

## **An Anglo-Saxon cemetery at Headley Drive, Tadworth, near Banstead**

PETER HARP and JOHN HINES

with contributions by

TONY WALDRON and SIOBHAN STEVENSON

*An Anglo-Saxon cemetery of the 7th century AD that was unexpectedly encountered during housing development near Tadworth, in Banstead parish, in 1986, was the subject of salvage excavations. Despite problems resulting from poor recording of the excavations, the finds receiving little immediate conservation, and the reburial of the skeletal material, it is possible to investigate and discuss many aspects of what proves to be an interesting and important site, even though the grave goods are few.*

### **Introduction**

In October 1986 building work for a new housing development at Headley Drive, between Tadworth and Tattenham Corner, revealed a number of Anglo-Saxon burials during the digging of foundation trenches (fig 1). Coincidentally, the general area of the site had for a number of years previously been referred to in borough council minutes as ‘the cemetery site’: the intention having been to locate a new cemetery on this area of land. The building contractors, Hall and Hawse of Southampton, allowed a salvage excavation to proceed over the following three weeks, and 42 shallow graves were excavated, datable within the ‘Final Phase’ of the Early Anglo-Saxon period – ie the late 6th to early 8th centuries.

The excavation was directed by Sean Kahn, the curator of Bourne Hall Museum in Ewell, while most of the excavators were members of a local amateur archaeological society, the Nonsuch Antiquarian Society (NAS). Stephen Nelson, a member of NAS, acted informally as site manager, and it is probably largely through his efforts that any site recording took place. The excavation also involved the assistance of numerous local residents and children but was hampered by the coverage it received in the local press, which may have resulted in some minor looting of the graves during the excavation. The quality of the site archive (held, along with the finds, at Bourne Hall Museum, Ewell; site code HLD) reflects both the hurried nature and the lack of proper supervision of the excavation. There are unfortunately a number of omissions in the recording that cannot be resolved. In September 1996 the skeletons from the site were reburied at All Saints’ Church, Banstead.

At about this time the present authors began collaborative work to retrieve and publish as much useful information as could be determined from the finds and records. This led to the grave goods being cleaned, analysed and conserved by students at Cardiff University in the year 2000–1, an exercise that revealed much previously unsuspected detail. These results are now published here along with a report on the skeletons, written at an early post-excavation stage by Tony Waldron and updated for this publication. An earlier report (Harp 2000) contains additional information and photographs not reproduced here.

### **The excavations and post-excavation handling of the finds (fig 2)**

The foundation trenches for the housing development on the site cut through approximately fifteen graves (I–VII, XXVII, XXIX–XXXIV and possibly XXXVI–XXXVII) and feature XXVIII. Rescue excavations were organized by Bourne Hall Museum on the disturbed graves and the other burials contained within the building site. It was clear that the cemetery continued into the playing field to the north, but these graves were left undisturbed. The

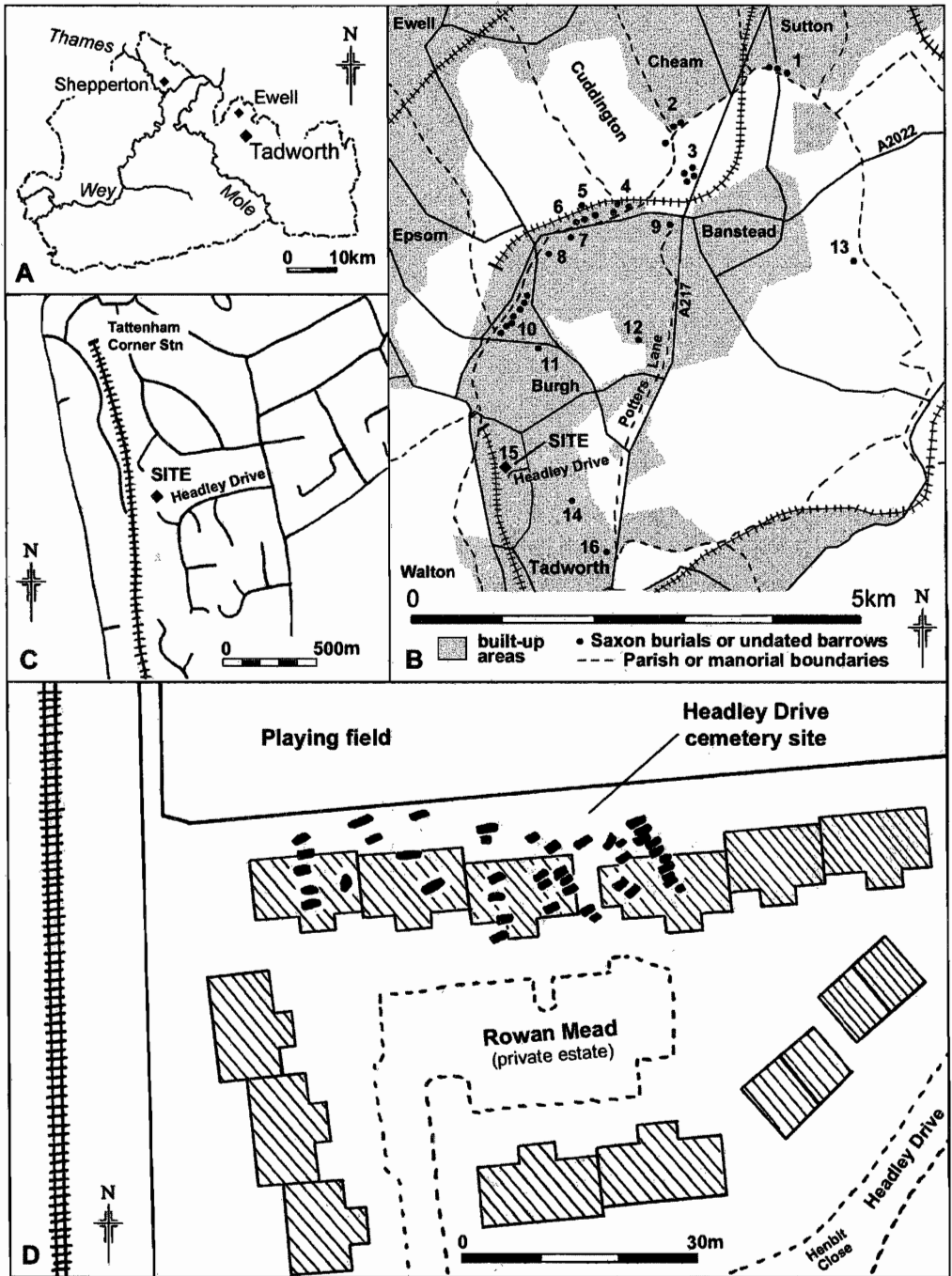


Fig 1 Headley Drive, Tadworth. A: general location map; B: Banstead parish, showing the location of the cemetery; C: the site in relation to Headley Drive as it existed at the time of the excavation; D: the location of excavated graves in relation to the present buildings around Headley Drive. (© Crown Copyright. MC 100014198)

Key to plan of distribution of barrows and Anglo-Saxon burials around Banstead shown in figure 1B (opposite). (Note: this only shows barrows/burial sites within the (later subinfeudated) parish of Burgh and those on the boundary of Banstead parish)

- 1 Three barrows shown on two maps dated c 1503–1536 (PRO: MPI 68 and MPI 252).
- 2 Three barrows shown on two maps dated c 1503–1536 (PRO: MPI 68 and MPI 252). Anglo-Saxon inhumation with iron knife discovered in 1918 (Surrey SMR no 1120).
- 3 Gally Hills, four barrows; one inhumation recovered in the 19th century; one Anglo-Saxon inhumation and several medieval inhumations recovered in 1972 (Barfoot & Price-Williams 1976).
- 4 Three barrows shown on two maps dated c 1503–1536 (PRO: MPI 68 and MPI 252).
- 5 'Human bones and weapons' recovered from barrows in 1803 (Grinsell 1987, 22: Epsom and Ewell, 1).
- 6 Numerous barrows shown on maps dated 17th–18th centuries (Manning & Bray 1804–14, 2, 580 and 18th-century plan of Nork estate in Sussex Record Office, copy in Surrey SMR).
- 7 Two Anglo-Saxon inhumation burials and three late 6th century urns (Lambert 1925, 91–3); skeleton found in 1958 (Morris 1959, 133), and another in 1978 (Nelson 1985).
- 8 Beech Cross – probable site of burial as the map in Manning & Bray (1804–14, 2, 580) shows a cross next to the name, and Lambert (1931, 81) refers to William Clark in 1738 who stated that he (Clark) had 'taken stones out of a cross laid down by the Ewell people'. The site later became a pond in Warren Farm (Lambert 1931).
- 9 Partially demolished barrow shown on map of 1804 (BL: Ordnance Surveyor's drawings 1804).
- 10 Numerous barrows shown on 17th and 18th century maps (Manning & Bray 1804–14, 2, 580; 18th century plan of Nork estate, Sussex Record Office, copy in Surrey SMR).
- 11 Field called 'The knolls'; possible site of barrows (SHC: Banstead tithe survey 1843). 'A cross on a hill' shown on Preston Downs (Manning & Bray 1804–14, 2, 580) may also be this site; several barrow-like mounds still extant in 2001 (B Wood, pers comm).
- 12 Tumble Beacon barrow, presumed to date to the Bronze Age but unproven (Grinsell 1987, 29: Banstead, 5).
- 13 Inhumation with pikestaff or more likely spear/sword, found 1940 (Surrey SMR no 975).
- 14 Possible barrow, Preston Hawe, still surviving (not that excavated by Hope-Taylor in 1951).
- 15 Headley Drive Anglo-Saxon cemetery.
- 16 Barrow extant in 2001 and shown on OS late 19th century 25-inch maps (Currie 2001, 172).

excavators were of the opinion that the building site contained the limits of the cemetery on all but the northern side (S Nelson, pers comm).

Much of the soil overlying the natural chalk on the site had been removed by the building contractors prior to building work and, following minor cleaning, the grave cuts and other features were clearly defined (fig 3). Although all the graves and features identified appear to have been excavated, there was no systematic recording of the graves. Some graves were neither planned nor photographed, and although in most cases the lack of such records probably indicates an absence of finds in any particular grave cut, this is clearly not always the case. Those graves that were either planned or photographed were often done so without numbering or scale, or, in some instances, with the wrong number. No definitive listing of the excavated graves appears to have been made during the excavation, so there is no primary record of which graves contained human remains and which did not, nor was there a master list of the grave goods.

The basis for attributing artefacts from the site to specific burial contexts is their labelling in the museum collection, some objects having been marked, others being in labelled bags or boxes. In most cases these clearly correspond to, or are at least consistent with, the imperfect evidence of the site records just described. However, there are problems: finds are labelled as coming from graves XIX, XXXIV and XXXV but with no relevant grave plans or other records; two different knives, and a range of other objects, are labelled XXII while just one knife appears on the plan; grave XVI evidently included a knife, but it cannot be identified in the collection; another knife is labelled XVIII but does not appear in the plan of that grave. There are two further unlabelled knives in the collection, and two grave plans showing knives but lacking grave numbers.

Regrettably, therefore, the association of finds with particular graves and their inter-association within such contexts have to be regarded as generally less than totally reliable and sometimes very uncertain indeed. Since, however, this is a set of relatively sparsely

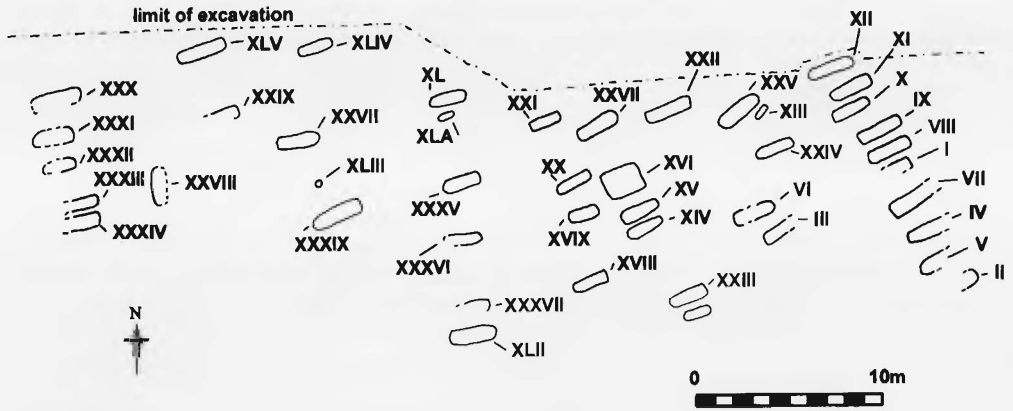


Fig 2 Headley Drive, Tadworth. Site plan showing the location of graves and other features.



Fig 3 Headley Drive, Tadworth. Grave cuts clearly visible cut into the chalk after the removal of the overlying soil.

furnished graves – a description one can confidently make despite the disturbance to and poor subsequent handling of the evidence – the effect on the archaeological value of the site is not as great as it could have been. It is still informative to look at the range and frequency of finds from the site as a whole. No record was made of the depths of each grave or feature, although Nelson states that ‘the graves had been cut up to half a metre deep into the fractured upper level of the chalk’ (1987). He also states in the same note that overlying the chalk was about 6–9 inches (*c* 15–25cm) of soil.

Various problems during post-excavation analysis have further confused the recording of this site. The numbering of individual skeletons became, to some extent, muddled between

excavation and the production of the specialist report that follows. This means that virtually none of the skeletons numbered in the osteological report can be assigned to specific graves with absolute certainty. The reburial of the skeletons, apparently not even individually bagged, within a single coffin in September 1996, means that this discrepancy between the site archive and the specialist report can no longer be resolved.

### The graves and other features (figs 4–15)

No evidence for grave furniture, such as coffins or grave-boards, was recovered during the excavation, except for a few examples where grave plans or photographs indicate that flint nodules had been placed as an edging within the grave cuts, usually restricted to that part of the grave cut nearest the head (eg fig 4g). Nor was there any evidence for grave-markers in the form of postholes, although the fact that the graves were aligned in rows suggests that some kind of grave marker may have been in use.

Feature XXVIII, which on some of the archive plans appears to be a grave cut aligned north–south in contrast to the other east–west graves, seems to have been interpreted at the time as not being a grave since it was designated on one plan as a ‘feature’ rather than a ‘grave’. One of the plans also shows the corners of this feature to be more rounded than the graves. No artefacts were recovered from this feature and it may be unconnected to the Saxon use of the site. Feature XLIII, a sub-circular pit, contained highly fragmentary human bone and, since it is aligned with the other inhumations, may represent a reburial.

Several of the grave cuts either did not contain surviving burials, or else burials were not recorded from them during the excavation. In view of the poor state of preservation of some of the skeletons elsewhere on the site it may be that all the grave cuts originally contained inhumations, rather than some grave cuts being dug in advance and then subsequently not needed, as has been postulated for some other Anglo-Saxon cemeteries (Welch 1992, 56).

#### CATALOGUE OF GRAVES

##### Grave I

Feature appears in site plan. No grave plan or photograph. No associated finds.

##### Grave II

Feature appears in site plan. No grave plan or photograph. No associated finds.

##### Grave III

Feature appears in site plan. No grave plan or photograph. No associated finds.

##### Grave IV

Feature appears in site plan. No grave plan or photograph. No associated finds.

##### Grave V

Feature appears in site plan. Grave plan, fig 4a. No photograph. No associated finds.

##### Grave VI

Feature appears in site plan. Grave plan, fig 4b. No photograph.  
Associated finds:

- 1 Knife. Unclassifiable fragments. Mineral-preserved textile on handle. Fig 15c.
- 2 Fragment of iron ring, possibly buckle loop. Mineral-preserved threads on one side. Max. length 32mm. Fig 10a.

- 3 Fragment of iron pin, with mineral-preserved textile. Length 33mm. Fig 15a.

- 4 Sheet copper-alloy plate, folded double. Lying alongside iron ring (above) on opposite side from the textile. Max. length 18mm. Fig 10b.

##### Grave VII

Feature appears in site plan. Grave plan, fig 4c. Photograph.

Associated finds:

- 1 Knife. Type A/C transitional. Straight cutting edge, and furrow on both sides alongside the back. Total length 130mm, length of blade 83mm; size group 1. Mineral-preserved leather with larval imprints on blade; mineral-preserved wood or horn on the tang. Fig 8a.
- 2 Wheel-thrown pot. Height 80mm. Diameter of mouth, 64mm, base 43mm. Fig 12.

##### Grave VIII

Feature appears in site plan. Grave plan, fig 4d. Two different grave plans have been labelled VIII: this plan has been ‘identified’ on the basis of the knife included as grave goods. No photograph.

Associated finds:

- 1 Knife. Unclassifiable fragment. Mineral-preserved horn or wood on the tang.

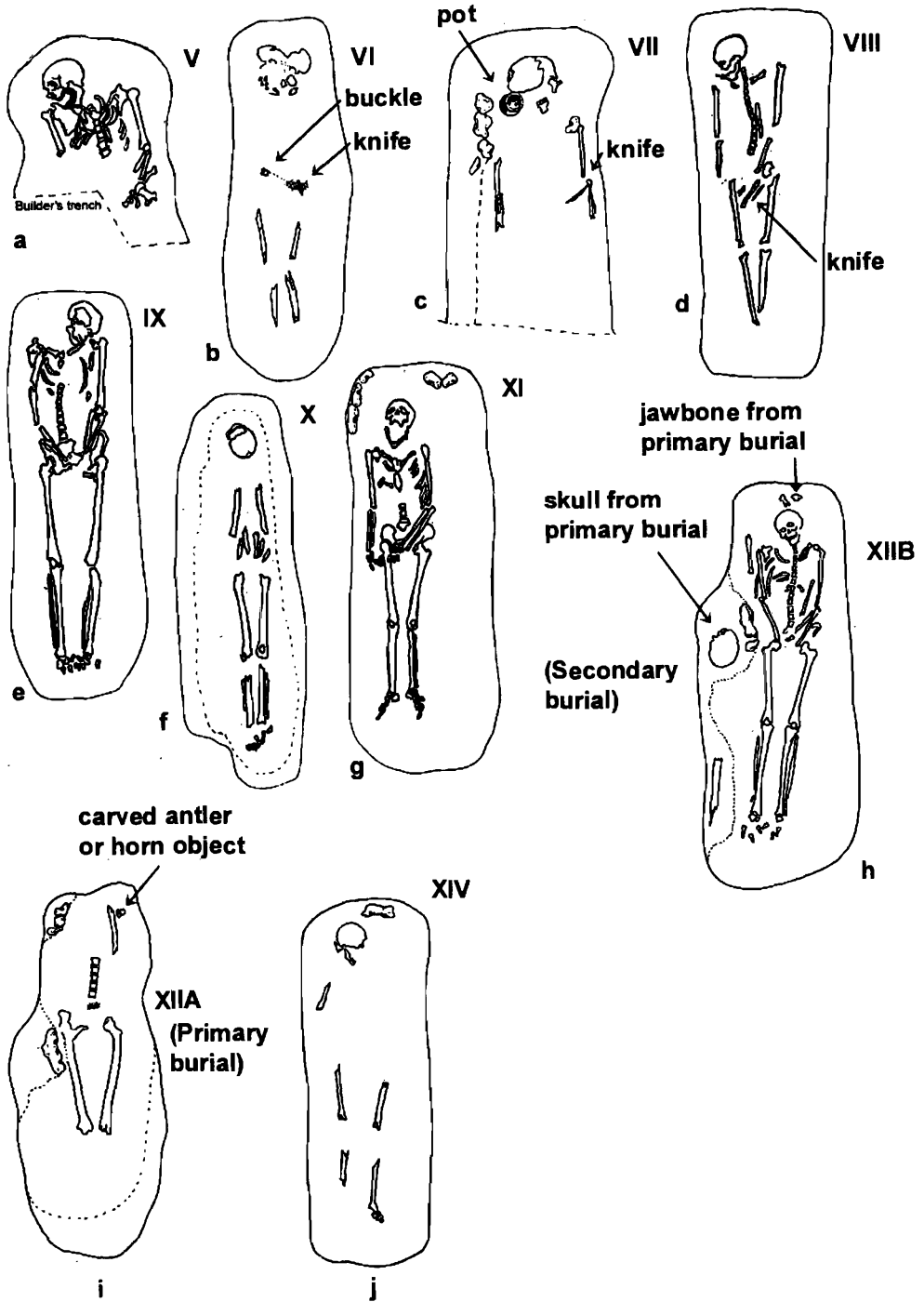


Fig 4 Headley Drive, Tadworth. Grave plans: a) grave V; b) grave VI; c) grave VII; d) grave VIII; e) grave IX; f) grave X; g) grave XI; h) grave XIIIB; i) grave XIIA; j) grave XIV. Scales unknown.

**Grave IX**

Feature identified in site plan. Grave plan, fig 4e, apparently mistakenly labelled VIII on site. No photograph. No associated finds.

**Grave X**

Feature identified in site plan. Grave plan, fig 4f. No photograph. No associated finds.

**Grave XI**

Feature identified in site plan. Grave plan, fig 4g. No photograph. No associated finds.

**Grave XIIA**

Feature identified in the site plan although with no sign of relationship between graves XIIA and XIIIB. Grave partly cut and disturbed by adjacent burial XIIIB. Plan, fig 4i; photograph, fig 7a.

Associated finds:

- 1 Cylindrical object, apparently of bone rather than antler. Decorated with incised lines and ring-and-dot motifs. Length, 35mm. Fig 13.

**Grave XIIIB**

Feature identified in the site plan although with no sign of relationship between graves XIIA and XIIIB. Grave partly overlying adjacent burial XIIA. Plan, fig 4h; photograph, fig 7a. No associated finds.

**Grave XIII**

Feature identifiable in site plan. No grave plan or photograph. No associated finds.

**Grave XIV**

Feature identified in site plan. Grave plan, fig 4j. Photograph. No associated finds.

**Grave XV**

Feature identified in site plan. No grave plan. Photograph, fig 7b. No associated finds.

**Grave XVI**

Feature identified in site plan. Grave plan, fig 5a. No photograph.

Associated finds:

- 1 Pendant consisting of shaped quartz crystal in sheet copper-alloy frame, with fragment of iron wire suspension loop. Dimensions of crystal: length 29mm, max width 24mm. Fig 14b.
- 2 Knife, recorded on grave plan but not identified within the collection.

**Grave XVII**

Feature identified on site plan. Grave plan, fig 5b. Photograph.

Associated finds:

- 1 Knife. Unclassifiable.

**Grave XVIII**

Feature identified on site plan. Grave plan, fig 5c. Photograph. No primary record of associated finds, although the collection includes unclassifiable knife fragments labelled 'XVIII'.

**Grave XIX**

Feature identified on site plan. No grave plan or photograph.

Associated finds:

- 1 Two fragments of iron plate, one with rivet or nail through it. Mineral-preserved textile. Lengths 23 and 24mm respectively. Fig 11a-b.
- 2 Sheet copper-alloy tongue-shaped mount. Small rivet holes at either end. Length 41mm. Fig 11c.

**Grave XX**

Feature identified on site plan. Grave plan, fig 5d. Photograph. No associated finds.

**Grave XXI**

Feature not identified on original site plan but probably the grave at the northern end of the row with graves XVIII, XIX and XX in sequence from the south. Grave plan, fig 5e. Photograph. No associated finds.

**Grave XXII**

Feature identified in site plan. Grave plan, fig 5f. Photograph.

Associated finds:

- 1 Knife. A single knife is recorded on the grave plan but two knives are labelled 'XXII' in the collection. The grave plan suggests that the larger of these knives (b) is more likely to have come from this grave.
  - (a) Type C. Straight cutting edge, slightly turned up at point. Total length, 120mm, length of blade 90mm: size group 1. Fig 8b.
  - (b) Type A. Straight cutting edge. Total length, 180mm, length of blade (with tip missing) 131mm: size group 2. Fig 8c.
- 2 Antler tine. Length 92mm. Fig 14a.
- 3 Small ceramic ball, diameter 12mm, with long shaft as if the object were moulded around a spike, but not perforated like a bead. Fig 14c.
- 4 Sheet copper-alloy triangular mount with triangular opening in centre and a rivet hole in each corner. Dimensions: base, 52mm, height 35mm. Fig 11d.

**Grave XXIII**

Feature identified in site plan. Grave plan, fig 5g. No photograph.

Associated finds:

- 1 Knife. Type A/C transitional. Cutting edge slightly convex. Mineral-preserved leather on blade and horn or wood on tang. Total length 133mm, length of blade 87mm: size group 1. Fig 8d.

**Grave XXIV**

Feature identified in site plan. Grave plan, fig 5h. Photograph.

Associated finds:

- 1 Knife. Type A. Cutting edge slightly convex. Total length 160mm, length of blade 110mm: size group 2. Fig 8e.
- 2 Knife. Type C. Straight cutting edge. Broad furrow alongside thickened back of blade. Total length 160mm, length of blade 105mm: size group 2. Fig 8f.

**Grave XXV**

Feature identified in site plan. Grave plan, fig 5i. No photograph. No associated finds.

**Grave XXVI**

Feature not identified in site plan. No grave plan or photograph. No associated finds.

**Grave XXVII**

Feature identified in site plan. Grave plan, fig 5j. No photograph.

Associated finds:

- 1 Knife. Type A. Straight cutting edge. Total length 120mm, length of blade 84mm: size group 1. Fig 9a.
- 2 Buckle. Double-tongued type. Iron loop and tongues, with mineral-preserved textile on the loop and larval casts on tongues. Folded sheet copper-alloy backplate with indented rear edge and decorated with incised lines and notching. Fastened with three iron rivets, with mineral-preserved textiles on them. Width of loop 47mm externally, 39mm internally. Fig 10c.

**Grave XXVIII**

Feature shaped like grave cut but exceptionally aligned north-south identified on site plan. No grave plan or photograph. No associated finds.

**Grave XXIX**

Severely truncated feature identified in site plan. Photograph.

Associated finds:

- 1 Fragment of iron pin with mineral-preserved textile. Length 30mm. Fig 15b.

**Grave XXX**

Feature identified in site plan. Grave plan, fig 6a. Photograph.

Associated finds:

- 1 Knife. Type A/C transitional. Straight cutting edge with slight lip at point. Furrow alongside back on both sides. Mineral-preserved leather on the blade with larval imprints. Total length 112mm, length of blade 78mm: size group 1. Fig 9b.

**Grave XXXI**

Feature identified in site plan. Grave plan, fig 6b. No photograph. No associated finds.

**Grave XXXII**

Feature identified in site plan. No grave plan or photograph. No associated finds.

**Grave XXXIII**

Feature identified in site plan. Grave plan, fig 6c. No photograph. No associated finds.

**Grave XXXIV**

Feature identified in site plan. No grave plan or photograph.

Associated finds:

- 1 Pointed iron tool with wooden handle that may have had a thin iron ring around the working end. Length 93mm. Fig 16.

**Grave XXXV**

Feature identified in site plan. No grave plan or photograph.

Associated finds:

- 1 Buckle. Remains of iron loop and single tongue within a folded sheet copper-alloy backplate, undecorated, fastened with three copper-alloy rivets. Mineral-preserved leather from belt remains within the backplate. Dimensions of backplate 35 × 26mm. Fig 10d.
- 2 Iron fragments. Probably from a knife blade.

**Grave XXXVI**

Feature identified in site plan. Grave plan, fig 6d. Photograph.

Associated finds:

- 1 Knife. Unclassifiable fragments.

**Grave XXXVII**

Feature identified in site plan. No grave plan or photograph. No associated finds.

**Grave XXXVIII**

Feature not identified in site plan. No grave plan or photograph. No associated finds.

**Grave XXXIX**

Feature identified in site plan. Grave plan, fig 6e. Photograph. No associated finds.

**Grave XL**

Feature identified in site plan. No grave plan but photograph of empty grave labelled XL. No associated finds.

**Grave XLI**

Feature not identified in site plan but could be the possible small grave cut labelled XLA alongside grave XL. No grave plan or photograph. No associated finds.

**Grave XLII**

Feature identified in site plan. No grave plan. Photograph of near-complete skeleton (not illustrated). No associated finds.

**Grave XLIII**

Small circular feature identified in site plan. No plan or photograph. No associated finds.

**Grave XLIV**

Feature identified in site plan. Grave plan, fig 6f. Photograph. No associated finds.

**Unattributed finds**

- 1 Knife. Type A/C transitional. Total length 168mm, length of blade (incomplete) 115mm: probably size group 2. Fig 9c.
- 2 Knife. Unclassifiable fragments.

Compare also catalogue entries for graves XVI, XVIII and XXII. Note also that there are three unnumbered grave plans (fig 6g-i), two of which show knives as grave goods, and three unnumbered graves on the original site plan, one of which, however, can plausibly be identified as grave XXI.



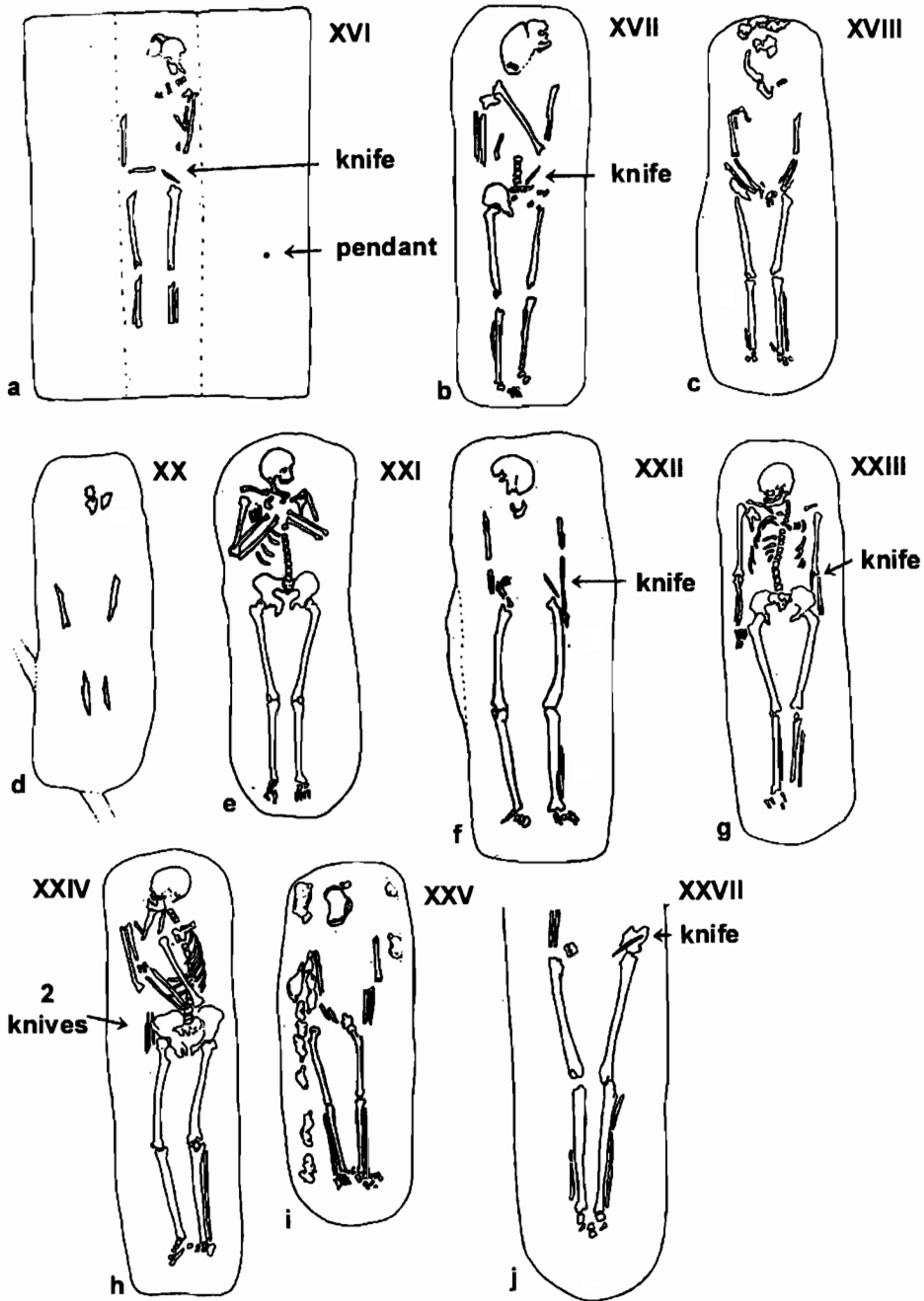


Fig 5 Headley Drive, Tadworth. Grave plans: a) grave XVI; b) grave XVII; c) grave XVIII; d) grave XX; e) grave XXI; f) grave XXII; g) grave XXIII; h) grave XXIV; i) grave XXV; j) grave XXVII. Scales unknown.

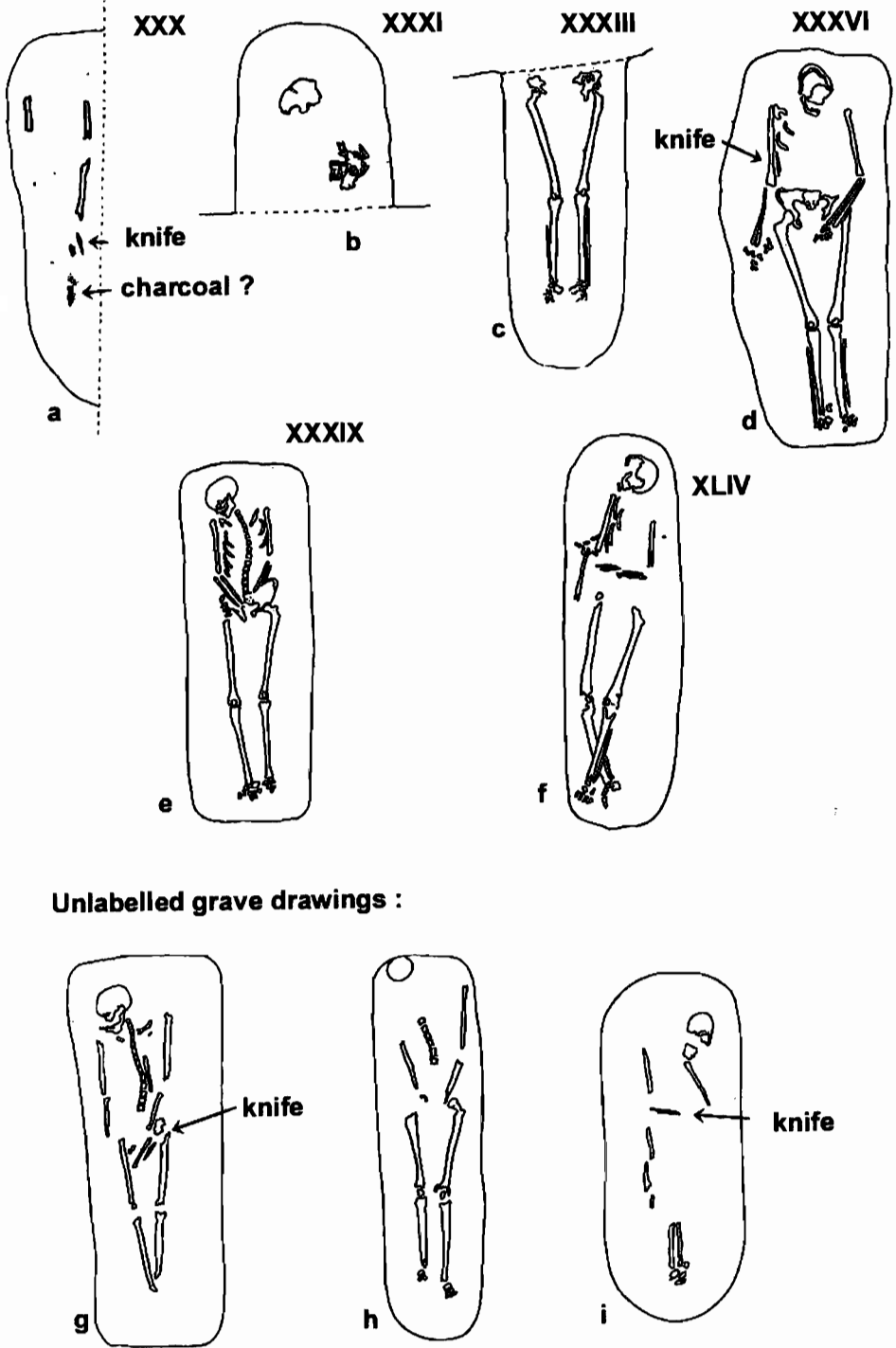


Fig 6 Headley Drive, Tadworth. Grave plans: a) grave XXX; b) grave XXXI; c) grave XXXIII; d) grave XXXVI; e) grave XXXIX; f) grave XLIV; g-i) unnumbered grave plans. Scales unknown.

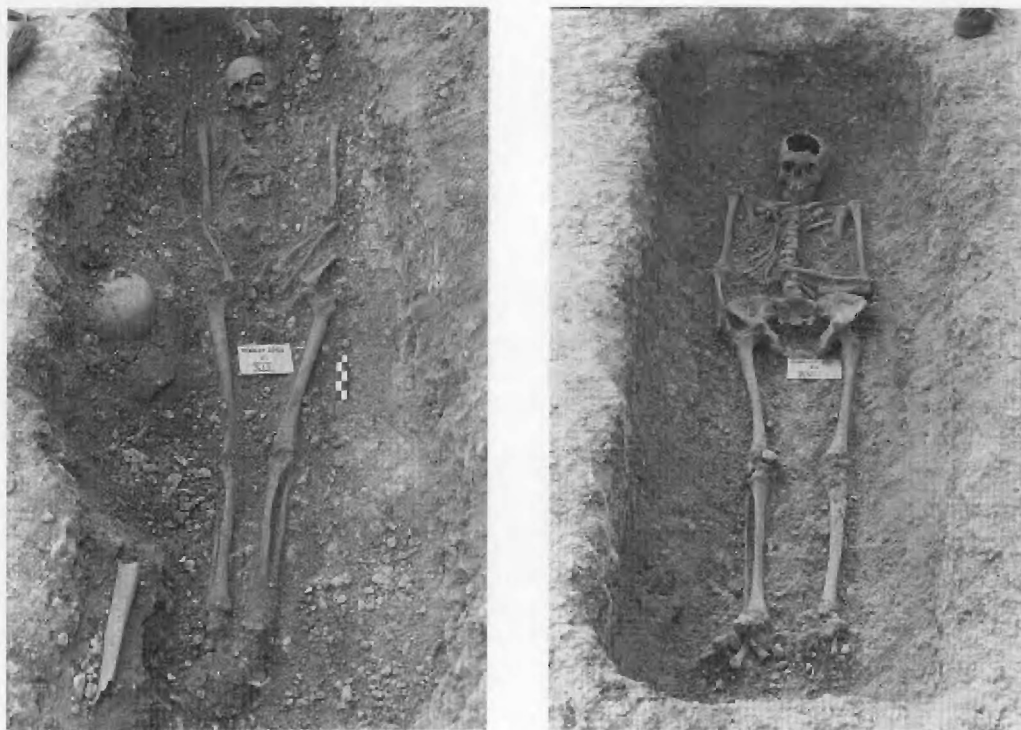


Fig 7 Headley Drive, Tadworth. Photographs of graves during excavation: a) grave XIIB (left); b) grave XV (right).

### The human remains, by Tony Waldron

*(Note: In most cases individual skeletons cannot be assigned to specific graves with total confidence, so the skeletons are here numbered using Arabic numerals while the Roman numerals of the original site recording system have been retained for the graves and grave assemblages. Out of 24 graves for which there is either a plan or a photograph, there are 16 cases in which the numbering in the osteological report appears to match the recorded grave numbers well in terms of the state of preservation of the skeleton (nos 8–12 primary, 12 secondary, 14, 15, 17, 21–25, 36 and 44). Four further cases seem to offer a plausible fit (nos 5, 16, 18 and 27), and gaps in the sequence of numbered skeletons (nos 31–2, 37–41) largely coincide with numbers in the grave sequence for which recorded evidence is particularly scanty. However, in the remaining four cases (nos 7, 29, 33 and 42) there appear to be irreconcilable discrepancies between the records and the report. JH)*

The human remains from Headley Drive comprised 36 more or less discrete inhumations with a quantity of loose bone that appeared to have come from other bodies, and represented at least three adults and one juvenile. All the inhumations were examined to determine sex and age at death using standard anthropological techniques (Workshop of European Anthropologists 1980).

The sex of an adult skeleton is most reliably determined from the morphology of the pelvis and it is almost always possible to assign a definite sex if the pelvis is reasonably intact. Without the pelvis, the sex of a skeleton can also be determined with a high degree of certainty from the morphology of the skull. When both pelvis and skull are absent, then other criteria must be used, including the measurements of the head of the femur or humerus, the length of clavicles, and some measurements of the calcaneus and talus. Some evidence for the sex of

the skeleton can also be gauged from the overall size and shape of the bones; large, robust bones are generally from a male skeleton, small, gracile ones from a female. When what might be called 'secondary' criteria are used, a 'probable' sex is generally assigned.

Since the changes in the pelvis and the skull occur at puberty, it is not possible to determine the sex of prepubertal skeletons on morphological grounds. It is now possible to sex juvenile skeletons using DNA which has been extracted from bone and amplified by the polymerase chain reaction (Stone *et al* 1996). This technique is costly and not suitable for routine use and, in any event, not available at the time that this assemblage was examined.

Ageing criteria are accurate only in immature skeletons when the state of dental formation and eruption, or the pattern of fusion of the epiphyses of the long bones, can be used to give reliable estimates of age at death. In fully mature adults a variety of methods has been used, including the morphology of the pubic symphysis or the auricular surface of the sacro-iliac joint, the morphology of the rib ends, and the state of dental wear. The ages obtained by these methods are approximate and can be given no more closely than in ten-year age bands (Waldron 2001).

The height of the skeleton can be estimated from formulae that were published by Mildred Trotter in 1970. The length of each of the long bones (or some combinations of length) can be substituted into regression equations that give an estimate of the living height, with a standard error: ie the range of heights between which the 'true' height lies. Thus, if the height of a female skeleton is said to be  $1.70 \pm 0.04\text{m}$ , this implies that her height during life was between 1.66 and 1.74m. The standard error terms relating to the various long bones differ somewhat and in determining heights, the measurement has been used that gives the smallest error.

#### THE DEMOGRAPHY OF THE POPULATION

The condition of the skeletons was poor and many were fragmentary or had considerable post-mortem damage with the result that it was not possible to assign an age or sex to them all (for a complete inventory, see Appendix 1). Of the 36 skeletons, 33 were adults and three juveniles (that is, aged between five and fifteen years). Eleven of the adults were definitely male and three probably male; six were definitely female and four probably female. No attempt was made to sex the juveniles. Eight of the adults could not be assigned an age; the age distribution of the remainder is given in table 1. In general, they seemed to be a youngish group, only four (three males and one female) being aged 45 or more at the time of death.

Heights could be determined for eleven males and seven females and the results are given in table 2. The males, on the whole, were noticeably taller than the females and their heights were in the range 1.69 to 1.85m (ie, from about 5 feet 2½ inches to 6 feet 1 inch). The heights of the females ranged from 1.58 to 1.70m (5 feet 2 inches–5 feet 7 inches). These heights are comparable with those of the present-day British population.

TABLE 1 Age and sex of skeletons from Headley Drive

	Male	Female	Unknown
Juvenile	—	—	3
15–	1	2	1
25–	1	4	—
35–	8	1	—
45+	3	1	2
Unknown	1	2	6
Total	14	10	12

TABLE 2 Height and distribution of skeletons

Height (m)	Female	Male
1.60	1	–
1.65	4	1
1.70	1	4
1.75	1	4
1.80	–	1
1.85+	–	1

## DENTAL HEALTH

Not more than half the teeth from the adult skeletons had survived; from 33 skeletons there should have been 1056 (33 × 32) teeth whereas, in fact, only 424 were present. There were a further 58 empty sockets from which teeth had been lost after death, and ten third molars were unerupted. In addition, 102 teeth had been lost during life, so that a total of 594 (or 56.3% of the expected number) could be accounted for.

The number of teeth lost during life is about one-sixth of those that survived or could be accounted for, and it is likely that most had been lost as the result of primary dental or gum disease. Some may have been lost in brawls or following accidental falls, but the likelihood is that this group of individuals had very poor dental hygiene, although only two (nos 4 and 11) had caried teeth and there were no dental abscesses. Wells (1964) suggested that tooth loss in Anglo-Saxon or medieval skeletons may have been the result of scurvy. There was no evidence of scurvy in any of the skeletons, such as reported by Ortner & Eriksen (1997), for example. Since there is nothing specific about tooth loss in scurvy, however, there is no means of validating Wells' suggestion.

## PATHOLOGY

It was not possible to make a complete pathological examination in nineteen of the skeletons because they were in too poor a condition but there were some signs of disease in the seventeen which could be fully examined. Dental disease was present in fifteen skeletons making it by far the most common pathological condition. There were seven skeletons with osteoarthritis and four with degenerative disc disease, which predominantly affected the lower cervical spine as is the case today. Among the sites affected by osteoarthritis, there were two each of the shoulder, spine and hip, and one of the knee (a complete catalogue of the pathological changes present is given in Appendix 2).

There were two cases with anatomical variants affecting the lumbar spine. In one (no 21) there were six lumbar vertebrae instead of the usual five and in the other (no 24), the fifth lumbar was transitional: ie it had some of the appearances of the first sacral segment.

One skeleton (no 23), a female of 45 years or more at the time of death, had bilateral cribra orbitalia which is sometimes considered to be evidence of iron-deficiency anaemia, although there is no clinical support for this notion (Waldron 2001).

Among other conditions, there was one skeleton (no 9) with Schmorl's nodes, and one (no 15) with osteochondritis dessicans on the proximal joint surface of the proximal phalanges of both feet.

## COMMENT

With such a small group of skeletons it is impossible to draw any firm conclusions about the way of life of the population. The lack of infants is, of course, a chance finding and is not typical of burials from this period in which infants are generally well represented.

TABLE 3 Sex and age of skeletons with osteoarthritis

Site	Sex	Age
Shoulder	Female	25–35
Shoulder	Male	35–45
Hip	Male	35–45
Hip, spine	Male	35–45
Spine	Female	45+
Knee	Male	45+

The male to female ratio of the adults is approximately equal, as would be expected, and both sexes appeared to have died relatively young, few being more than 45 years of age at the time of death. It must be remembered, however, that ageing criteria are rather unreliable and the age at death of some of the skeletons may have been underestimated.

Considering the size of the group there was a good deal of pathology, although, because the skeletons were in rather poor condition, more than half could not be fully examined. There were some signs of disease in all those that were sufficiently intact.

Dental disease was by far the most common and it is clear that dental hygiene was extremely poor, although only two skeletons had dental caries. The absence of caries most probably results from the lack of refined sugar in the diet (Hillson 1996). In general the calorific content of the diet was probably adequate since all the adults achieved a height within the normal range of the modern population. Nor was there evidence for any specific dietary deficiencies, always supposing that the ante-mortem tooth loss was not due to scurvy. Only one female had skeletal changes that are said to be evidence of iron-deficiency anaemia although one suspects that iron deficiency was, in fact, common in females because of the inevitable blood loss associated with menstruation and childbirth.

Osteoarthritis and degenerative disease of the intervertebral discs of the cervical spine were common, affecting eight of the 33 adults (24.2%); this prevalence is almost certainly an underestimate of the true rate as many joints were too badly damaged to examine.

Osteoarthritis is the most common of all palaeopathological conditions and may occur in up to half of all skeletons of those aged 45 or more at the time of death. It is also extremely common in the modern population in which the prevalence increases markedly with age. In the present assemblage, four males and two females were affected, as shown in table 3. It would be unusual to find such a high rate of osteoarthritis in a modern population of equivalent age and this is further evidence that the ages of the skeleton may have been underestimated, although one cannot rule out that the differences are due to differences in the pattern of activity in the past (Waldron 1995). The sites of occurrence of the pathological changes are typical of those seen in modern clinical practice except that osteoarthritis of the shoulder is not commonly reported today. This is probably because the palaeopathologist is able to examine the joints around the shoulder, especially the acromion-clavicular joint, more completely than the modern clinician or radiologist and so sees changes that are not detected in the living patient. This is just one way in which the study of skeletal material may help to increase our understanding of some of those diseases that affect the joints.

#### APPENDIX 1: CATALOGUE OF HUMAN REMAINS

This catalogue gives an indication of the state of preservation of each skeleton and the approximate amount present. The sex, age and height (in metres) are shown, together with the methods used to determine each.

- 1 Two adult burials. One represented by skull fragments and mid-shaft fragments of both clavicles, both femurs and right tibia, fragments of right scapula, proximal end of right humerus, fragments or both radii and ulnas, two metatarsals and one worn lower pre-molar tooth. Second represented by left mastoid, distal ends of left radius and ulna, left first metacarpal, one proximal phalanx of the hand, triquetral and fragments of ribs and pelvis.
- 2 Extremely fragmentary adult skeleton represented by two mid-shaft tibial fragments.
- 3 Very fragmentary and badly damaged. Lacking entire vertebral column, lower legs and feet, all ribs and much of shoulder girdles;  $c$ 33%.  
Male (pelvis).  
45+ (dental wear).  
 $1.76 \pm 0.03$  (left femur).
- 4 Incomplete adult skeleton represented by calvarium, some teeth, mid-shaft fragments of left femur and both tibias, distal end of left fibular, some tarsals and one metatarsal.  
45+ (dental wear).
- 5 Robust male with much post-mortem damage. Left radius and ulna, sacrum, much of pelvis, lower left femur and all other bones of the lower limbs;  $c$ 50%. Small pieces of intrusive animal bone.  
35–45 (dental wear).  
 $1.79 \pm 0.04$  (left humerus).
- 6 Extremely fragmentary juvenile skeleton represented by fragments of skull, including left and right frontals, part of left petrous temporal bone, fragments of maxilla and mandible, mid-shaft fragments of both humeri.  
10–12 (dental eruption).
- 7 Fragmentary skeleton represented by some skull fragments, both legs, mid-shaft fragments of both humeri, proximal fragments of left radius and ulna, and sacrum;  $c$ 33%.  
Probably female (skull).  
35–45 (dental wear).  
 $1.66 \pm 0.4$  (both femurs + tibias).
- 8 Much damaged skeleton lacking many small bones of hands and feet, upper cervical and lower lumbar vertebrae and sacrum, sternum, both fibulas and scapulas and most of right side of skull;  $c$ 66%.  
Male (pelvis, skull).  
35–45 (dental wear).
- 9 Substantially intact skeleton but with some post-mortem damage;  $c$ 95%.  
Male (pelvis).  
35–45 (dental wear; pubic symphysis).  
 $1.77 \pm 0.03$  (left femur + tibia).
- 10 Incomplete adult skeleton represented by both frontal bones, left petrous temporal and other skull fragments; both humeri; mid-shaft fragments of both ulnas, radii and femurs, distal ends of both tibias and left fibula, right talus and calcaneum, left patella and five metatarsals. All bones have much surface damage.  
45+ (dental wear).
- 11 Substantially intact skeleton but with most of vertebral column missing;  $c$ 80%.  
Male (pelvis, skull).  
35–45 (dental wear, pubic symphysis).  
 $1.71 \pm 0.03$  (left femur + tibia).
- 12 (primary) Scraggy, incomplete skeleton with most of axial skeleton, pelvis, lower arms, hands and feet missing;  $c$ 25%.  
Probably male (skull).
- 12 (secondary) Substantially intact skeleton but with much post-mortem damage;  $c$ 90%. Intrusive adult left radius.  
Male (pelvis, skull).  
35–45 (dental wear).  
 $1.71 \pm 0.03$  (left femur + tibia).
- 14 Extremely fragmentary adult skeleton represented by both petrous temporal bones and other skull fragments, most of mandible, 2nd and 3rd cervical vertebrae, fragment of pelvis, mid-shaft fragments of both femurs, left humerus and right tibia, both tali and two metatarsals.
- 15 Virtually complete immature skeleton;  $c$ 95%.  
Female (pelvis, skull).  
15–20 (epiphyseal fusion).
- 16 Fragmentary skeleton represented by left petrous temporal bone and other skull fragments, maxilla and left mandible, mid-shaft fragments of both humeri, femurs and tibias, rib fragments and one metatarsal.  
Probably female (skull).  
25–35 (dental wear).
- 17 Immature skeleton with most of vertebral column and sacrum, both scapulas, sternum, patellas and left clavicle;  $c$ 75%.  
Probably male (pelvis).  
15–20 (epiphyseal fusion).
- 18 Incomplete skeleton with most of vertebral column, sacrum, right scapula, sternum and many small bones of the hands and feet missing;  $c$ 66%.  
Probably female (pelvis, bone morphology).  
25–35 (dental wear).  
 $1.70 \pm 0.04$  (both tibias).
- 19 Extremely fragmentary immature skeleton represented by skull fragments, unfused proximal end of left tibia, mid-shaft fragment of left humerus, fragment of left scapula, left talus and calcaneus (unfused). Some other long bone fragments.  
15–20 (epiphyseal fusion).
- 20 Left and right fibulas only; belongs to no 21.
- 21 Virtually complete. Left and right fibulas in context 20. Intrusive third metacarpal;  $c$ 95%.

- Male (pelvis, skull)  
25–35 (pubic symphysis, dental wear)  
1.76 ± 0.03 (both femurs + tibiae).
- 22 Incomplete and badly damaged skeleton. Lacks vertebral column, sacrum, sternum, both scapulas, both clavicles, pelvis, both fibulas, both radii and many small bones; *c*33%. Probably male (measurements of talus).  
1.80 ± 0.04 (right tibia).
- 23 Substantially intact but badly damaged skeleton. Many small bones missing; *c*90%. Intrusive animal bone fragments.  
Female (pelvis, skull).  
45+ (cranial sutures).  
1.58 ± 0.04 (right radius).
- 24 Substantially intact skeleton but with considerable post-mortem damage especially to skull; *c*90%.  
Male (pelvis).  
5–45 (pubic symphysis, dental wear).  
1.73 ± 0.03 (both femurs + tibiae).
- 25 Poorly preserved adult skeleton lacking most of vertebral column, sacrum, most of pelvis, hands and shoulder girdles; *c*40%.  
Female (pelvis).  
1.61 ± 0.04 (left tibia).
- 27 Fragmentary skeleton with much post-mortem damage and surface erosion. Lacks most of vertebral column, sacrum, much of pelvis, right scapula and many small bones of the hands and feet; *c*40%. Intrusive left petrous temporal bone.  
Male (pelvis, skull).  
35–45 (dental wear).  
1.69 ± 0.03 (left femur).
- 29 Virtually intact; *c*95%.  
Female (pelvis, skull).  
25–35 (pubic symphysis, dental wear).  
1.61 ± 0.04 (both femurs + tibiae).
- 30 Partial adult skeleton represented by mid-shaft fragments of both tibiae and left femur.
- 33 Partial immature skeleton lacking skull, all but one vertebra, all ribs and most arm bones; *c*50%.  
20–25 (epiphyseal fusion).  
1.63 ± 0.04 (left tibia).
- 34 Fragmentary adult skeleton represented by mid-shaft fragments of both femurs, left tibia and fibula and right radius, distal ends of right tibia and fibula, right talus and fragment of right, fragment of left calcaneus, fragments of five tarsals and five metatarsals.  
Probably female (measurements of talus).
- 35 Few skull fragments and right zygoma and maxilla of juvenile.  
8–10 (dental eruption).
- 36 Incomplete skeleton lacking most of vertebral column, ribs and left scapula and clavicles; *c*75%.  
Female (pelvis, skull).  
25–35 (dental wear).  
1.62 ± 0.04 (right fibular).
- 42 Substantially complete skeleton but with some post-mortem damage to lower limb bones; *c*95%.  
35–45 (dental wear).  
1.72 ± 0.04 (both humeri).
- 44 Partial adult skeleton lacking most of vertebral column, sacrum, pelvis, both clavicles, sternum, right scapula, left radius and ulna and many small bones; *c*50%.  
Probably male (humeral head diameter).  
1.85 ± 0.04 (right radius).
- 45 Fragmentary adult skeleton represented by mid-shaft fragments of right femur and both tibiae, left patella, two metacarpal fragments, one proximal and one middle phalanx, three metacarpals and two proximal phalanges of the foot.  
Child's grave (no context number). Very partial juvenile skeleton represented by a few skull fragments, some teeth and mid-shaft fragments of both femurs.  
8–10 (dental eruption).  
Loose bone.  
Proximal right femur (probably female).  
Two right femoral heads (probably female).  
Mid-shaft fragments of two left femurs.  
Proximal and distal ends of right tibia.  
Mid-shaft fragment of right humerus.  
Right zygoma.  
Proximal ends of left and right ulnas.  
One deciduous molar and three permanent molars.

## APPENDIX 2: CATALOGUE OF PATHOLOGICAL CHANGES IN HUMAN REMAINS

This catalogue should be read in conjunction with Appendix 1 in order to determine the state of preservation of each of the skeletons (only those skeletons in which pathological changes were noted are listed).

- 4 Dental caries.  
5 Osteoarthritis of both acromion-clavicular joints.  
8 1: Ante-mortem tooth loss; 2: Osteoarthritis of spine and hip. Facet joints of T3/4/5 involved. Right acetabulum and remnant of femoral head

show proliferation of new bone around joint margins. There is new bone on the joint surface of the femora head and some eburnation; 3: Degenerative disc disease between C6/7/T1; 4: Osteophytes on T11–L3.



- 9 1: Ante-mortem tooth loss; 2: Degenerative disc disease between C7/8, T9–L1 and L4/5. 3) L3/4 fused anteriorly and around right facet joint. No fusion elsewhere in the spine; sacro-iliac joints normal; 4: Osteophytes affecting T6–L5; 5: Slight lipping around head of left humerus. Also around pelvic rim and around proximal joint margins of right ulna; 7: Schmorl's node on T6.
- 11 1: Dental caries; 2: Degenerative disc disease C5/6/7.
- 12 (primary) 1: Ante-mortem tooth loss; 2: Osteoarthritis of right knee. Eburnation of both facets of right patella and on residual fragment of lateral condyle of right femur; 3: Osteophytes on L3 and 4.
- 12 (secondary) Ante-mortem tooth loss.
- 14 Ante-mortem tooth loss.
- 15 Osteochondritis desiccans on proximal joints surfaces of both first phalanges of the foot.
- 18 Ante-mortem tooth loss.
- 21 1: Ante-mortem tooth loss; 2; Six lumbar vertebrae.
- 23 1: Complete ante-mortem tooth loss; 2: Osteoarthritis of spine. Left hand facet joints between C2/3 affected and some residual thoracic facet joints; 3: Degenerative disc disease between C5/6/7; 4: Osteophytes on L1–5; 5: Bilateral cribra orbitalia.
- 24 1: Ante-mortem tooth loss; 2: Transitional L5.
- 27 Ante-mortem tooth loss.
- 29 Osteophytes on T4 and T6–8.
- 36 1: Ante-mortem tooth loss; 2: Osteoarthritis of right acromion-clavicular joint; 3: Lipping around head of right humerus and right glenoid.
- 42 1: Ante-mortem tooth loss; 2: Osteoarthritis of left hip. New bone around joint margin and on surface of acetabulum and femoral head. Contour of femoral head altered.

### The grave goods

In view of the uncertainty over the identification of some graves and the assignation of finds to specific contexts, it is impossible to give precise figures for how many burials in the excavated part of this cemetery contained grave goods. A reasonable estimate is that about two-thirds of the graves contained no artefacts.

Headley Drive is thus one of the more sparsely furnished of the hundreds of known burial sites of the Early Anglo-Saxon period. ('Early' here designates the period from the 5th century to cAD 700 in which furnished burial was practised in Anglo-Saxon England, a period also still, inappropriately and unfortunately, often labelled the 'Pagan Saxon Period'.) More than half the graves in which some object was found yielded only one identifiable artefact: a knife in the case of graves VIII, XVII, XXIII, XXX and XXXVI, and possibly grave XVIII; a mysterious bone object in grave XII; an iron pin fragment in grave XXIX; a pointed iron tool of some kind in grave XXXIV; and a buckle in grave XXXV. With just one possible exception, all the other seven graves that contained more than one recognized artefact included a knife in their inventory. The exception is grave XIX, with copper-alloy and iron fragments among which one of the latter could still be from a knife blade. The second most frequent artefact type after the knife is the buckle, of which three specimens have been identified. The grave plans show that at Headley Drive, as in Anglo-Saxon burials generally, the knife (or knives: grave XXIV) was found by the waist. The predominance of knives and buckles among the grave goods thus reflects the fact that the costume in which most people were buried included a belt or girdle that might have a metal buckle, but more often still had a sheathed knife attached to it.

There are a few other dress accessories, either of a simple, utilitarian character, or intended for adornment. Although the exact location of the iron pins in the graves is not known (discovered only during conservation work in small collections of bone labelled VI and XXIX), it is likely that they were worn as dress fasteners, especially as both have mineral-preserved textile upon them. In this austere picture, the large quartz crystal pendant in a copper-alloy frame from grave XVI stands out. The grave plan in this case, however (fig 5a), places the pendant at some distance from the body, at knee level, where it seems unlikely to have formed part of the costume in which the deceased was buried. Another interesting discovery made during conservation work was a small group of objects ostensibly from grave XXII, where a hatched area by the waist on the plan (fig 5f) may indicate where they lay. It is certainly possible for such a collection of miscellaneous objects to have gone into the grave in a pouch on the belt of the deceased (Meaney 1981, 247–55).

## THE KNIVES (figs 8–9)

There is a total of fifteen iron knives in the collection. The significant typological variables by which knives of the early Anglo-Saxon period can be classified have proved to be the shape and length of the blade (Evison 1987, 113–6; Härke 1989). Such a classification, however, is often impossible to carry through fully because of the vulnerable character of the material and the fragmentary state in which the knives tend to survive. Six of the Headley Drive knives are completely unclassifiable. Of the remainder, three are unambiguously to be assigned to Type A (with a convex curved back to the blade) and two to Type C (with a distinctly angled back). Especially when the blades have a straight cutting edge, the distinction between a sharply curved back and an obtusely angled one (Evison 1987, types 4 and 5) can often only be drawn subjectively, and the remaining four knives from Headley Drive could be classified as either A or C. This range of types is fully characteristic of cemeteries of the later phase of furnished burial, commonly known as the 'Final Phase', in Anglo-Saxon England, from the

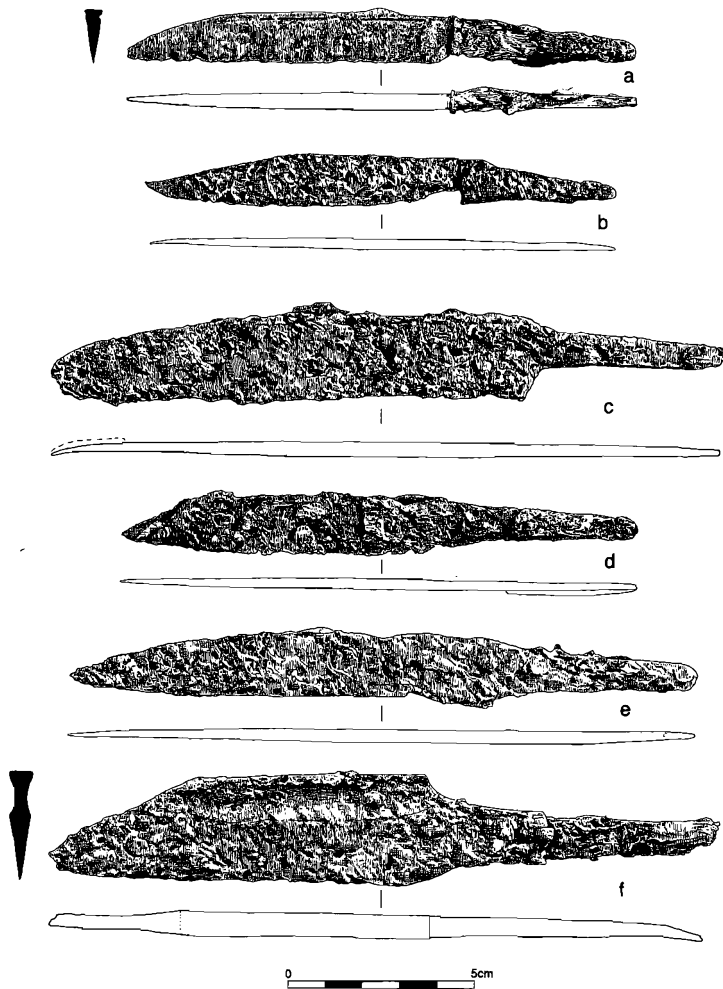


Fig 8 Headley Drive, Tadworth. Knives: a) VII; b) XXII (Type C); c) XXII (Type A); d) XXIII; e) XXIV (Type A); f) XXIV (Type C). Scale 1:2. Drawn by Howard Mason.

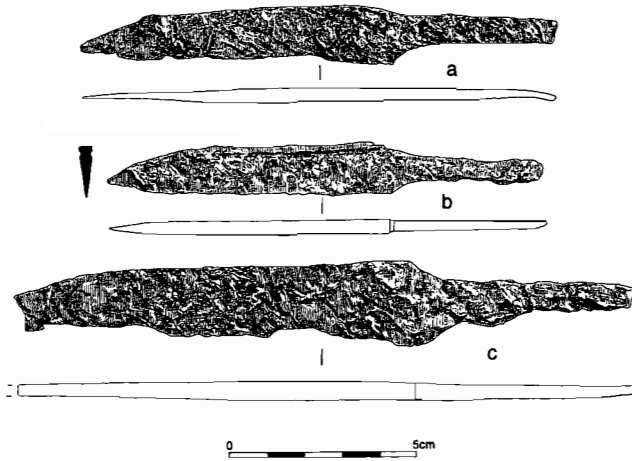


Fig 9 Headley Drive, Tadworth. Knives: a) XXVII; b) XXX; c) unnumbered (Type A/C transitional). Scale 1:2. Drawn by Howard Mason.

late 6th century to *c*AD 700. At sites of this period at Bradstow School, Broadstairs, Kent (unpublished) and Polhill, West Kent (Philp 1973, 164–214), for instance, the same broadly similar numbers of curved-back and angled-back knives have been found, with a slight preponderance of the former but a considerable number transitional between the two categories. Härke (1989) detected a tendency for longer blades (specifically over 100mm long) to occur in this later range of burials. Four of our knives have measurable blades of this length; five blades were definitely less than 100mm long. The knives are too few in number for such details to bear real significance, but are at least consistent with the dating implied by the range of types and Härke's observations.

Close inspection of the knives in the laboratory revealed that several of them still had traces of leather sheaths adhering to the blade. In at least two cases (VII, XXX) these also carried larval imprints, implying that the clothed corpse lay exposed for some time before burial. It is also common to find mineral-preserved organic material from the handle fitted around the iron knife tang from Anglo-Saxon graves. While this is usually identified as horn, the opinion of the conservators was that the material looked more like wood on these examples. However, in no case was a test to distinguish between cellulose material (wood) and ceratinose (horn or bone) conclusive. Textile was found on the outside of the substantially surviving handle from grave VI (fig 15c). Under X-radiography, several knives also showed a composite forged blade, with a join along its length between different grades of iron used for the back and the edge of the blade (XXII, XXVII, XXX). Some knives were also provided with a furrow running along just the back of the blade (VII; XXIV, Type-C knife; XXX: figs 8a and f, and 9b).

#### THE BUCKLES (fig 10)

Three buckles have been identified from Headley Drive, including one tentatively identified from an apparently oval iron loop fragment from grave VI. This has a large quantity of mineral-preserved threads adhering to one side. On the other side it is now fused with a folded sheet copper-alloy plate. X-radiography shows that this plate is not the backplate of a buckle, as might otherwise have been expected; unfortunately no specific alternative identification can be offered. Of the buckle assigned to grave XXXV little except the folded sheet copper-alloy backplate remains, although there are small pieces of the iron loop and tongue surviving

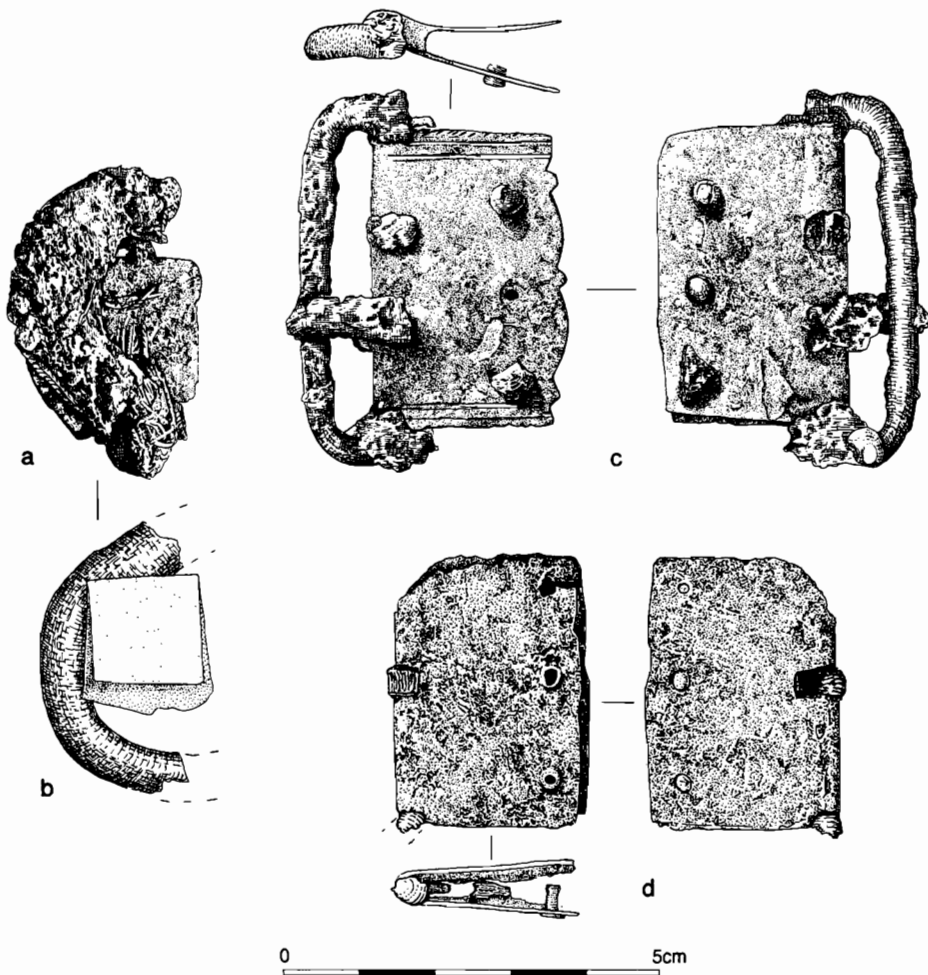


Fig 10 Headley Drive, Tadworth. Buckles: a) VI: side showing iron loop with mineral-preserved textile; b) VI: side showing folded sheet copper-alloy plate (drawn from X-radiograph); c) XXVII: double-tongued buckle; d) XXXV. Scale 1:1. (Drawn by Howard Mason)

within this. This buckle plate was fastened to a leather belt, some of which survives between the halves of the plate, with copper-alloy rivets.

Of considerable interest is the well-preserved buckle from grave XXVII, which is an example of the relatively rare double-tongued type. A survey of this type produced in 1994 listed only ten other specimens (Geake 1994), including one from the Goblin Works, Ashted (Poulton 1989). Of the remainder, four are from Kent, two from Wiltshire, and one each from Hampshire, Hertfordshire and North Yorkshire. The Headley Drive specimen has a more finely decorated (incised and notched) backplate than any of the others. Like six of the ten, it has an iron loop and tongues rather than copper alloy, and iron rivets for the backplate. Again these are covered with mineral-preserved textile and insect pupae cases. As with the knives, the context of buckles of this type is unmistakably that of the Final Phase of furnished burial. Geake's suggestion that their date-range should 'centre' on the second half of the 7th century, however, is over-reliant upon an unproven suggestion that the cemeteries at Polhill and King Harry Lane, St Albans, date only from the middle of the 7th century.

## THE POT FROM GRAVE VII (fig 12)

One further key find for the dating of the burials is the small wheel-thrown pot from grave VII. Both the technique used to make it and its form identify this as an import from across the English Channel, one of a class of vessels classified by Vera Evison as 'biconical bowls' (1979, esp. 36–41). The closest parallels to the Headley Drive pot in an Anglo-Saxon burial context are a pair of vessels from Prittlewell, Essex, grave 30 (Evison 1979, fig 16a–b; Tyler 1988, 105–8). These were apparently buried together with a garnet-set pale gold composite disc pendant (Tyler 1988, fig 14), indicating a date for this burial no earlier than the mid-7th century. Unusually for this imported pottery, neither the Headley Drive nor the Prittlewell pots have any rouletted or stamped decoration.

The Headley Drive specimen is particularly small. In shape and size it closely parallels a rouletted vessel from London in the Museum of London's collection (Vince 1988, 91; Blackmore 1993, 136–7), which has been dated to the late 6th or first half of the 7th century. There is likely to be rather more variability in the age-range of accessory vessels placed in graves than with personal equipment and dress-accessories, and with reference to the Prittlewell burial we can be confident that the date of the burial in grave VII was probably some way into the 7th century.

## OTHER FINDS

The quartz crystal pendant (grave XVI: fig 14b) is one of the more crudely formed examples of a relatively familiar artefact type, especially in south-eastern England. Meaney (1981, 82–7 and notes 68–9) listed some twenty examples from Kent and six more from Cambridgeshire, Bedfordshire and the Isle of Wight. Once again, the majority of dated examples can be assigned to the 7th century, although in this case some finds could date from any part of the 6th or even the late 5th century.

The strange-looking wood and iron object from grave XXXIV (fig 16) can be added to a little understood category of short 'pointed iron tools' known from several Final-phase graves

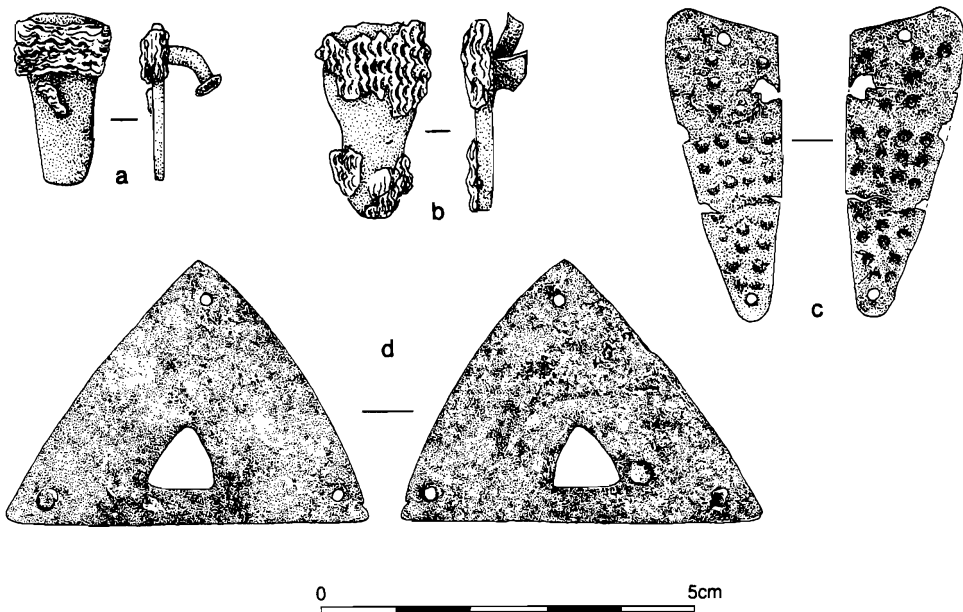


Fig 11 Headley Drive, Tadworth. Mounts: a–b) XIX: iron mounts with mineral-preserved textile; c) XIX: sheet copper-alloy tongue; d) XXII: sheet copper-alloy triangle. Scale 1:1. (Drawn by Howard Mason)

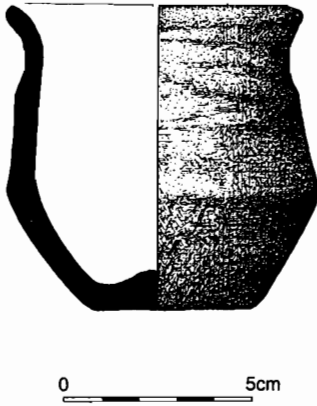


Fig 12 Headley Drive, Tadworth. Wheel-thrown pot from grave VII. Scale 1:2. Artist unknown.

(Geake 1997, 93–4). The exact use of these implements has yet to be determined. Characteristically, the Headley Drive tool has a short, tapering iron prong at the working end, sub-rectangular in cross-section. There are remains of a wooden handle. Traces of magnetite around the disc in the middle, at the working end of the handle, may indicate that this end of the hilt was surrounded by an iron collar. Although this has completely corroded, it has preserved most of the width of the handle at this point alone. It seems possible, therefore, that the uncertainly identified ‘ferrule’ from S28 at the Goblin Works, Ashted, may be the remains of the same type of object (Poulton 1989, fig 5 no 13).

The Goblin Works site also provides the closest parallel to another find, the tapering and asymmetrical tongue-shaped sheet copper-alloy mount assigned to grave XIX (fig 11c;

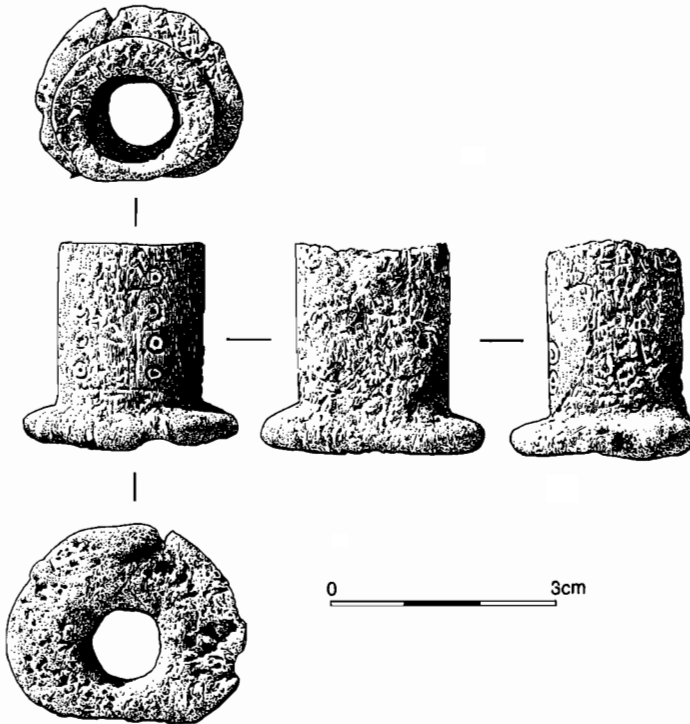


Fig 13 Headley Drive, Tadworth. Decorated bone cylinder from grave XIII. Scale 1:1. (Drawn by Howard Mason)

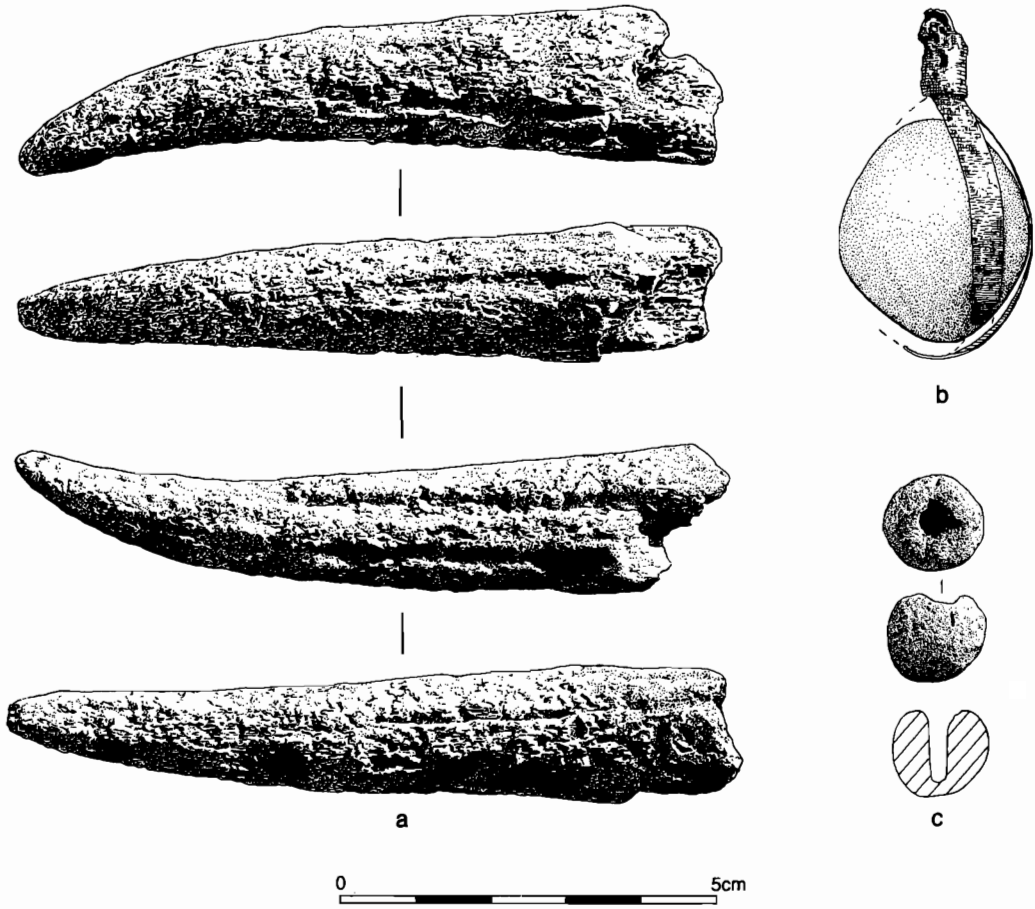


Fig 14 Headley Drive, Tadworth. a) grave XXII: single antler tine; b) Grave XVI: pendant – quartz crystal with sheet copper-alloy carrying frame and fragment of iron wire suspension loop; c) grave XXII: pierced ceramic globule. Scale 1:1. (Drawn by Howard Mason)

Poulton 1989, fig 3 no 1). Unfortunately this does not help with identification of the larger object to which the mount belonged. At Headley Drive it is associated with two tapering iron (apparently tinned) fragments that look like similarly shaped mounts, one of which has a rivet. The size of the measurable rivet implies that the mounts were fitted to a relatively thick-walled object (5–7mm), such as wood or bone rather than leather.

There remain two mysterious objects of antler, horn or bone. Among the finds attributed to grave XXII was a single sawn-off antler tine (fig 14a). There is no sign of any further modification of the object to fit it for some identifiable function. As an item deposited in an inhumation grave of the period it recalls the forking pair of antler tines found in Apple Down, West Sussex, grave 13 – which are equally unexplained (Down & Welch 1990, 36, fig 2.19). Similar objects of the Roman period, but with a clear central socket, are identified by Arthur MacGregor (1984, 178–9) as small rake heads. Meaney (1981, esp. 139–43) notes the widespread attribution of amuletic properties to deer antler.

As yet no parallels or explanations have been found for the strange, squat bone cylinder decorated with incised lines and ring-and-dot motifs which was the only item recorded in grave XIIIa (fig 13). Polish on the ends of this object confirms that this was its original size. It is equally uncertain as to what the triangular openwork sheet copper-alloy mount from

TABLE 4 Textile remains from Headley Drive

Grave	Weave	Spin	Thread-count/cm	Notes
VI	Tabby	Z × Z	18 × 14	A fragment of closely woven tabby weave (possibly two layers) 8 × 6mm preserved on the wooden handle of a knife by precipitation of chalk from the burial environment. A single Z-spun thread is present elsewhere on the handle. Lab no 8001/01/02
VI	Not woven	Various		A loose, approximately parallel, collection of threads lying across the iron ring fragment of a buckle(?). The threads are of varying thicknesses from approximately 0.2 to 0.7mm diameter. Preservation is by deposition of iron minerals at the thread surface so that the spin cannot be determined reliably. Where damage reveals the internal structure yarns appear to be variously S- and Z-spun. Lab no 8001/03
VI	2/2 twill	Z × S	9 × 7.5	A fragment measuring 10 × 14mm with structure well-preserved by iron salts. The fragment (preserved on a pin) is distorted but appears to be a 2/2 twill which is non-reversed over the area preserved. It is not clear which are warps and wefts but it is surmised that warps are Z-spun with a thread count of approximately 9 per cm and wefts are S-spun with a thread count of 7.5 per cm. Lab no 8010/01
XIX		Z	7	Heavily calcified mineral-preserved remains of roughly parallel Z-spun yarns preserved on a mount. The threads are kinked, which suggests that they have been woven but that the weft(?) threads have not survived. The distance between the threads suggests a loose weave but it is impossible to infer the weave pattern. Lab no 8079/00
XXVII	Tabby	Z × Z	15 × 15	Two small fragments (5 × 6mm and 3 × 4mm) preserved on the buckle loop and backplate respectively. The threads, which are probably from associated clothing, have been flattened, with some debris and abrasion obscuring the textile. Lab no 8005/00
XXIX	Loose tabby	Z × I	14 × 14	Fragment 7mm across the warp and 25mm across the weft. Warp and weft are identified from the presence of yarns indicating a selvedge. Deposition of iron salts at the surface obscures the spin on all but some damaged threads (preserved on a pin). Where the spin is evident they are loosely Z-spun warp and unspun or I-twist weft yarns. The weave is a very loose tabby (although shrinkage of the fibres may have created this impression) It is only possible to give a very approximate thread count. Lab no 8009/03

grave XXII originally belonged (fig 11d). Similar mounts, although only about half the size, were found at Buckland, Dover (Evison 1987, fig 65 no. 14) and, again, grave 13 at Apple Down, West Sussex (Down & Welch 1990, 36, fig 2.19)

### **The mineral-preserved textile**, by Siobhan Stevenson

*(Note: With additional information from a dissertation by Myrsini Roumeliotou. JH)*

Textile fragments were identified during investigative conservation of the artefacts (table 4). Preservation is mainly the result of close contact of the textiles with metal, in this case iron. The fibres become impregnated with iron ions from the corrosion of the artefacts. This inhibits microbial action that would otherwise destroy the textile, and eventually forms iron minerals, which replace the organic material. In one case (Grave VI, item 1) it is not iron but calcium salts from the burial environment that are responsible for preservation. These processes have in some cases given good preservation of the morphology of the fibres but in others created an encased textile of which only the overall structure of the weave can be seen.

The mechanism of preservation usually makes identification of the fibre type by normal microscopy impossible, although it has been shown that sufficient remnants of the original materials are sometimes present to enable identification of fibre and even dyes by Fourier



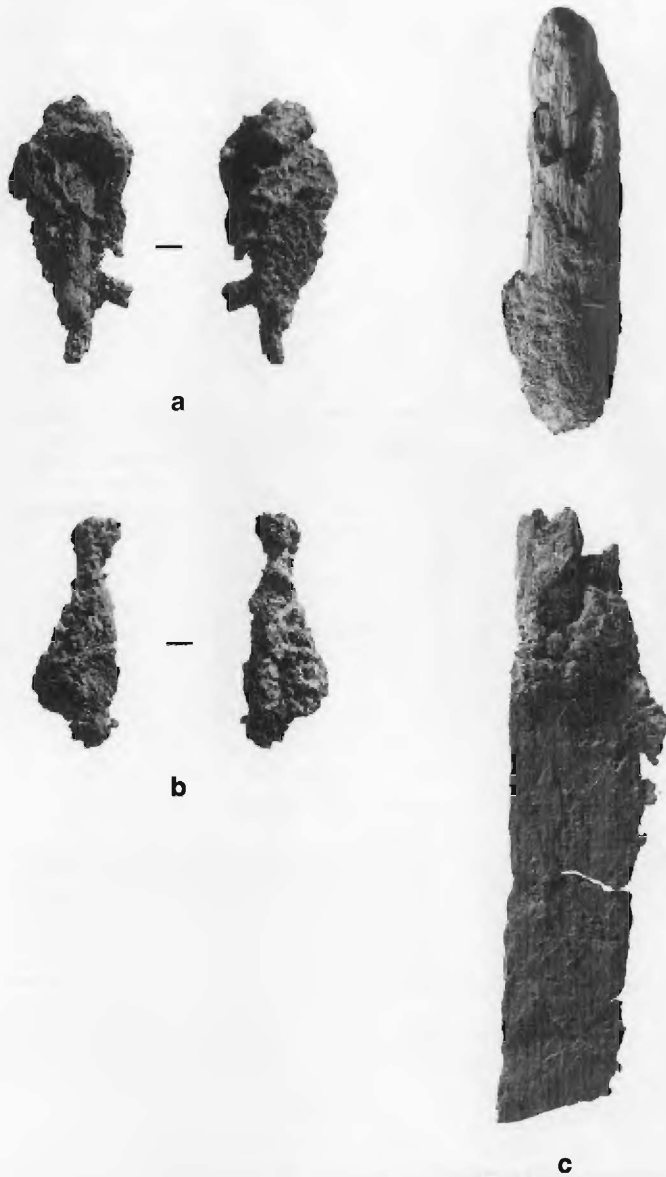


Fig 15 Headley Drive, Tadworth. a-b) iron pin fragments – a) grave VI; b) grave XXIX; c) grave VI: knife handle and blade fragment, showing mineral-preserved textile on the handle. Scale 1:1.

transform infrared spectroscopy (Gillard *et al* 1994). This was investigated further as an MSc dissertation project by Myrsini Roumeliotou (2002). She analysed nine samples, comparing the results of optical microscopy, scanning electron microscopy, and chemical staining to distinguish cellulose (plant) material from proteinaceous (animal-derived) material. It was consequently possible to demonstrate that six of the nine samples (VI.1: knife handle; VI.2: iron ring, possible buckle loop; XXVII.2: iron buckle loop and tongues; and three uncontextualized samples taken from ‘burial environments’ – presumably grave fills) were of plant fibres, probably bast, while the remaining three (VI.3: iron pin; XIX.1: iron plate; XXIX.1: iron pin) were an animal hair, probably sheep’s wool.

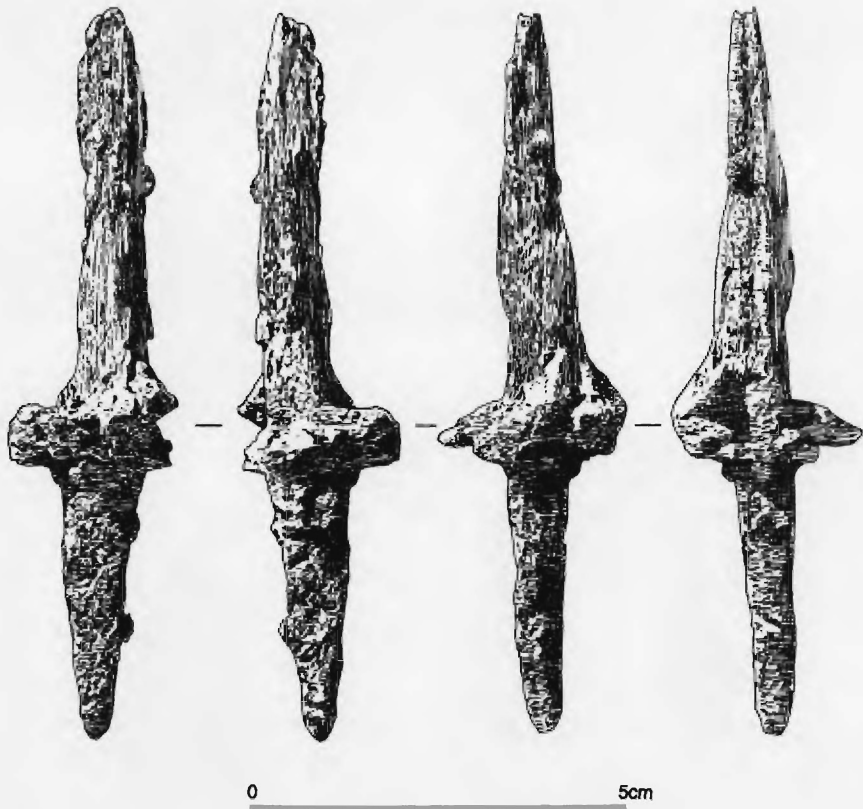


Fig 16 Headley Drive, Tadworth. Grave XXXIV: pointed iron tool with wooden handle. Scale 1:1. (Drawn by Howard Mason)

### **Cemetery and community: an overview**

In the 7th century AD, a spur of higher ground on the western edge of the Banstead plateau looking out over what is now Epsom Downs and the low-lying clay lands and gravel terraces on the southern side of the Thames Valley, was used as a burial site by a community whose artefacts and funerary practices were quite typical of the contemporary culture now described as Anglo-Saxon. Although the cemetery has not been fully excavated, it is unlikely that there were any significantly earlier or later burials at this particular site. It is probable that the cemetery was located close to a village somewhere in the vicinity, and certainly one sited to exploit as fully as possible the topographical peculiarities and varied soil and geological types of the dip-slope of the Downs which its cemetery overlooks.

Altogether, the finds at Headley Drive constitute only a partial reflection of this community and of its life. This is the product of deliberate selection and restriction in the original burial practices rather than imperfect survival and retrieval of the archaeological evidence. Demographically, one does not see a cross-section of a natural community. The imbalance of males and females identified is not significant, but it is far from credible that the low number of children and juveniles recognized implies a high rate of survival through infancy and into adulthood. An under-representation of the immature in death is familiar in Anglo-Saxon cemeteries generally (Crawford 1999, 14–32). It is noticeable that the majority of adult male skeletons show an estimated age at death of between 35 and 45 years while for females the

mode lies in the range 25–35. This too is a familiar difference although by no means a uniform one (Hines 2002).

It would also be an error to infer from the sparsity of grave goods that the Headley Drive community must have been a poor one. The fine double-tongued buckle from grave XXVII and the imported pot from grave VII show not only that this community was receiving objects that represent wide-ranging and even rather exclusive connections but also that it could afford to consume them in the burial rite if it so chose; the same can hold for the crystal pendant found in the unusually wide grave XVI despite the relative clumsiness of its shaping. Obviously there is something distinctly different here from some especially rich graves, as at Gally Hills, Banstead, or Farthing Down, Coulsdon, and the absence of weapon burials such as are also known nearby at East Ewell ('Quelland') and the Goblin Works, Ashtead, at this date is also striking.

As reflected in the well-ordered rows of graves in the cemetery, it is most reasonable to draw the conclusion that here was a community whose practices in laying the dead to rest were carefully controlled. This, then, was a way of making some sort of statement, even if in a quiet rather than an obtrusive way. Considering the historical context of 7th century England, attention inevitably turns to the conversion of England to Christianity and Christian ideological constraints on burial practices – as indeed was manifested in the modern reburial of the human remains with a Christian mass.

One of the peculiar features of the archaeology and history of Anglo-Saxon Surrey is that the presence of important early Germanic burial sites, coming into use in the second half of the 5th century, on nodes in the Roman communications system south of London at Croydon and Mitcham (Bidder & Morris 1959; McKinley 2003, this volume, 1–116), is not followed by any substantial expansion or concentration of further Anglo-Saxon cultural colonization in the 6th century. Only a handful of further burial sites are known to come into being in that period (at Beddington, Ewell, Guildown, and possibly Fetcham: Morris 1959; Poulton 1987). In the 7th century, however, there is a sudden proliferation of burial sites, especially along the dip-slope of the North Downs, including rich and impressive barrow burials at, for instance, Farthing Down (Coulsdon) and Gally Hills (Banstead: Barfoot & Price Williams 1976), besides more modestly furnished burials as at the former Goblin Works, Ashtead (Poulton 1989). In this overall context, the level and style of grave furnishing at Headley Drive in fact looks conspicuously austere, rather than simply poor. A possible counterpart in this respect may have been the poorly recorded eleven or twelve burials with a couple of knives and a single pot from Sanderstead (Morris 1959, 144).

It is clear, as a result, just how important it is to evaluate and interpret the evidence of the excavations at Headley Drive within the context of Early Anglo-Saxon Surrey as a whole. The finds reported here are admittedly unimpressive on their own. In the light of the character of neighbouring, contemporary sites, however, this is thought-provoking in itself. The Headley Drive cemetery appears to represent a particular niche in a complex pattern. The full pattern can plausibly be interpreted as the archaeological reflection of a well-ordered community, confidently in control of its material culture and its distributional and depositional practices. It is to be hoped, therefore, that such significant broader considerations will enable the remainder of the site at Headley Drive – and others like it – to be valued and cared for, so that the clumsy neglect it has suffered, as have so many of Surrey's other Anglo-Saxon cemeteries, will not be seen again.

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 PRO: Public Record Office, London  
 SHC: Surrey History Centre, Woking

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