Channel Tunnel Rail Link

London and Continental Railways

Oxford Wessex Archaeology Joint Venture

Animal bone from a Roman cemetery at Pepper Hill , Southfleet, Kent

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1 INTRODUCTION

1.1 The site

From 1997 to 1998 Oxford Archaeology undertook an archaeological investigation at Pepper Hill, Southfleet in Kent on behalf of Union Railways South (Limited) ahead of construction of the Channel Tunnel Rail Link. The site lay south of the Roman town and religious complex at Springhead (*Vagniacis*). Excavation revealed almost the entire plan of a Roman-period cemetery which developed alongside a road that took inhabitants, pilgrims and other traffic into the town. A total of 558 graves or other funerary-related features were encountered.

The cemetery was located at a site previously used for burial in the middle Iron Age. At least one grave belonged to that time. No burials were certainly made during the late Iron Age, though quarry pits and a boundary ditch record activity dating before the Roman conquest. The site received the greatest number of burials during the early Roman period (AD 43-130). The rate of burial declined during the 2nd century and, by the 3rd century, few graves were dug. The latest burials comprise a group of five dating after AD 260; given the fortunes of the neighbouring town, none is likely to date far into the 4th century. The site was abandoned after the Roman period until medieval times when quarrying and agricultural activity began.

The predominant rite, appearing throughout the life of the cemetery, was inhumation. Some 360 such graves were excavated. Many were devoid of grave goods – a factor resulting in a high proportion of undated burials – but offerings were by no means uncommon. Pottery was regularly deposited. Drinking vessels were most popular, followed by eating-related vessels, then cooking forms, such as jars. Other objects were less frequent, but could include brooches, shoes and, more rarely, bracelets, beaded necklaces and wooden objects. Skeletons were poorly preserved. Those that survived revealed a mainly adult population with an equal male-female ratio. Ages rarely extended beyond 30 years. Few children were recorded, although their number is probably lower than expected since their bones would have survived least well. Iron nails and decayed wood-derived soil stains attested to the frequent use of coffins. The proportion of coffined burials was higher in the 2nd century, compared with the 1st century. Wooden boxes or caskets filled with grave goods occasionally accompanied the burial.

Almost 150 cremation graves were encountered. The rite spanned the mid 1st to early 3rd century AD. The deceased were cremated on pyres within the cemetery and outside its boundaries. A cobbled surface west of the cemetery may have functioned as a crematorium or place of funerary feasting. The dead, often wearing brooches, necklaces and the like, were occasionally carried to the pyre on a bier. Pyre goods included shoes, pottery, joints of meat,

and, rarely, beans and fruits. Overall, urned and unurned graves were equally represented, although urned graves were more common in the 2nd century, echoing the use of the coffin. The cremated remains had been carefully deposited in correct anatomical order in at least one urn, while the skull had been deliberately excluded from another. A few boxes and caskets were deposited. One casket was particularly ornate, being decorated with lion-headed studs. Analysis of the cremated human remains again indicated a largely adult population, but with a slight bias towards males. Surprisingly, few cremated individuals had died under 40 years, suggesting that the rite was largely reserved for Springhead's oldest inhabitants. However, children were also represented; some accompanied adults in double burials. Unburnt grave goods included pottery – the range of forms was little different from that recovered from inhumation graves – brooches and shoes. Grave goods hinted at changing beliefs in the afterlife during the 2nd century.

An unusual aspect of the cemetery was the presence of *busta*. Here, the deceased were cremated on a pyre and buried where the remains fell into an underlying pit. The features date mainly to the mid or late 1st century AD and the rite was introduced to Pepper Hill by soldiers or other newcomers, probably from the Rhineland or Danube provinces. Almost all *busta* were closely spaced, a further sign, perhaps, of a social or ethnic grouping. Other funerary-related features included cenotaphs that contained no human bone but were otherwise typical graves, and pits that yielded pyre debris only. A well or shaft east of the cemetery was not fully excavated, but is likely to have received ritual deposits.

The cemetery was very crowded and much intercutting was evident. It admitted a cross-section of Spinghead's inhabitants, but inevitably the cemetery contained mainly low-status burials. The comparison with a walled cemetery only a little way north of Pepper Hill, which covered a larger area and contained eight ornate burials, is particularly revealing.

1.2 Method

Details of the animal bone recording method can be found in the CTRL Section 1 Post-excavation Project Design, Volume 2, Contractor's Method Statements (ADS 2006).

1.3 The animal bone

A total of 791 (466g) fragments of animal bone were recovered from the cremations from the Pepper Hill cemetery. A further 325 (983g) fragments of bone were collected during the excavations, and a total of 721(281g) fragments were recovered from the sieved samples.

Table 1: Summary of identified cremated fragments

	Phase					
Taxon	**Early Roman**	**Early/Middle Roman**	**Middle Roman**	**Middle /Late Roman**	**Unphased**	**Total**
Cattle	1		1			2
Sheep/Goat	2	8	1		2	13
Pig	31	19	5		3	58
Fowl	8	9	1	1	1	20
Bird	71	31	12		11	125
Herring			2			2
Fish	2		1		2	5
Large Mammal	5		8			13
Medium Mammal	113	33	29	1	4	180
Unidentified	275	22	55		21	373
Grand Total	**508**	**122**	**115**	**2**	**44**	**791**

Table 2: Number of fragments of each taxon from the hand-collected material, by phase

	Phase							
Taxon	**Late Iron Age/Early Roman**	**Early Roman**	**Early-mid-Roman**	**Mid-Roman**	**Mid-late Roman**	**Roman**	**Unphased**	**Total**
Cattle		51	34	2	1		2	90
Equid		1		53	2		111	167
Sheep/goat		1			3			4
Pig							1	1
Large mammal	1	9		2	1	4		17
Unidentified		12		1			33	46
Grand total	**1**	**74**	**34**	**58**	**7**	**4**	**147**	**325**

Table 3: Number of fragments of each taxon from the sieved material, by phase

	Phase			
Taxon	**Early Roman**	**Middle Roman**	**Roman**	**Grand Total**
Cattle		18		18
Equid			10	10
Micro Mammal	2			2
Unidentified			691	691
Grand Total	2	18	701	721

As the animal remains recovered from the cremation deposits are of a special nature, as pyre goods, this assemblage has been listed separately. Appendix 1 gives a summary of the animal remains by cremation deposit.

Bird remains are the most abundant in the cremated assemblage, followed by pig and domestic fowl. It is likely that the bird fragments unidentifiable to species are from domestic fowl since no evidence of any other bird was recovered.

Small amounts of cattle, sheep/goat and unburnt fish were also present.

Equid remains dominate the hand-collected assemblage, and are well represented but to a lesser extent in the sieved assemblage. Cattle are less abundant in the hand-collected and sieved assemblages and sheep/goat and pig are present in small numbers in the hand-collected assemblage. Two fragments of micro mammal bones were recovered from the Early Roman phase of the sieved assemblage.

2 RESULTS

2.1 Preservation and alteration

Condition

Table 4 summarises the range of condition scores for the hand-collected and sieved assemblages. The condition of the bone in the hand-collected assemblage is quite variable, ranging from grade 1 to grade 5 on the Lyman (1996) criteria (where 1 is pristine, 5 is just recognisable). The majority of the bone from the hand-collected and sieved assemblages falls in grade 4. The cremated bone is of generally better condition, mostly grade 3.

Table 4, Condition of the hand-collected, sieved and cremated bone assemblages

Condition	Hand-collected assemblage	Sieved assemblage	Cremated assemblage	Total
1	0%		1%	0%
2	1%	1%	4%	2%
3	25%	1%	75%	37%
4	64%	97%	19%	58%
5	10%	1%	1%	3%
Grand Total	**100%**	**100%**	**100%**	**1837**

Skeletal representation

The non-cremation fragments from the hand and sieved collected assemblages are dominated by large mammal bone fragments and teeth. This appears to be due to poor preservation than

selective process. Due to the robust nature of large mammal bones and teeth, they are more likely to survive in poor conditions than the gracile bones and teeth of smaller mammals.

Butchery

A single fragment of large mammal long bone, from middle/late roman cremation [1426], displayed a series of diagonal cuts across the shaft, which could be consistent with disarticulation or meat removal cuts.

A pig astragalus from cremation [10947] displayed evidence of disarticulation cut marks.

Gnawing

An unburnt sheep/goat humerus from Early Roman cremation deposit [237] and an unburnt sheep/goat tibia from cremation [1426] displayed evidence of carnivore gnawing.

Burning

All of the burnt animal bone was recovered from the cremation deposits. Cremated animal bone from [10109], [11627] and [11179] appears to be residual cremations incorporated into inhumation burials. The cremated remains from Early Roman pit [12235] also appear to be residual.

2.2 Species descriptions

Equids

The large numbers of equid remains are mainly loose and fragmentary teeth. Two loose teeth and fifty fragments of enamel were recovered from Middle Roman inhumation [253]. Further loose and fragmentary equid teeth were recovered from Early Roman inhumation [10162], Middle Roman pit [12235], unphased pit [12204], unphased road [10438], and unphased natural hollow [10303].

A total of 10 upper and lower equid teeth were recovered from the sieved assemblage of Roman well [10415]. The teeth all, except one, appear to be from animal/s aged between 7 - 9.5 years old. A single lower second premolar was from an animal aged 3-6 years. It is possible that these poorly preserved teeth are the remnants of an equid skull deposited in the well.

The only post-cranial bone recovered was a fragment of unburnt metatarsal and femur from middle/late cremation [1426], representing a minimum of one individual.

Bird/ domestic fowl

All the bird bone fragments were recovered from the cremation deposits. Many of these fragments could not be identified to species, but approximately 90% of the unidentifiable fragments were recovered from assemblages containing domestic fowl remains, so these unidentified bird bones are probably also domestic fowl. No evidence of any other bird species was recovered.

All of the bird remains appear to be from skeletally mature individuals.

Bird and domestic fowl are represented by varied amounts of skeletal elements. Early Roman cremation [11613] and Early Roman cremation [11637] contain enough bird/domestic fowl skeletal elements to suggest entire carcasses were present on the pyre. In some of the cremation deposits bird/fowl is represented by a few long bones or a single bone (see Appendix 1).

No evidence of bird skull were recovered from the assemblage, but phalanges were found suggesting that bird carcasses were not always fully dressed or jointed before being placed on the pyre.

Cattle

A total of 90 fragments of cattle bone was recovered from the hand-collected assemblage, 87 of which were loose and fragmentary teeth. An unburnt adult cattle radius was recovered from Middle/Late Roman cremation [1426]. A metacarpal fragment was recovered from unphased road [23].

Two fragments of burnt cattle femur were recovered from Early Roman cremation [11017] and Middle Roman cremation [1069].

Pig

All but one fragment of pig bone was recovered from the cremation residue assemblages. A single pig tooth was recovered from unphased pit [10175].

The remains from the cremations were all from juvenile animals. Pig remains from the cremation deposits are represented by a range of skeletal elements. Most frequently represented are rear limbs, some which appear to have articulated. From early/Middle Roman cremation deposit [11637] the remains suggest that there may have initially been an entire carcass placed on the pyre. Occasionally only fragments of skull were recovered.

Sheep/ goat

A small number of sheep/goat remains were recovered from the hand-collected and cremation assemblages. From the hand-collected assemblage two unburnt sheep/goat tibiae and a metacarpal were recovered from cremation [1426]. An unburnt sheep/goat humerus was recovered from the Early Roman cremation [237].

Several fragments of sheep/goat remains were recovered from the cremation deposits. An unburnt metacarpal and two unburnt teeth were recovered from Early/Middle Roman cremations [670] and [63]. Burnt sheep/goat femur fragments were recovered from Early Roman cremations [11455], [11802] and unphased cremation [11779], along with an astragalus. A sheep/goat scapula fragment was recovered from Middle Roman cremation [88]. Two femur fragments from [11455] and [11802] were both from animals aged below 2.5-3.5 years old.

Fish

A total of seven fragments of fish bone were recovered. All were unburnt, recovered from the cremation deposits. Two of the fragments were identifiable as herring; these were both recovered from Middle Roman cremations [599] and [1070]. The remaining fish were unidentifiable to taxon. Two fragments were recovered from Early Roman cremation [11166], and single fragments were recovered from Middle Roman cremation [88], from unphased cremation [10166] and unphased feature [10668].

Micro-mammals

Two micro mammal ulnae were recovered from the sieved assemblage of Early Roman cremation [11344] and Early Roman inhumation [10859]. Little further information can be gained save their presence on site.

The cremated animal bone

The animal bone incorporated in the cremation deposits generally appears to be specially placed pyre goods. Table 5 below summarises the different groups of animal bone found in a total of 52 cremation deposits. A total of 38 deposits contained animal bone that could be identified beyond size category.

Young pig remains are commonest animal bones recovered from the cremation deposits, from a total of 11 deposits. Domestic Fowl/bird remains are the next frequent, from a total of 9 deposits. Only 3 deposits contained a mix of both chicken and pig remains. Cattle and sheep/goat are present very occasionally in the deposits: 4 deposits contained solely sheep/goat remains, while the remaining 6 deposits containing sheep/goat or cattle remains usually contain another species as well.

A total of 6 cremation deposits contained unburnt fish remains.

As can be seen from table 5, there is no change to the pattern of animal bone inclusions with phase: the frequencies of different types seem to be consistent with the number of cremation deposits.

Table 4: *Summary of animal bone groups from the cremated assemblage*

	Early Roman	**Early/mid-Roman**	**Mid-Roman**	**Mid-late Roman**	**Unphased**	**Total %**	**Total (N)**
Pig	10%	4%	5%		2%	21%	11
Pig & Fowl	4%	2%				6%	3
Fowl/ Bird	7%	2%	4%	2%	2%	17%	9
Fowl & Medium	2%		2%			4%	2
Pig & S/G	2%					2%	1
S/G	2%	4%			2%	8%	4
Cattle & Medium	2%		2%			4 %	2
Fish	2%		4%		4%	10%	5
Fish & S/G			2%			2%	1
Large Mammal			4%			4%	2
Medium Mammal	7%	5%	4%	2%		18%	10
Medium & Large	2%					2%	1
Unidentifiable	2%					2%	1
Total (N)	**22**	**9**	**14**	**2**	**5**	**100%**	**52**

Skeletal representation

The skeletal elements represented in the deposits, for pig, sheep/goat and cattle, are generally of meat-bearing bones or articulated limbs, especially hindquarters.

Domestic fowl/bird are generally represented by leg bones, occasionally wing bones and in two cases partial complete carcasses. This may suggest that only joints or partial carcasses were present on the pyre.

Fish remains are too limited to suggest much more beyond presence in the assemblage.

The assemblage would suggest that food items were placed upon the pyre to accompany the dead. However, the fish remains are unburnt, which may suggest that they are residual or placed with the cremated remains after deposition.

Table 5: Cremation deposit animal remains summary

**All remains are burnt unless otherwise specified*

Event code	**Phase**	**Cremation**	**Summary of remains***
ARC NBR98	ER	10489	Juvenile pig, rear limb and unidentified fragments
ARC PHL97	ER	185	1 pig tooth, 4 bird long bones, 1 Domestic fowl radius and unidentified fragments
ARC PHL97	ER	228	Unidentified fragments
ARC PHL97	ER	237	Unburnt Sheep/goat radius with carnivore gnawing
ARC PHL97	ER	307	2 Pig skull fragments

Event code	Phase	Cremation	Summary of remains*
ARC PHL97	ER	354	2 Medium mammal sized Long bone fragments
ARC PHL97	ER	488	2 Medium mammal sized skull
ARC PHL97	ER	498	2 Medium mammal sized long bone fragments, 2 Large mammal sized long bone fragments
ARC NBR98	ER	10943	Pair of rear limbs from juvenile pig, a humerus and 11 medium mammal long bone fragments. Butchery on astragalus, dressed joint/carcass?
ARC NBR98	ER	10953	Pair of juvenile pig tibia, 1 astragalus , 1 medium mammal long bone, 11 unidentified fragments
ARC NBR98	ER	11017	1 fragment of cattle femur, 2 fragments of large mammal long bone, 3 fragments of juvenile medium mammal sized long bone and unidentified fragments
ARC NBR98	ER	11064	1 Medium mammal sized long bone fragment
ARC NBR98	ER	11079	1 Bird tarso-metatarsus and 4 phalanges, some unidentified bird fragments
ARC NBR98	ER	11166	2 Unidentified fish fragments
ARC NBR98	ER	11365	7 fragments of medium mammal sized long bone
ARC NBR98	ER	11407	1 Domestic fowl tibio-tarsus, 6 fragments of unidentified bird long bone
ARC NBR98	ER	11455	1 Juvenile Sheep/goat femur fragment
ARC NBR98	ER	11613	1 Domestic fowl tibio-tarsus and carpo-metacarpus fragment, bird radius, humerus and 20 long bone fragments possibly from complete bird.
ARC NBR98	ER	11800	1 Domestic fowl coracoid, 12 bird long bone fragments, 1st and 3rd bird phalanx. Juvenile pig foot, 3 medium mammal ribs, 6 medium mammal caudal vertebrae, 9 medium mammal vertebra and 6 medium mammal long bones
ARC NBR98	ER	11802	2 Fragments juvenile pig tibia, 1 fragment of juvenile sheep/goat femur, 1 medium mammal sized long bone, 5 fragments unidentified.
ARC NBR98	ER	11994	Juvenile pig rear limb, 7 medium mammal sized skull fragments, 3 medium mammal sized femur fragments, 9 medium mammal long bone fragments and 76 unidentified fragments
ARC NBR98	ER	10109	1 domestic fowl tarso-metatarsus
ARC NBR98	ER	11179	Domestic fowl carpo-metacarpus and radius, 3 bird long bone fragments, 13 medium mammal rib fragments, 12 medium mammal skull fragments, 78 unidentified fragments
ARC PHL97	E/MR	63	7 fragments of unburnt sheep/goat tooth, medium mammal sized vertebra fragment
ARC PHL97	E/MR	332	1 fragment of pig skull
ARC PHL97	E/MR	670	Unburnt sheep/goat metacarpal
ARC PHL97	E/MR	998	3 fragments of medium mammal sized long bone
ARC NBR98	E/MR	10813	2 fragments of pig skull, 5 fragments of skull unidentifiable to species
Event Code	Phase	Cremation	Summary of Remains
ARC NBR98	E/MR	10893	2 fragments of medium mammal long bone
ARC NBR98	E/MR	11242	3 fragments of medium mammal sized skull
ARC NBR98	E/MR	11340	1 fragment of bird tarso-metatarsus
ARC NBR98	E/MR	11637	Pair of rear limbs from juvenile pig aged approximately 24 months, 4 fragments of medium mammal sized vertebra, 3 medium mammal sized skull, and 7 medium mammal sized long bone. Whole carcass? Almost complete domestic fowl carcass.

Event code	Phase	Cremation	Summary of remains*
ARC PHL97	MR	42	7 fragments of medium mammal sized long bone, 1 fragment of skull, 2 unidentified fragments
ARC PHL97	MR	68	1 domestic fowl tibio-tarsus, 8 fragments bird long bone, 4 unidentified fragments
ARC PHL97	MR	77	3 medium mammal long bone, 3 fragments of bird long bone, 7 fragments of unidentified skull.
ARC PHL97	MR	88	1 Unburnt fish fin ray, 1 fragment of sheep/goat scapula.
ARC PHL97	MR	239	1 fragment of bird long bone, 1 unidentified fragment
ARC PHL97	MR	599	1 Unburnt herring vertebra
ARC PHL97	MR	655	1 fragment of unburnt large mammal sized skull
ARC PHL97	MR	856	7 fragments of large mammal long bone, 5 fragments of unidentified bone
ARC PHL97	MR	1069	1 fragment of cattle femur, 1 fragment of medium mammal sized skull
ARC PHL97	MR	1070	1 Unburnt herring vertebra
ARC PHL97	MR	1180	1 pig tooth, 1pig astragalus, 1 medium mammal long bone fragment, 5 unidentified fragments
ARC NBR98	MR	10837	3 fragments of medium mammal long bone
ARC NBR98	MR	11118	2 fragments of medium mammal long bone, 1 unerupted pig molar
ARC NBR98	MR	11510	1 Pig humerus, and juvenile pig ulna, 1 medium mammal sized humerus, 1 medium mammal sized phalanx, 4 medium mammal long bone fragments, 30 unidentified fragments
ARC NBR98	M/LR	11058	1 Fowl tibio-tarsus
ARC NBR98	M/LR	11627	1 medium mammal sized rib fragment
ARC PHL97	M/LR	1426	Almost complete adult cattle radius, Equid metatarsal and femur, two sheep/goat tibiae and a metacarpal, a large mammal long bone fragment with cut marks.
ARC NBR98	U	10166	1 Unburnt fish fragment
ARC NBR98	U	10668	1 Unburnt fish fragment
ARC NBR98	U	11525	R rear juvenile pig limb, medium mammal juvenile femur, most likely from limb. Dressed joint?
ARC NBR98	U	11684	Domestic fowl carpo-metacarpus, 8 bird long bone fragments and 3 unidentified bird fragments, 13 unidentified fragments
ARC NBR98	U	11779	Sheep/goat femur and astragalus, medium mammal sized phalanx, 6 unidentified fragments.

3 DISCUSSION

The animal bone assemblages apart from the cremations are very limited, due to poor preservation. The equid teeth recovered from the Roman well [10145] suggest deposition of an equid skull in the shaft. Little information can be gained from the hand-collected and sieved assemblages save the presence of the species.

It is uncertain if the unburnt remains recovered from the cremations and inhumations are from placed deposits and offerings during burial or residual in the soil. The majority of the unburnt bones (a mix of cattle, equid and sheep/goat bone) were from Middle/Late Roman

cremation [1426], and one large mammal bone had cut marks, which may suggest that the remains are food/butchery waste.

In several of the inhumation burials, unburnt bone was recovered. Fragmentary equid teeth were recovered from Early Roman inhumation [10162] and Middle Roman inhumation [253]. In Middle Roman inhumation [191] a cattle tooth, two large mammal long bone fragments and a few unidentifiable fragments were recovered. A cattle femur fragment and large mammal long bone fragments were recovered from Early Roman inhumation [891]. Early Roman inhumation [235] contained a cattle tooth and Early Roman and unphased inhumations [10089] and [10185] contained several unidentifiable fragments. Due to the scarcity and the poor preservation of these few bones it is difficult to determine if they were specifically placed.

The cremation deposits produced a good number of identifiable remains, providing a clear idea of the pyre goods included in the cremation ceremony. The remains appear to be purely food offerings to accompany the dead. In most cases the skeletal elements indicate the food was present in the form of joints of meat or occasionally complete carcasses. It is possible that a large number of unburnt grave goods/offerings have not survived, due to poor preservation conditions, which would explain the small number of fish remains.

A similar pattern of animal bone inclusion can be seen in the Roman cremation deposits recovered from the Eastern Cemetery of Roman London (Barber and Bowsher, 2000:71-76). One noted difference is the Pepper Hill cremations contain a majority of pig hind limb, whereas the cremations from the Eastern Cemetery contain mainly pig skull and forelimb (Barber and Bowsher, 2000:74). This could indicate a difference in cremation practice, such as placement of the carcass on the pyre, collection of the remains after firing or a preference for different joints of meat.

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