the front of the buckle, and the same may be true of the ZZ twill, possibly goat-fibre, in inhumation 16. Further examples of wool twill on the spearhead socket by the head in inhumation 29, on the back of the shield, spearhead and shield-strap buckle in inhumation 24, and the buckle with the sword in inhumation 27, give no indication as to whether they represent upper or lower covers, although teeth remains under the boss or on the hand-grip in inhumations 20, 21 and 24, demonstrate that in these instances the shield had been placed over the body.

A ‘cover’ at this date might mean a cloak laid out flat, since the traditional north Germanic cloak for men was a large rectangle of wool twill which could also serve as a blanket (Wild and Bender Jørgensen 1988; Owen-Crocker 2004, 106–10; Walton Rogers 2007, 207). Whole examples of Roman Iron Age cloaks from northern Germany were often diamond-patterned (Wild and Bender Jørgensen 1988, 83), which may explain why diamond-patterned ZS twills are especially common in Anglo-Saxon male graves (Walton Rogers 2007, 72). The animal hides recorded in three inhumations probably represent further examples of covers. In inhumation 16, the skin lay between the shield hand-grip and the twill textile, but in inhumations 23 and 24 it was underneath the wool twill in the grave. It was not clear which side of the hide faced upwards in inhumation 16, but in the other two graves the hair side faced down, so that the wool twill must have been laid over the back of the hide. A cushion or pillow is probably represented by the plain ZZ 2/2 twill associated with feathers on a spearhead at the head-end of the grave in inhumation 21 (see *Chap. 5; Sect. III: Feathers*). Feathers were also recorded on the spearhead in inhumation 23, although in this case the only textile on the same object was a tabby weave which curled round the socket in a manner that suggested a wrapper for the spear.

Tabby repp was recorded in folds and double layers at the waist in five graves, on the back of a buckle in inhumation 15 and in association with knives in

inhumations 14, 16 and 32 (and possibly 20). The loose fragment of tabby repp found in association with the sword in inhumation 21 may well have originated in the same position. The tabby repp weave gives a robust, hard-wearing fabric and is still used today for woven belts and linings for bags and boxes. Its frequent appearance at the waist in burials of both men and women of the 6th century, has led to the suggestion that it represents a form of cummerbund, resembling the Roman *fascia ventralis* (literally 'stomach strapping') which was worn under the military belt (Walton Rogers 2007, 220; 2012a, 195). The *fascia ventralis* was a wide sash which was folded lengthways and wrapped around the body so that the folds could act as pockets for personal belongings (Ubl 1989). Apart from its association with items at the waist, tabby repp can sometimes be found with other objects, such as the nail, awl or pin fragment from inhumation 30, but it only rarely occurs with anything that would suggest an alternative role in clothing.

Buckles associated with shields and swords are likely to come from carrying-straps and sword-belts or baldrics, respectively (see *Chap. 4; Sect. II; Shield construction*), but buckles at the centre waist in inhumations 14, 15, 16, 17, 18, 23, 24 and 32 are likely to represent belts. There were two buckles, assumed to represent two belted garments, perhaps trousers and tunic, in inhumation 32.[6] Where the material of the strap had been preserved, it was mostly leather (or other skin product), but in inhumation 24 yew wood (*T. baccata*) was preserved on the back of the buckle. A willow belt without a buckle, and metal buckles with wood on the back are known from the Buckland I (Dover) cemetery, in Kent, and Evison relates these to segmented metal-and-horn (or bone or antler) belts at other sites, while arguing for 'a much more widespread use of wood for this purpose than has been suspected' (Evison 1987, 91–2; Evison and Hill 1996, 19–20). There is no reason why yew, which is just as flexible as willow, should not have been used in this way.

In inhumation 15 the belt was worn outside the tabby repp described above, in inhumation 17 it was on top of a medium-weight fabric of uncertain construction, and in inhumation 24 a coarse-fibred linen 2/1 twill. This last was of particular interest because the buckle appeared to lie in the centre of the body and it had a seam in the textile which will have run vertically down the body. The male tunic of this period is likely to have been a long-sleeved knee-length garment, although little is known of its tailoring details. Tunics with a centre-front seam are known from the Viking Age (Hägg 1984, 42–50, 64–8), but no Migration period examples have been recorded. On the other hand, a centre-front seam would facilitate the construction of the deep V-neck and split skirt of the tunics depicted on 5th-century Vandals from Malta and it would also allow the insertion of a vertical gore, to give the full skirt of men's tunics seen on the 8th-century Franks casket and in later Anglo-Saxon manuscript illustrations (Walton Rogers 2007, figs 4.23, 5.53d, 5.57a and 5.57d).

Knives were placed on the left or centre-left of the body, either vertically or on the diagonal, at or just above the waist, a position which suggests that they were tucked into the belt or cummerbund. A scroll-headed (or coil-headed) iron pin found with the knife at the waist in inhumation 16 (*AS Phase A*) is probably an eating utensil rather than a garment pin. Scroll-headed iron pins have been found alongside knives in a number of 6th-century graves in Kent, mainly with men, although women had other forms of iron pin alongside their knives (Walton Rogers 2012a, 180–2, figs 5.2a–b). In East Anglia there is evidence for the use of similar pins to fasten garments (Walton Rogers 2013, 32), but that does not appear to have been the case in this instance.

Female-gender inhumations

The four burials with female-gender accessories, inhumations 19, 26, 30 and 31, were all different from each other. In inhumation 19, a peplos, the loose tubular over-garment worn until the third quarter of the 6th century, was made of medium-weight wool twill and was fastened on the shoulders by a pair of annular brooches. At least one of the brooches (no. 1) seems to have been worn with the decorated side facing inwards, and the linen textile on the smooth face is therefore likely to represent the head veil, where it fell on to the shoulders. The cluster of beads at the waist is a feature previously noted in a number of 6th-century burials of eastern England, and in Kent it immediately precedes a mid-to-late 6th-century fashion for low-set belts (Walton Rogers 2012a, 182, 187). In inhumation 19, both the buckle and the knife are set below the presumed area of the waist.

The evidence from inhumation 30 is more difficult to interpret and one theory is that it represents two bodies (see *Chap. 3; Sect. III: Inhumation 30*). From the costume point of view, however, the following points can be made. A study of burials with trios of matching strap ends of the type seen here (no. 8) has shown that they are usually found with women under the age of 35 who were buried on their sides with legs flexed (Walton Rogers 2012b). They commonly wore the peplos with a cloak or shawl clasped by an undemonstrative fastener and their necklaces usually incorporated a substantial amount of amber. More significantly, they often had a secondary pouch, bucket pendants and amuletic objects, which has led to the suggestion that the strap ends and the pouch they represent may be a marker for those who performed the role of 'cunning woman'. Whether or not this is correct, it is obvious that inhumation 30 belongs in the same category as the fifteen previously identified examples of burials of this type from northern and eastern England (Walton Rogers 2012b). The collection of curios, in this instance at the head of the grave, is typical of the group, as is the simple pin fastening the heavy wool shawl, the peplos brooch (a pair of brooches would be more usual, but the single-brooch peplos has been recorded at Flixton in Phase FB1) and the string of beads, more than half of which were amber, combined with re-used decorative metalwork. The buckle with swivelled pin recovered from the area of the chest was enveloped in fine linen and probably represents the shoulder strap for the pouch on the hip, caught up in the fabric of the head veil at the point where it lay against the chest: a similar fabric-type was recorded where it touched the head of the iron pin (no. 7). The girdle-set at the hip was sandwiched between the wool twill of the shawl and a linen twill likely to represent the fabric of the peplos, although the peplos-fastener (the annular brooch) did not preserve any textile. A reconstruction of this woman's appearance would probably be much like that of the woman from Flixton grave 9 (Walton Rogers 2012b, fig. 10.1).

As is often the case with women of East Anglian Phase FB, the bodies in inhumations 31 and 26 had fewer

accessories from which to reconstruct the costume style and the limited amount of metalwork meant that there was little textile evidence. In grave 31, there was a U-shaped string of beads arranged in a manner that suggests that they were part of a necklace with a plain cord around the back of the neck. Since adult women covered their heads with veils, there would be no need to continue the beads around the back. Tabby repp with the knife in the region of the hip indicates the same costume feature as seen in the men's graves. In inhumation 26 the short bead string was worn close to the neck and combined with a decorative silver-foil pendant. In this grave a belt was worn at the waist, a knife at the hip and the tweezers suspended by a linen cord or braid, perhaps from the belt or the iron ring above the knife. The belt fastened a wool garment, at this date generally reconstructed as a simple long-sleeved full-length dress.

The textiles with the cremation 8 burial

The bowl in the cremation 8 burial had clearly been wrapped in the fine linen 2/1 twill that lay in patches and imprints over much of the outer surface. In this it can be compared with the bowl from Coddenham, grave 24, where a textile, thought to be a wide scarf of linen tabby, appeared to have been wrapped around the bowl and the fringed ends tucked under the foot-ring (Walton Rogers 2011, 82). A number of other late 6th- and 7th-century burials of East Anglia and the home counties incorporate metal bowls with similar linen tabby wrappings (summarised in Walton Rogers *ibid*.), including the example used to cover the mouth of the bowl containing cremated remains in mound 4 at Sutton Hoo (Crowfoot 1983, 466–67). Under the bowl in cremation 8, there was also a flat layer of heavy wool twill, or a wool coverlet, thought to represent a cover for the floor of the grave, although similar textiles in later barrow burials such as Broomfield, Essex, appear to represent folded sets piled up in the burial chamber (Crowfoot 1983, 468–75).

Endnotes

1 This figure is based on the number of graves recorded from mixed-rite cemeteries that have been nearly or fully excavated: Mucking II, Essex (Hirst and Clark 2009); Apple Down, W. Sussex (Down and Welch 1990); Morning Thorpe, Norfolk (Green *et al*. 1987). They vary in size from *c.* 150–750 burials.

2 This information is drawn from Jacqueline McKinley's archive report (2008b).

3 Animal offerings have been recorded also in cremation burials elsewhere on the north-west Continent in the period, including from cemeteries in Schleswig-Holstein and Lower Saxony, but the remains suggest joints of meat, of sheep/goat and pig, rather than grave-side sacrifices (Wahl 1988, 117–19). Dog and horse remains are very rare in cremations in these areas: the German cemeteries of Issendorf (Ldkr. Stade) and Süderbrarup (Kr. Schleswig-Flensburg) have just one example each (Wahl 1988, 117–19, table 39; Weber 2000, 82). However, more recently, animal remains have been reported as 'common' from cremation graves at the site of Broechem, Belgium (Annaert *et al.* 2011, 213). Also in the Lower Saxony region, horse inhumation burials occur within mixed-rite cemeteries, as at Liebenau (Kr. Nienburg) and Rullstorf (Ldkr. Lünburg), but they are often difficult to closely date as they frequently have no clear association with any single human grave (Müller-Wille 1970/71, 204, Abbs. 20–1; Häßler 1990; Hornig 1993, 182–83). Some graves at Liebenau might be of the 5th/6th century, but at Rullstorf they date to the 8th/9th century.

4 In addition, there is Vierck's (1972; 1980) suggestion that cremated remains had been placed on the Anastasius dish in the mound 1 ship-burial at Sutton Hoo, based on the evidence of ferric phosphate residue (Bruce-Mitford 1975, 528, 542, 547). However, most now accept that the grave's principal occupant was inhumed (e.g. East 1984), and though a food offering on the bowl is a possibility, the case for dissolved calcined remains (animal or human) now seems unlikely, given the evidence for the otherwise good survival of cremated bone at Sutton Hoo and Tranmer House (Carver 2005, 191–92).

5 The unassociated spear ferrule and sword fragment from the site (see *Chap. 3; Sect. IV*), if from separate destroyed graves, could increase the total to fifteen weapon-burials, though only the intact examples are considered for analysis.

6 It is also possible one of the two buckles is from a shield carrying-strap (see *Chap. 4; Sect. II: Buckles and belt-fittings*).

Body and burial	*Layout*	*Fibre*	*Weave*	*Count/Spin*	*Position of textile*	*Interpretation*
Cremations 1–2	no textile, no costume evidence					
Cremation 3	no textile; beads (12)					
Cremations 4–7	no textile, no costume evidence					
Cremation 8 ?Female, 23–35 yrs (?female gender). In pit [491]	Bronze hanging bowl (no. 1) and adjacent ceramic vessel with further remains of same cremation	flax/hemp, prob. flax	2/1 twill	20–24/Z x 18-20/Z	On outer face of bowl (no. 1), warp-face facing inwards. Best-preserved areas on base and repair patch, but imprints continue up sides to rim.	The fine linen 2/1 twill is almost certainly a wrapper for the hanging bowl. The heavy patterned wool fabric probably lay flat against the floor of the pit, underneath the vessels.
		wool	broken twill or coverlet weave	10–12/Z x 8–10/Z	Single layer, only on basal escutcheon of bowl (no. 1), outside 2/1 twill, and in area around base.	
Cremations 9–13	no textile, no costume evidence					
Inhumation 14 Adult (male gender). Probably extended body	Shield (no. 2–4) probably over upper chest and head. Buckle (no. 6) and vertical knife (no. 5) in region of waist. Spear outside the probable wooden lining.	wool	2/2 diam twill	9–10/Z x 8–10/S	Under shield, on back of hand-grip (no. 2ii) and on front of buckle at waist (no. 6).	The medium-coarse wool diamond twill between the shield and the body is probably a cloak or cover. The linen repp may be from a cummerbund under the belt.
		flax/hemp	tabby repp	24/Z x 14/Z	In folds on and with knife (no. 5) at waist. Outside ?leather sheath.	
Inhumation 15 Immature (no gender)	Pot in region of left shoulder. Buckle (no. 2) in centre of grave, probably at waist.	wool	2/2 twill	?/Z x ?/S	On front of buckle (no. 2).	Repp may represent cummerbund, trousers or tunic fastened by belt. Wool twill is likely to be from a cover or cloak (or possibly an outer tunic).
		not ident.	tabby repp	20/Z x 12/Z	In double layer on back of buckle (no. 2).	
Inhumation 16 Older juvenile (male gender). Extended body.	Shield (nos. 2–4) probably over upper chest and head. Buckle (no. 6) at waist, knife (no. 5) on diagonal above left waist and spearhead (no. 1) to left of body, level with waist.	?goat	2/2 twill	8–10/Z x 6–8/Z	Under shield, on back of hand-grip (no. 2ii), and in diagonal folds across one face of blade of spearhead (no. 1; Pl. XVb).	The linen tabby repp compares with similar textiles at the waist in other burials and may represent a cummerbund or tunic. The twill under the shield and on the spearhead is probably a cloak or cover on the body. The coarse textile outside the buckle may be the same or a second, coarser cover. The animal pelt lies above the first twill, in contact with the shield.
		flax/hemp	tabby repp	18/Z x ?/Z	On one face of knife blade (no. 5).	
		not ident.	?	14–16/? x ?	On opposite face of knife blade (no. 5).	
		?goat/wool	2/2 twill	6/Z x 5/?	On front of buckle (no. 6) at waist.	
		animal	pelt	–	Pelt with straight fibres, 37–87 microns diameter, on back of shield, between twill textile and hand-grip (no. 2ii).	
Inhumation 17 Subadult/adult (male gender). Extended body.	Shield over upper left body, spear on left. Buckle (no. 7) at centre waist. Knife vertical, above left waist.	not ident.	?	10/? x 10/?	Poorly preserved on back of buckle (no. 7).	Medium-weight tunic or trousers fastened by ?leather belt.
Inhumation 18	no textile, buckle region of waist.					
Inhumation 19 Subadult/adult (female gender). Probably extended body.	Pair of annular brooches at right (no. 1) and left (no. 2) shoulder. Beads (46: 34 amber) at upper waist. Buckle at right waist, knife, point-down, at left.	wool	2/2 twill	12/Z x 10/?	Pierced twice by pin of one brooch (no. 1) and on pin of other brooch (no. 2) also.	Peplos of medium-weight wool twill. The linen garment may be from a veil or an inner dress, depending on whether it is on the front or the back of the brooch.
		flax	?	Z x Z	On ?front of one brooch (no. 1) over area of pin attachment.	
Inhumation 20 Subadult/adult (male gender). Probably extended body	Shield over head, hand-grip (no. 3) separated from boss. Spear on left. Knife (no. 4) diagonal, left upper waist. Iron fittings at left foot.	not ident.	tabby	16–18/? x 12/Z	On one face of knife blade (no. 4), extending beyond edges of iron.	The wool diamond twill is probably a cover. The tabby is comparable with other textiles found at the waist and possibly represents a cummerbund.
		wool	2/2 diamond twill	12/Z x 9/S	Under shield, on back of hand-grip (no. 3; Pl. XVc). Pattern reverses after 10Z and 9S threads.	

Inhumation 21 Mature adult (male gender). Extended body.	Shield over head, including hand-grip (no. 2ii); spear (no. 1) to left of body; knife (no. 8) diagonally across centre waist; buckle (no. 9) with sword scabbard. The sword (no. 7), point down, had been placed on the body and reaches approximately from chest to knee.	wool	2/2 plain twill: no reverses	8–10/Z x 7/Z	Covering most of one face of spearhead (no. 1), square to blade. Feathers on surface of textile.	The medium-coarse wool twill with the spearhead could be a cover for a pillow. The textiles under the shield (Pl. XVa) at the head of the grave are, from top to bottom: – linen tabby – wool diamond twill – linen tabby (coarser than first). The lowest linen tabby matches the textile on the front of the buckle at the waist. These probably represent covers over the body. The knife has been wrapped in a fine fabric. Outside this was a coarse textile or pelt. The sword scabbard has been bound with tapes and cords or thongs.
		animal	pelt/skin/ leather	–	On hand-grip (no. 2ii), next to metal, possibly from binding.	
		flax/hemp	tabby	16/Z x 16/Z	Under shield, on back of hand-grip (no. 2ii), below skin product.	
		wool	2/2 diamond twill	12/Z x 11/S	Under shield, on back of hand-grip (no. 2ii), below linen tabby. Pattern reverses after approx. 10Z and 9S threads.	
		?flax/hemp	tabby	16/Z x 12/Z	Under shield, on back of hand-grip (no. 2ii), below wool diamond twill, in crumpled folds.	
		not ident.	tabby	16/Z x 14/Z	On front of buckle (no. 9), possibly the same as the 16/Z x 12/Z tabby on hand-grip.	
		not ident.	2/1 or 2/2 twill	c. 20/Z x 20/?	Fine textile on both faces of knife (no. 8).	
		animal	?coarse textile or pelt	–	On one face of knife blade (no. 8), outside fine twill.	
		flax/hemp	tabby	20/Z x 16/Z	‘Possible binding tape’ from sword (no. 7).	
		?flax/hemp	tabby repp	22/Z x 12/Z	Detached, in association with sword.	
		?	cords or thongs	1mm thick	Parallel cords or thongs from sword scabbard.	
Inhumation 22	no textile, no costume evidence.					
Inhumation 23 Subadult/adult (male gender). Body turned to left, legs flexed.	Shield (nos. 2–4) over head. Spear (no. 1) to right, with textile and feathers. Buckle at waist, knife to right or at back.	wool	2/2 plain twill	10/Z x 7/Z	Underneath shield, on back of hand-grip (no. 2ii). No reverses in diagonal over 70x40mm.	The linen tabby appears to be a wrapper for the spear. The plain wool twill and the animal pelt probably represent covers, either lining the base of the grave or covering the body.
		animal	pelt	skin 2.5mm thick	Underneath shield, on back of hand-grip (no. 2ii). Beneath wool twill.	
		flax/hemp	tabby	12–16/Z x 10–12/Z	On spearhead (no. 1), on blade and wrapping round socket.	
Inhumation 24 Mature/older adult (male gender). Extended body.	Shield (nos.2–4) with buckle (no. 6) over head. Two spears (no. 1) on left. Buckle (no. 7) at centre waist, with knife (no. 5) on slant to its left.	wool	2/2 diamond twill	11–12/Z x 9-10/S	Under shield on back of hand-grip (no. 2ii) and on socket of spearhead (no. 1ii). On back of buckle for shield strap (no. 6).	Tunic of heavy linen 2/1 twill fastened by ?leather belt. The diamond twill is probably a cloak or blanket placed over the body and under the weaponry. The animal pelt lies beneath the blanket.
		flax/hemp (coarse)	2/1 twill	14/Z x 12/Z	On back of belt buckle (no. 7) at waist and on one face of knife blade (outside sheath) (no. 5). There is a seam running vertically down the body behind the buckle (no. 7).	
		animal	pelt	short, straight fibres	Under shield on back of hand-grip (no. 2ii), outside (below) the diamond twill.	
Inhumation 25	no textile, knife worn vertically at left waist, but no other costume evidence.					
Inhumation 26 Adult (female gender). Body on left side, crouched/flexed.	Necklace of beads (20: 6 amber) and pendant at neck. Buckle (no. 5) at waist with knife and iron ring (no. 6) to left, and tweezers (no. 3) on thigh.	not ident.	?	Z x ? (medium)	On back of buckle (no. 5) at waist.	Main garment fastened by ?leather belt is medium-weight ?twill, probably of wool. The flax cord/braid caught inside the tweezer arms is probably for suspension.
		not ident.	?twill	Z x S (medium)	On iron ring (no. 6) at waist. Possibly the same as on buckle.	
		flax	braid or cord	?	Trapped between arms of tweezers (no. 3) on thigh.	

Inhumation 27 ?Young adult (male gender). Probably extended body.	Shield by right shoulder, spear and sword on left side. Buckle (no. 7) and knife (no. 6) together on left beyond sword.	wool	2/2 twill	12/Z x 10/S	On front of buckle (no. 7).	The angle of the buckle and its prong indicate that the strap was not under tension when placed in the grave and this is therefore not a belt around the waist. The buckle and strap are sandwiched between two different textiles, one of which is likely to be a grave lining.
		wool	?	finer than other	On back of buckle, parallel to ZS twill.	
		not ident.	?	fine	In folds on knife (no. 6) outside sheath.	
Inhumation 28 ?Young/mature adult, ??female (male gender). Body turned to right, legs flexed.	Shield (nos. 2–4) in chest/head area, with buckle. Spear on right with tip level with shoulder. Knife diagonally at left waist.	not ident.	twill	12/Z x 9–10/S	On back of shield, on rivet of boss (no. 2i)	Similar to other wool twills underneath shields. Buckle and hand-grip have poorly preserved remains of textile, but no technical details could be recorded.
Inhumation 29 Adult (male gender). Probably extended body.	Shield (nos. 2–5) in area of head. Socket from a spear (no. 1) on right.	?wool	2/2 diamond twill	10–12/Z x 9–10/S	Under shield, on back of hand-grip (no. 2ii) and on spearhead socket (no. 1).	Probably another textile grave lining or cover for the body.
Inhumation 30 ?Subadult/adult (female gender). (for interpretations of burial see Fig. 3.35: and Chap. 8; Sects. IV: Multiple burials and V: Grave structures)	Beads (29: 16 amber) and possible pendant(s) in assumed region of neck. Iron pin (no. 7) on diagonal, next to brooch. Annular brooch at right chest/shoulder. Small iron buckle (no. 9i) beside pin. Iron ring on left. Girdle-set including latch-lifters (no. 5) by left leg. Miscellaneous objects at head-end (nos. 11–18).	not ident.	2/2 twill	10/Z x 10/Z	Pierced by pin (no. 7) at least four times, with fold alongside pin. On latch-lifter and other items (nos. 5i –ii) on lower left side.	The medium-weight twill fastened by the pin is probably a wool shawl that reaches to the left thigh. The fine linen tabby on the head of pin (but not fastened by it) is probably from a head veil. The small buckle is possibly from a shoulder strap for a bag and is enveloped in the fine linen of the veil. The heavier linen twill (12 x 12) is perhaps the main dress. The fine tabby on the fittings at the head of the grave may be a wrapper.
		flax/hemp	2/2 twill	12/Z x 12/Z	In folds on latch-lifter (no. 5i), on opposite face to other twill, and on iron ring (no. 10). Possible gore.	
		not ident.	tabby	18/Z x 16/Z	On head of pin (no. 7).	
		?flax/hemp	tabby	14/Z x 14/Z	On latch-lifter (no. 5i) outside 2/2 10 x 10.	
		?flax /hemp	tabby repp	12/Z x 9/Z	On and with small nail (no. 14)	
		flax/hemp prob. flax	tabby	20/Z x 16–18/Z	On staples (no. 12).	
		?flax /hemp	?	very fine, Z x Z	On back and sides of small buckle (no. 9i).	
		not ident.	plied thread	Z2S, 0.4mm diameter	On back of 'blade' (no. 15i), in association with skin product: probably stitching seam of bag or sheath.	
Inhumation 31 Subadult/adult (female gender). Extended body.	Single loop of beads (25: 16 amber) in region of neck. Knife (no. 3) on diagonal in centre pelvic region.	not ident.	tabby repp	20/? x 12/Z	On back of knife blade (no. 3).	Typical of textiles found at waist: possibly a cummerbund.
Inhumation 32 Mature adult, male (male gender). Extended body.	Spear on left, shield (nos. 2–4) on left hip. Two buckles at waist (nos. 6–7) and knife (no. 5) vertical to left.	?hemp	tabby repp	20/Z x 10/Z	Diagonally across back of knife (no. 5)	The diamond twill is likely to be a blanket or cloak over the body, with the shield placed on top. The tabby repp may be another cummerbund.
		wool	2/2 diamond twill	9/Z x 7/S	Under shield, on back of hand-grip (no. 2) and possibly also on front of small buckle (no. 6).	

Table 8.5 Textiles and their use in costume in the cemetery

Chapter 9. *Before Elite*: Tranmer House in Context

I. Amongst ancient earthworks

The site, overlooking the Deben and on the light soil of the Sandlings, attracted intermittent occupation from the early Neolithic, though prehistoric activity overall appears sparser than at Sutton Hoo (Figs 1.1, 1.2). Nevertheless, the middle Bronze Age cremation burial in Area A, once covered by a small barrow, is important as the first prehistoric funerary feature confirmed locally. Most of the ancient ditches at the site were likely established in the Iron Age, and were probably part of the same enclosure system as excavated at Sutton Hoo, which is believed to have once covered much of the terrain east of the river (Copp 1989; Hummler 2005, 451–56). At Tranmer House use of it had ceased prior to the Roman period, though much probably remained as heath-reclaimed earthworks into the early Anglo-Saxon period, and possibly the cemetery was founded within a large, relic enclosure on the spur promontory (Fig. 6.5). More certainly, the prehistoric barrow was a focus for some graves. As elsewhere at this time, this shows the local Anglo-Saxon population actively sought association with the ancient landscape (Williams 1997).

II. The cemetery

The Tranmer House cemetery presents a significant episode at Sutton Hoo. Its discovery removed the neighbouring 'royal' burial-ground from its ritual isolation, and importantly the funerary practices and social order evidenced there can now be viewed in the context of an earlier 'folk'.

The excavated graves and the ploughed-up finds from North Field (see *Chap. 6*) very probably represent parts of the same cemetery (Figs 3.1, 6.5). Especially notable at Tranmer House is the high proportion of weapon-burials, and distinctive cremation burials with ring-ditches and rich animal offerings, argued to date from the mid 6th century (*AS Phases B–C*; Fig. 7.4). They suggest a phase of high-investment burial (Fig. 8.1b) and more than one significant social group, just prior to the foundation of the elite cemetery to the south. In addition, other important graves are implied by the Honorius coin-pendant (Pl. XXI) and Byzantine *situla* (Pl. XX) from North Field.

Significantly, the cessation of the cremation rite at the cemetery has been radiocarbon dated to *c.* 580/90 (see *Chap. 7; Sect. II*). This corresponds with the suggested start date of the earliest graves at Sutton Hoo, also cremations (Carver 2005, 309–12, mounds 3, 4, 5, 6, 7 and 18).[1] Furthermore, the essence of the cremation custom at both cemeteries appears related, as compared in Table 9.1. Particularly notable is the frequency of horse sacrifice, indicative of status, as well as the range of species overall (see *Chap. 8; Sect. III: Animal offerings*). Most of the Tranmer House cremations lack evidence for prestige goods, however, and the monumental barrows at the elite site mark a key difference — but cremation 8 with its rare hanging bowl (Pls VI–VIII) and amethyst bead evokes a persona of standing (see *Frontispiece*). Indeed, it is tempting to extrapolate from the bead, and the *situla* from North Field, both Mediterranean imports, a community that by the mid 6th century enjoyed advanced continental-mercantile relations, perhaps free of the trade-controlling grip of the powerful kingdom of Kent to the south (Huggett 1988).

One interpretation of the later 6th-century cremations at Tranmer House is of an emergent group with pretensions to local rule, or of competing claims. Indeed, the position of one group, including graves within ring-ditches (*Plot II*: Fig. 8.1b), suggests a certain separateness. The Bronze Age barrow was plausibly a focus for this faction, but maybe equally significant was the decision to bury beyond the Iron Age enclosure, that was perhaps the limit of burial for much of the 6th century. This act would fit as a prelude to the founding of Sutton Hoo, where the successful party could then have maintained the cremation rite at their private place of burial. Such social strategy was not unique. Around the turn of the 7th century, similar break-away, elite burial-grounds were founded on the Continent, particularly in the Rhine and Danube regions, indicating a trend towards the establishment of more-permanent dynastic power across Europe (Böhme 1985). Separateness in death mirrored the ambitions of such groups in life, of course, and the founding of new private cemeteries might also have been meant to signal political autonomy in an era when overlordship was constantly threatened.

In the later 6th century, the Frankish-aligned kingdom of Kent was the principal power in south-east England. In this context the cemetery's high proportion of weapon-burials (68% in the inhumation rite) might be interpreted as reflecting a state of heightened military tension (see *Chap. 8; Sect. IV: Weapon-burial*). Or perhaps the developing *status quo* in south-east Suffolk precipitated the growth of specifically retainer-based communities (with dependants) at certain locations. At the time of discovery, the weapon-burials were even envisaged as a sort of 'Byzantine Guard' (Ashbee 2000), serving 'royal' Sutton Hoo in the *imperium* of King Rædwald (died *c.* 625). Lamentably for this theory, however, the majority of the graves with weapons are unquestionably earlier in date than the great ship-burials of mounds 1 and 2.

The strongly masculine character of the inhumed population, indicated by the weapon-burials, is in contrast with the, potentially, mainly female cremations (see *Chap. 8; Sect. II: Population*). The latter could fit with the archaeological evidence for other high-status women in the region, at the same period, also attested by cremations in metal-vessels, at Snape and Brightwell Heath (Fig. 1.1b; see *Chap. 8; Sect. III: Metal-vessel burial*).

	Status							*Animal Offerings*					
	Unurned	*Pot*	*Metal bowl*	*Ring-ditch/ Mound*	*Comb*	*Prestige goods**	*Sex (Gender)*	*Horse*	*Cattle*	*Sheep/ Goat*	*Pig*	*Other animal*	*Large ungulate (horse/ cattle)*
TRANMER HOUSE (Migration-period type)													
?Crem. 2		• ?urn											
Crem. 3		• urn				?•	?F (*F*)						
Crem. 5		• urn					M						•
Crem. 9		• ?urn			•								
?Crem. 10		• ?urn					??F						
Crem. 11		• urn											•
TRANMER HOUSE (*AS Phase B*: *c*. 550–580)													
?Crem. 1		• urn		•									
Crem. 4		• ?urn		•			?F	•	•				•
Crem. 6	?•			•						•			•
?Crem. 7	•						??F	•	•	•		• ?bird+dog	•
Crem. 8		• urn	• urn		•	•	?F (*F*)	•	•	•	•	• ?dog	•
Crem. 13		• urn		•			(?*F*)	•	•	•			•
LOCAL (6th/7th century)													
Brightwell Heath			• urn	•	•		??F (*F*)		•			• dog	
Little Wilbraham 28.X.1852 [1]			• urn		•			•	•				
Snape gr. 68			• urn				?F						
SUTTON HOO (Phases 1–3: *c.* 590–620)													
Burial 13	•												
Burial 14		• urn					?M						
Mound 3		•†		•	•	•	?M (*M*)	•					
Mound 4			• urn	•		•	?M+??F (?*M*)	•				• ?dog	
Mound 5			• urn	•	•	•	(?*M*)						•
Mound 6			• urn	•	•	•	(?*M*)			•	•		•
Mound 7			• urn	•		•	(?*M*)	•	•	•	•	• red deer	•
Mound 18			• urn	•	•								
Mound 17 (inhumation)		•	•	•	•	•	?M *(M)*	• (inhum.)		•			

* Includes silver and gold/gilded objects, buckets/drinking accoutrements, bronze vessels (other than cinerary containers), Byzantine imports, Style II ornament, horse-harness, amethyst beads, gaming counters and glass vessels
† Two 6th-century sherds, one stamp-decorated

Table 9.1 Comparison of the cremation rite at Tranmer House and Sutton Hoo

Conversely, the majority of the cremations under mounds at Sutton Hoo have been argued as male burials (Table 9.1; Carver and Fern 2005, 288–89). Possibly this situation reflects an actual change in gender-based power and social roles locally, late in the 6th century, associated with the emergence of dynastic power with its emphasis on male inheritance. Or, if some of the Tranmer House and Sutton Hoo cremations were contemporary (see endnote 1), the sites might have seen, for a time at least, the separate burial of female and male elites.

III. A Sandlings dynasty

It seems possible, therefore, that a Tranmer House faction founded Sutton Hoo. This poses the question: how could a group in south-east Suffolk rise to the status of an East Anglian regional dynasty? The river valleys of the Sandlings offered attractive land for settlement (Newman 1992), but above all the locality's broad estuaries were probably crucial, enabling the trade and contact with overseas elites necessary to the organisation of more permanent power (Scull 1992, 18, 22). It is unlikely to be coincidence that 'royal' Sutton Hoo and the 7th-century *emporium* of Ipswich were located at the heads of the Deben and Orwell rivers, respectively, their mouths opposite the Rhine river, gateway to Frankish Europe and the Mediterranean beyond (Fig. 1.1; Bruce-Mitford 1975, 1).

Martin Carver has identified a 'Sandlings Province' from the distribution of sites in south-east Suffolk, located between the Stour and Blythe rivers, with Sutton Hoo roughly at its centre (2005, 494–99, fig. 221). This was perhaps the major territorial block of the developing kingdom of the East Angles. Included within it are the 5th- to 7th-century cemeteries of Snape, Hadleigh Road and Boss Hall (both Ipswich), the later 'Final Phase' burial-grounds of Buttermarket (Ipswich) and Coddenham, and the settlements of 'royal' Rendlesham and Ipswich (Fig. 1.1b; Layard 1907; Filmer-Sankey and Pestell 2001; Scull 2009; Penn 2011). From the distribution of sites, and the evidence for ranking in cemeteries, it is possible to envisage a fragmented situation of multiple petty leaderships in the earlier 6th century, based at dispersed farmsteads and with limited territories (Scull 1992, 19–20, 22; Penn and Brugmann 2007, 6–8, 94–6). However, in the last decades of the 6th century, the burials of Sutton Hoo mark a more distinct claim to Sandlings leadership, which, by the time of the grand ship-burials of the early 7th century, was very probably vested in a wider East Anglian supremacy (Carver 1989, 152; Scull 1992, 6–7, 20).

Little evidence has been found of any population actually living at Sutton Hoo/Tranmer House in the period, but there is mounting evidence that 'folk' cemeteries of the 5th to 7th centuries were typically located close to and often in sight of the community they served (Hamerow 1993, 89, 91). Woodbridge, across the river, is tempting as the site for a linked settlement (see *Chap. 8; Sect. II: Setting*). A weapon-burial was excavated in the town in 1873, and early Anglo-Saxon and continental buckle parts have been found at nearby Melton, but no definite occupation has been proved, to date (West 1998, 81, 105; Martin *et al.* 2008, 511, fig. 145f). Also, Kingston ('the king's settlement'), south of Woodbridge, has been proposed as the possible location for an accompanying high-status residence, though this too is currently speculation (Carver 2005, 494). More certain seems the suggestion of a further cemetery at Ufford, a few miles north of Tranmer House (Fig. 1.1b; West 1998, 101): 'Uffa's ford' (i.e. Ufford) might remember Wuffa (or Uffa), the eponymous founder of the East Anglian royal *Wuffingas*, possibly the dynasty buried at Sutton Hoo (Bruce-Mitford 1975, 32; Williamson 2008, 18, 116).

Recently, evidence relating to the period's riverine economy was recorded by SCCAS on the Deben foreshore below the Tranmer House/Sutton Hoo cemeteries (Loader and Everett 2004). This comprised several wooden structures, including possibly a wattle fish-trap and an alder-wood scatter, the latter laid perhaps for a landing place. These have been radiocarbon dated to cal AD 600–780 (GU–11083; 1360±50 BP) and cal AD 420–640 (GU–11084; 1530±50 BP), respectively (both at 95% confidence). A boat landing could have served a small 'beach' market or possibly a ferry crossing between the cemeteries and Anglo-Saxon *Wudebrgge* (see *Chap. 1; Sect. III*).

The likely association of Sutton Hoo with Bede's (*HE* III. 22) *vicus regius* ('royal settlement') at Rendlesham (Fig. 1.1b) was suggested by Bruce-Mitford (1975, 30–2). An earlier relationship with the Tranmer House burial-ground seems unnecessary, however, since in the 5th/6th centuries Rendlesham had its own community cemetery. Nevertheless, recent investigations by SCCAS have now confirmed a high-status settlement site with foreign contacts, of the later 6th to 7th centuries (Plouviez 2009a–b; see also Newman 1992, 36–8). The artefacts found include Style II decorated metalwork, a radiate-headed brooch fragment, several gold tremisses, a fragment of hanging bowl and a Byzantine coin-weight. In addition, there is evidence of high-status jewellery manufacture (C. Scull pers. comm.).

The *emporium* of Ipswich (Fig. 1.1b), established in the early 7th century, was possibly the single port-of-entry for the East Anglian kingdom, and so it too has been linked with the advent of regional rule in the Sandlings (Scull 2002). The settlement was perhaps based on a 6th-century market site, but could have been a new foundation (Scull 2009, 312, 315). Inland two further 'central place' sites have produced evidence of specialist economic activity at Barham and Coddenham (Penn 2011, 102–4). Together with Rendlesham they might have functioned as rural *emporia* linked with Ipswich (Newman 1999; Scull 2009, 309).

Comparison of the Tranmer House cemetery with others of the 'Sandlings Province' is problematic, partly due to the limited grave sample in this case, but also because only that at Hadleigh Road has been potentially fully excavated (Layard 1907). Nevertheless, some observations can be made. The circumstance at Tranmer House/Sutton Hoo, of separate 'folk' and elite cemeteries, finds a contrast in the situation at Snape, where a rich ship-burial was instead located within a long-standing cemetery (Filmer-Sankey and Pestell 2001).

Located upriver of Ipswich, the Hadleigh Road cemetery is notable for several reasons. It had at least 159 inhumation burials and thirteen cremation burials, one of the largest excavated populations in Suffolk (Layard 1907; West 1998, 52–67). However, no cruciform and small-long brooches or wrist-clasps were found in the

graves (West 1998, 275), as at Tranmer House (not including North Field). Here too the explanation is probably one of date: at Hadleigh Road most of the burials also date after *c*. 530/50, when certain traditional 'Anglian' artefacts of the so-called Migration period had disappeared from female costume (Scull and Bayliss 1999, 86–7; Penn and Brugmann 2007, 98–9, fig. 5.9; cf. bead dating in Brugmann 2004, table 11). Nevertheless, as at Tranmer House, a wealthy community is suggested, from finds of Kentish and continental brooches and buckles, great square-headed brooches, glass vessels, a hanging bowl, and quite a high proportion of shield-bosses and spearheads (West 1998, 52–67, 275, figs 58–95). In particular, the site's considerable total of nine square-headed brooches (all of Hines' Phase 3) indicates multiple females of high status, contemporary with those proposed amongst the cremations at Tranmer House (Hines 1997, 304; Penn and Brugmann 2007, 25, 96), whilst the weaponry forms imply also a relatively late zeal for weapon-burial (see *Chap. 8; Sect. IV: Weapon-burial*). Thus, the Hadleigh Road remains appear to corroborate a similar picture of increasing investment in funerary rites locally from the mid 6th century. Possibly, as already suggested, this was a response to external pressure (e.g. threatened Kentish overlordship), though alternatively it might reflect mounting competion between leading groups within the Sandlings, in the vicinity of later, key 'central places', i.e. Sutton Hoo and Ipswich.

Combined, the North Field/Tranmer House artefacts and burials indicate a community receptive to both 'Saxon' and 'Anglian' cultural influences. The saucer or disc brooch fragments from North Field (Figs 6.2, 6.4, nos 1, 32) and the running-spiral brooch foil from the cemetery (Pl. IX) may reflect relations with Saxon England to the south or west, or even the Continent. On the other hand, the burnt bow-brooch fragments from North Field are reminiscent of finds from Anglian cemeteries, such as Spong Hill, in Norfolk (e.g. Hills 1977, 24–5; figs 107–9; Hills *et al.* 1994, figs 102–3). Overall, the limited costume artefacts from the site mean that no firmer statement is possible, although the dominant custom of placing a shield over the head in the weapon-burial rite could argue for an Anglian male majority (Dickinson and Härke 1992, 64–7, table 17). In contrast, the pyre structure with cremation 8 and the ring-ditches around the cremations are well paralleled in Saxon regions, but ultimately both were forms more widely in use in north-west Europe (*Chap. 8; Sect. III: Post Structures and pyres*).

IV. Tranmer House, Sutton Hoo and Scandinavia

Probably the most significant cultural influence at Tranmer House/Sutton Hoo from around the mid 6th century was from Scandinavia. Close cultural links between the Sandlings and Scandinavia have long been recognised, manifested above all in the mound 1 ship-burial discovery of 1939 (Bruce-Mitford 1947; 1975). In particular, the ship-burial rite, the shield and helmet from the grave demonstrate an affinity with the famous Swedish burials and artefacts of Vendel and Valsgärde, Uppland, though the earlier cremations at the elite cemetery also evoke Nordic customs (Bruce-Mitford 1974, 35–55; 1978, 91–9, 205–20, figs 48, 103; Carver and Fern 2005, 284–89). Martin Carver has advanced this interpretation, in the broader historical context of the era of kingdom creation and religious conversion, by his appreciation of the Sutton Hoo burials as 'vehicles of political, religious or ideological rhetoric' that signalled unambiguously 'alignment with pagan Scandinavia and opposition to Christian France' (Carver and Fern 2005, 312–13). However, interpretation must now take account of the possibility of earlier members of the nascent dynasty amongst the pretentious graves of Tranmer House. Hence, the previous impression of the abrupt emergence of regional rule given by the elite cemetery's one-time isolation no longer stands. Now, the basis of that power appears both immediately local and progressive.

The Sutton Hoo story does not only concern burials. An early manifestation of the special relationship is the famous shield from mound 1 decorated with Style II animal art. It was probably manufactured in east or south Scandinavia and perhaps imported around *c.* 550, and it was thus an heirloom when finally buried in the 7th century (Bruce-Mitford 1978, esp. 91–99, fig. 29; Speake 1980, 94; Høilund Nielsen 1991, 130; 1999, 194, 200). Dickinson's (2005) argument that this artefact (see *Chap. 4; Sect. II: Shield from inhumation 21*), or another very like it, might actually have influenced the ornament on the shield from inhumation 21 is important (see *Endpiece*; Fig. 4.6a; Pl. X), as it proposes a possible material connection between the two cemeteries. Various personalities have been suggested for the first bearer of the mound 1 shield: a *Wuffingas* warrior returned from war-service to a Scandinavian lord (Høilund Nielsen 1999, 200); an immigrant Danish prince (Newton 1993, 130); even Wuffa himself (Speake 1980, 94).

The dynamic appeal of east and south Scandinavia in the period resulted in the spread of Nordic culture and ideology across much of north-west Europe (Hedeager 1992). In particular, the emerging leaderships of post-Migration Europe sought 'power by association' and legitimacy in the long-established customs of the region. In England, influence is widely attested in the 5th to 7th centuries, for example, by the fashions of great square-headed brooches and wrist-clasps, and by the adoption of animal art (Hines 1984; 1997). Few artefacts are actual imports, however; the mound 1 shield is a rare exception. Significantly, the case it makes for overseas high-status contact may now be strengthened by the evidence for the possible observance of Scandinavian funerary practices at Tranmer House from the mid 6th century. Cremation with animals, the pyre site or grave marked by a mound, was the essential rite of Swedish elites at this time, as seen at the 'royal' burial-ground at Gamla Uppsala, Uppland (Lindqvist 1936; Duczko 1996; Ljungkvist 2008). In their scale however, it is the 'folk' versions of this funerary mode, in play at cemeteries of the Mälaren region of Sweden, such as Lunda (Lovö) and Vårby-Vårberg (Ferenius 1971; Petré 1984), that are the closest parallels for those at Tranmer House (see *Chap. 8; Sect. III*). Nevertheless, even by Scandinavian standards the combination of animals in the Tranmer House cremations is conspicuous.

Thus a Nordic association can be seen as potentially significant from the first stirrings of dynastic power locally and prior to the primary graves of Sutton Hoo (*c*. 590–610: Phases 1–2; cf. Bruce-Mitford 1949, 77). This challenges the interpretation that a Scandinavian character was adopted only later as 'the defiant pagan

politics of an arriviste monarchy', *contra* Kentish/Frankish politico-Christian hegemony (Carver 1992b, 365).

The links revealed raise the inevitable question: could the Tranmer House/Sutton Hoo graves be those of a ruling group of Scandinavian descent, cremating their dead by the rites of their ancestral homeland, or are they the graves of a Sandlings elite, seeking legitimacy through accord with overseas associates? No immigrant Scandinavian population has been demonstrated, to date, for early Anglo-Saxon England, though East Anglia was possibly subject to migration from the region (Hines 1984). Nonetheless, an analogy may be presented by the later Viking-period cemetery of Heath Wood, Derbs (Richards 2004). This burial-ground also had Scandinavian-type cremation graves with animal offerings covered by small mounds that are akin, to an extent, to those at Tranmer House. It has been suggested as the 'principal war cemetery of the Viking Great Army', dated 873–78 (*ibid*., 107). However, the Heath Wood graves included effects to support a Scandinavian origin, which was not so at Tranmer House. The ceramic urns and other artefacts in this case give no reason to doubt an Anglo-Saxon population.

IV. Conclusion

The Anglo-Saxon cemetery at Tranmer House was perhaps the crucial factor for the setting of later Sutton Hoo. Its Scandinavian-type cremations and weapon-burials of the second half of the 6th century now present a significant prelude to the elite burials of the mound cemetery.

The two cemeteries share significant event horizons — *c.* 550 and *c.* 580/90. The suggested mid 6th-century date for the Scandinavian mound 1 shield approximates with the proposed start date of the animal cremation custom at Tranmer House (cremations 4, 6, 7, 8 and 13). Perhaps they arrived together. Later in the 6th century, the Scandinavian-style cremation rite ended at Tranmer House, just as a very similar rite started at the new elite cemetery. Significantly, these events occurred around the time that history records the emergence of the East Anglian *Wuffingas* royal dynasty.

Tranmer House is important, too, for early Anglo-Saxon cemetery studies generally, as the majority of the cemetery's graves date to a time of significant cultural and social transition in north-west Europe. The cremations of the second half of the 6th century in particular assert a social otherness when inhumation had become the norm in England. Interestingly, the reverse situation occurred at the Swedish cemeteries of Vendel and Valsgärde, where the elite dead were inhumed in ships, contrary to the region's orthodoxy of cremation (Ljungkvist 2006, 189–91; 2008, 276–78). This was a conscious choice, Ljungkvist has argued, intended to stress the social uniqueness of local ruling lineages, a statement which could apply equally at Tranmer House/Sutton Hoo. The rich animal sacrifices at these Scandinavian funerals were highly significant, too, not only as statements of wealth, but for the creation of a visual spectacle not to be forgotten. Ultimately, adoption of Scandinavian customs and material culture by Anglo-Saxon elites can been seen as akin to the folk origin myths of the period that claimed Nordic descent for many of Europe's ruling dynasties (Wolfram 1994; Høilund Nielsen 1998a, 37–40).

It is possible the Tranmer House cemetery did not long continue after the foundation of the elite cemetery at Sutton Hoo, albeit this conclusion is based on only partial excavation at both sites. The scientific and artefact dating indicates the earlier burial-ground could even have been closed by the time of the earliest dated inhumation under mound 17, by *c*. 610/20 (Carver and Fern 2005, 298–301, 310; Bayliss *et al*. 2013, 326). Perhaps a new 'Final Phase' burial-ground was established elsewhere for the Tranmer House 'folk', where burial customs were more controlled. Around this date also was the first, hesitant, acceptance of Christianity in the region (*HE* II. 15).

Inevitably, future finds will alter these arguments, just as Tranmer House has shifted our perspective on the origin of Sutton Hoo. For the present, the finds made in 2000 illuminate a formative time — of warriors and perhaps matriarchs — the ancestors possibly of East Anglian royalty. The discoveries, furthermore, reinforce the existing case that the early kingdom of the East Angles had its roots in the Sandlings territory, and an enduring association with Nordic culture.

Endnotes

1 Some mounds at Sutton Hoo remain to be investigated, with potential therefore for new discoveries to revise the start date of the elite cemetery and this interpretation. In addition, there is the question of two 6th-century sherds, one stamp decorated, from mound 3 (Bruce-Mitford 1975, 113–14). Even if residual, they hint at earlier activity. Also, a *fransisca* axe-head from the burial could date from the last third of the 6th century (*ibid*., fig. 85; Müssemeier *et al*. 2003, 51– 2, FBA4.1; Legoux *et al*. 2004, 24, 52, Type 12). It is probably one of the earliest graves, therefore, and might even have been directly contemporary with the last of the cremations at Tranmer House.

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Endpiece: a reconstruction of the inhumation 21 grave, by Kate Morton

The dressed body was probably laid in the grave with the head resting on a feather pillow and with a blanket or cloak cover. A sheathed sword was placed on the chest, wrapped by a sword-belt, and a spear was laid at the side. The ornate shield was found covering the head, in the 'Anglian' tradition. As a final act, meadow grasses were laid neatly over the body and grave-goods, creating a shroud against the earth backfill.

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