A medieval cemetery at Brook Drive, Kempston

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SUMMARY
Several inhumations excavated at Brook Drive, Kempston, probably form part of a larger 10th/11th century cemetery. The location of the graves suggests the cemetery may relate to a settlement pattern influenced by the Danelaw predating the establishment of the late Saxon estate seized by Edward the Confessor from Earl Tostig.

INTRODUCTION (Fig 1)

In May 1991 the excavation of a foundation trench, part of an extension to 6 Brook Drive, Kempston, led to the discovery of a human skull. Subsequent excavation by Bedfordshire County Archaeology Service resulted in the investigation of 8 inhumations. The discoveries were reported in the local press, Bedfordshire on Sunday 2/6/91. The site was subsequently given the BCAS project code WB145. The site archive will be accessed into Bedford Museum – 98/183.

TOPOGRAPHY AND GEOLOGY

The cemetery was located on the south bank of a small tributary of the River Great Ouse called the Ash Brook. The site is located on alluvial silts in an area of gravel loam drift above Jurassic clays. The local soil type is a non calcareous gley soil of the Rowsham series.

HISTORICAL BACKGROUND

The site is located in an area noted for its prehistoric, Roman and Saxon period settlement. However, very little is known regarding the cemetery location. It became part of Kempston Bell End, was enclosed by 1800 and on the Enclosure Map of 1804 is shown to be near two properties (553 & 552) in the 'Close' (CRO: MA18). By 1848 the site location had become 'Home Goodings' and the area was developed for housing by the 1950's (Wood 1984). Only general references to the area have been found from the early medieval period.

THE ARCHAEOLOGICAL EVIDENCE (Fig 2)

The 8 graves investigated were all shallow, excavated through light sandy soils. The absence of finds suggests the cemetery site was some distance from any domestic activity with only one small area where charcoal was noted in the subsoil.

GRAVE 1
1 Inhumation 1
2 E-W
3 Supine, head to west
4 Sex
5 Rectangular grave cut [04] badly disturbed by modern foundation.

GRAVE 2
1 Inhumation 2
2 E-W
3 Supine, head to west
4 Sex
5 Rectangular grave cut [06] badly disturbed by modern sewer.

GRAVE 3
1 Inhumation 3
2 E-W
3 Supine, head to west
4 Sex
5 Rectangular grave cut [08] shallow.

GRAVE 4
1 Inhumation 4
2 N-S
3 Supine
4 Sex
5 Rectangular grave cut [10] badly disturbed by modern pipe trench.

GRAVE 5
1 Inhumation 5
2 E-W
3 Supine, head to west
4 Sex
5 Rectangular grave cut [12]

GRAVE 6
1 Inhumation 6
2 E-W
3 Supine, head to west
4 Child
5 Shallow rectangular grave cut [15]

GRAVE 7
1 Inhumation
2 E-W
3 Supine, head to west
4 Adult

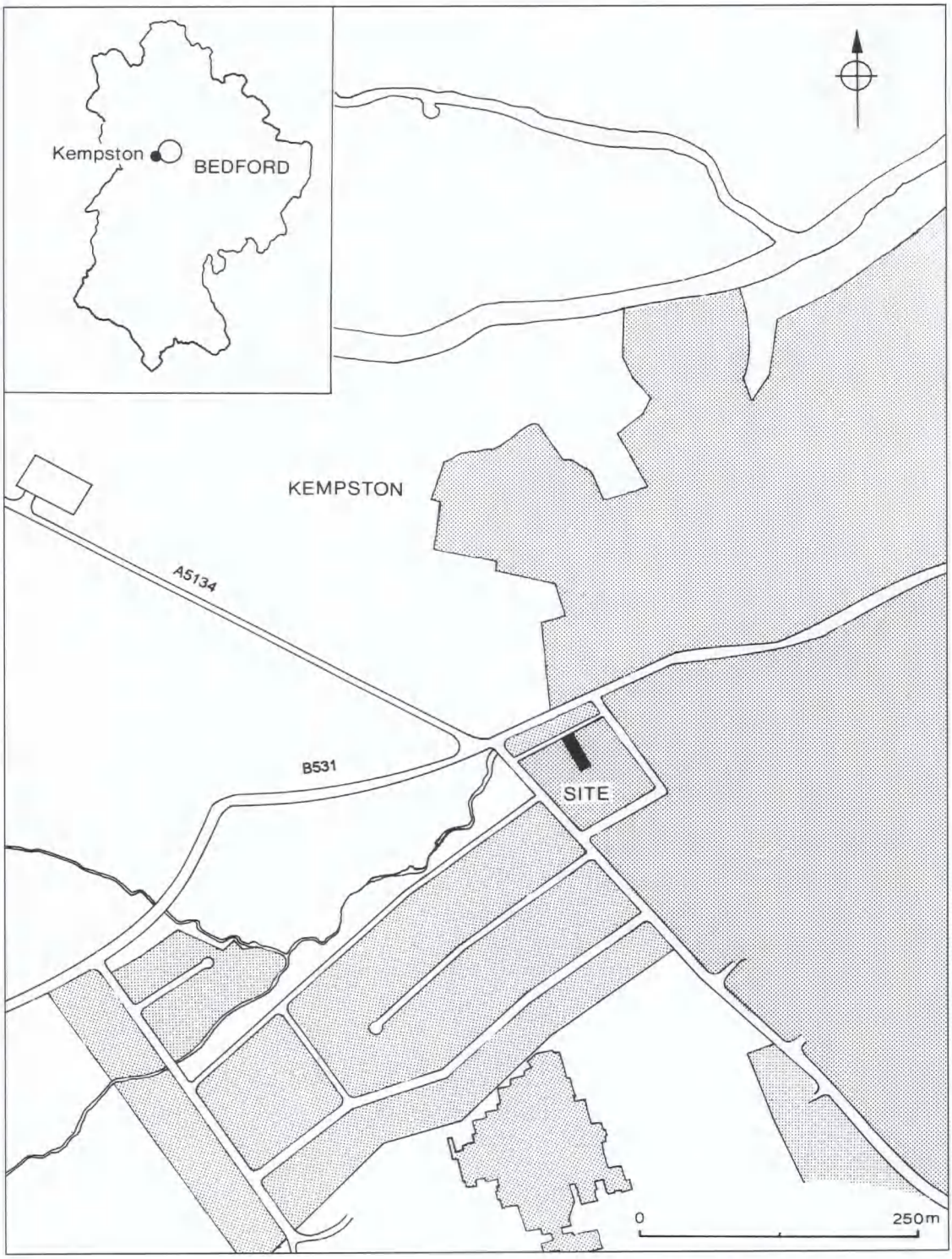

Figure 1 Location of the Brook Drive Cemetery

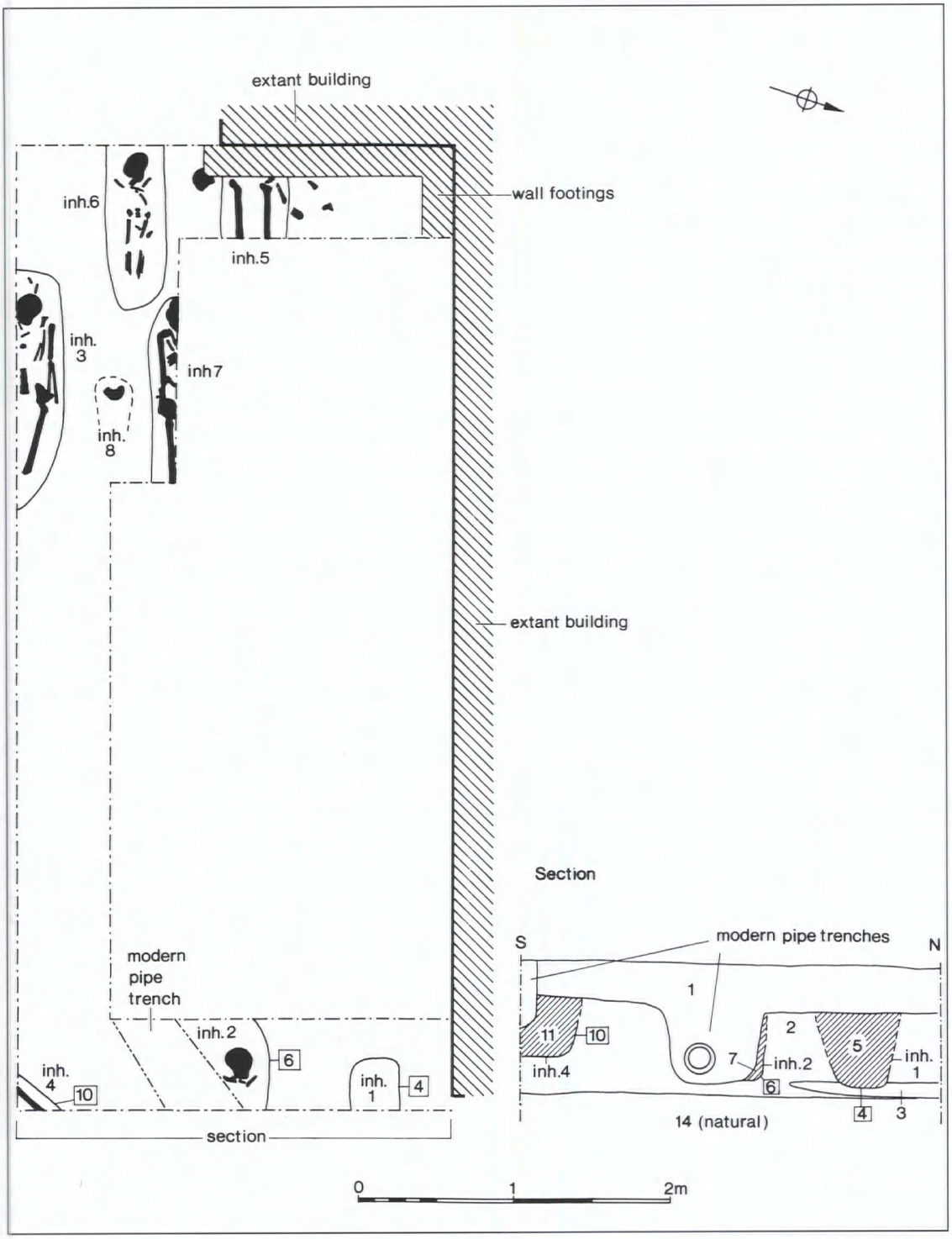

Figure 2 Plan and section of the inhumation cemetery

5 Rectangular grave cut [17] only part excavated.
6 Six coffin nails

GRAVE 8
1 Inhumation
2 E-W
3 Supine, head to west
4 Child
5 Rectangular grave cut [20] disturbed by animal and root activity.

THE SKELETAL DATA

P Kiberd

INTRODUCTION

Of the 8 inhumations only 7 skeletons were excavated. They were numbered 1-6 and 8. Inhumation 7 was observed but not excavated. The remains represent six adults and two infants.

Skeleton 1

Cranium: the majority of the skull was present but in a fragmented state. It comprises left and right parietals and frontal bone. The coronal suture was closed and partially obliterated. A reasonably strong nuchal crest was observed indicating strong muscle attachments on the occipital. Parts of the temporal bones are present. The right mastoid exhibits slight pitting and new bony growth.

Dentition: the mandible is present in two halves and lacks its condyles. The maxilla is less complete.

rightXX65-321/-2345XX-left maxilla
87654321/12345678 mandible

Mandible: the mandible exhibits slight to heavy calculus on all teeth, on all sides. It is heaviest on the incisors. Both first molars are very worn. The left M2 and M3 are more heavily worn than the right side. Some alveolar pitting is evident with loss of bone around both right and left first molars.

Maxilla: the palate is pitted and irregular, the alveolar bone is pitted. The left first and second molars have been lost ante mortem, and the stub of either the left first or second molar was evident, both molar sockets exhibit alveolar pitting and re-absorption in and around the sockets. The right first molar was heavily worn.

Post cranial bones: the following were present; ten vertebrae, (including part of the atlas and axis, seven thoracic, and one cervical) fragments of both scapulae, the right clavicle and the right humeral head.

Age: based on molar attrition and probably misrepresented due to the state of the teeth, 35-45 years. Cranial suture suggests an age closer to 50, probably 40-50 +/- 10 years.

Sex: based on morphological cranial indicators and right humeral head (55mm) indeterminate but possibly male.

Discussion: the evidence of heavy wear on the left teeth suggest this individual was right handed.

Skeleton 2

Cranium: virtually complete but in a fragmentary state. The brow ridges are visible but not prominent. The mastoids are small, and the mandible exhibits a pointed chin, suggesting a female skull. The frontal bone exhibits pitting and slight striation of the orbits both right and left. The internal surface exhibits three lesions. All three are irregular, ovoid in shape, lytic, and there is evidence for the destruction of bone and some re-deposition. Two of the lesions are on the left side, one on the right. All are at the centre of the frontal bone close to the frontal ridge. One lesion has penetrated both tables of the skull and forms a hole 6mm x 7mm, which has smooth walls. It is unclear without x ray, whether the lesion has passed from the inner table outwards or from the internal diploe both inwards and outwards. Some post mortem damage has destroyed part of this lesion. The right parietal exhibits seven further depressions which match those on the frontal bone. One of these close to the temporal suture has penetrated both the outer and inner table.

Diagnosis of these lesions includes tuberculosis, metastatic carcinoma or cranial osteomyelitis. The first two cause lesions very similar to those described above. If the lesion(s) relates to metastatic carcinoma, a cancerous lesion which has spread either via the blood or the lymphs, it is likely to be a secondary lesion or metatasis.

Other pathologies are evident on the temporal bones, both of which exhibit pitting around the external auditory meatii. The right also exhibits destructive lesions at the distal end of the mastoid, as well as internally along the auditory canal. It is evident that this individual suffered from mastoiditis, an erosive infection of the inner ear which results in much discomfort and deafness.

Dentition:

R87654321/12345678L
87X54 - - - / - - 345678

Mandible: this exhibits severely worn left first molar and second molar. The first molar crown has been eroded away and only the root and pulp cavity remain, the second molar is worn to the pulp cavity. The right first molar has been lost ante mortem. The remaining teeth are heavily worn but are comparatively in much better condition.

Maxilla: This is severely malformed pathologically and nearly all the teeth have been lost before death or were in the process of being lost. On the right side the first and second pre-molars remain as crowns worn to the pulp and the third molar as a root stub only. The entire right side is pitted and bone is in the process of being reabsorbed. On the left side the canine remains healthy but appears taurodont. The first and second pre-molars are just crown stubs worn to the pulp cavity. Much pitting is evident along the whole of the jaw. Five loose teeth are not readily placed, three are worn to the root and two are merely root stubs. Two further incisors represent mandibular teeth displaced upon excavation.

Heavy infection is apparent in the mandible and maxilla and at the mandibular condyles, which are pitted and show blastic and lytic lesious activity. The visible pathology is presumably due to bad diet, poor dental hygiene and/or malocclusion of the jaws. The molars have decayed leading to infection in the gums which spread as periodontal disease to the ear via the manubrotemporal joint.

Post cranial bones: there are a number of miscellaneous rib,vertebral and pelvic fragments. One unsided clavicle shaft part. A first right rib exhibiting evidence of fracture and healing, the distal half of the shaft lies at nearly 90° to the proximal half. Ten vertebrae include atlas and axis, four cervical and four thoracic pieces. The fifth cervical vertebra exhibits collapse anteriorly with severe pitting on the inferior surface of the vertebral body and lipping around the body edges. The sixth cervical vertebra has pitting and remodelling of the superior body surface corresponding to the fifth cervical. The axis and the third cervical vertebra exhibit pitting of the articular facets, which is severe and partially eburnated. It is most evident on the right side. Three of the thoracic vertebrae also exhibit pitting on the articulatory facets. It is likely that the vertebral pitting and collapse is linked to the right rib fracture.

Age: based on molar attrition of unpathological molars, 35-45 years. For such decay this appears quite young, however because of malocclusion those molars unaffected may well indicate a false age. The age given therefore is a minimum. Cranial suture closure suggests a more probable age of 50+.

Sex: indeterminate but possibly female.

Discussion: inhumation 2 was an elderly female between 40 and 50 years who suffered from three probably unrelated pathologies. The skull exhibits evidence of metastatic carcinoma, the jaw dental disease, and the post cranial skeleton, trauma.

1 Metastatic Carcinoma: in the cranial vault this is a secondary manifestation of cancer, the result of haematological spread from another part of the body.
2 Poor oral hygiene led to loss of teeth and gum infection which spread to the ear mastoids resulting in very decayed and painful jaws, restricted diet and loss of hearing.
3 Some evidence of trauma can be seen in healed fractures of the first rib and vertebral slumping or collapse and this may have resulted from menopausal decalcification.

Skeleton 3

Cranium: this is very fragmented and consists largely of pieces of parietal, occipital and temporal. It is also highly eroded by post mortem activity. It is thus difficult to age or sex significantly.

Dentition:

- 7-543 - - / - - - -5678
- - 654-2-/ - - - - - - - -

Caries on 61% of all teeth present. No calculus evident but the following carious lesions:

Mandible	Right	PM1	Occlusal 4
		M1	Occlusal 6
	Left	I2	Occlusal
		PM2	Occlusal
Maxilla	Right	C Occlusal	
		PM1	Occlusal
		M2	Cemento enamel junction (CEJ) distal surface
	Left	PM2	Occlusal
		M1	Occlusal x 2
		M2	CEJ distal
		M3	CEJ distal

Post-cranial bones: the following are present. Left arm incomplete, fragmentary and eroded, shaft parts of humerus, ulna and radius, no articulatory ends. Left leg very fragmentary femur, no tibia or fibula. Also present were several damaged fragments of the left innominate and of the ribs and vertebrae. No

metrically viable fragments were observed and no pathologies visible.

Age: on molar attrition: 25-35 years.

Skeleton 4
Only post cranial bones were present, all very fragmented, only a femur shaft and piece of acetabulum discernible, but unplaced.

Skeleton 5
Cranium: fragmentary but largely complete. The bone is very eroded by post mortem activity. There is a possible lytic lesion on the right parietal toward the sagittal suture near the mid line of the skull. The lesion is an irregular heart shape, coarse unsmooth edges, no remodelled bone with two deeper pits. It is approximately 10mm x 5mm and possibly pathological in origin, although it may be insect created.

Dentition: only the right side of the mandible is present and this lacks the condyle and ramus.

--------/--------
876 -----/--------

Post cranial bones: both femurs though present were fragmentary and eroded. Part of the pelvis was present but was very fragmentary. Also present were the distal articulation of the right humerus and a very tiny right patella. No pathologies visible. Approximate stature: based on reconstructed femur: 157cm or 5'2".

Age: on molar attrition of first and second molars: 35-45 years; third molar suggests 25-35 years. Mean: 30-40. No calculus or caries.

Sex: possibly female.

Skeleton 6
Cranium: complete but again very fragmentary, it is a juvenile cranium.

Dentition: part of the mandible with erupting incisors is present. Loose teeth include, molars, canines, incisors and premolars.

Post cranial bones: all bones present were fragmentary: Right and left humerus. Left scapula. Left clavicle. Right and left femur. Right and left tibia and fibula. Part of pelvis. All ribs, damaged. Plus other various unplaced bone fragments. No pathologies were visible.

Age: based upon erupting in situ teeth; 4-5 years +/- 9 months, based on loose teeth and in situ teeth 5 years +/- 9 months.

Skeleton 7
Not excavated.

Skeleton 8
This consisted of very fragmented skull, mandible and maxilla pieces and a mix of permanent and deciduous teeth in situ and loose. Only four teeth were in situ, twenty two others were loose. In situ were three deciduous molars and one unerupted permanent premolar. The remains represent one infant aged via teeth to 5 years +/- 9 months.

DISCUSSION
With such a small and incomplete set of remains it is difficult to interpret further than simple inventory. However, skeleton 2 is significant: the dental disease and associated infection is a reminder of inadequate oral hygiene in the past, and the evidence of severe mastoiditis is an unusually clear example of destruction of the middle ear which would cause hearing loss.

Skeleton	Age yrs	Sex	Pathology
1	40-50	Male	OA
2	40-50	Female	Cancer
3	25-35	?	–
4	?	?	?
5	30-40	?	–
6	5		–
8	5		–

Table 1 Age and sex of skeletons at Brook Drive, Kempston.

THE C14 DATES
Three C14 dates were sought from Beta Analytica and they were taken from the human bone assemblage as follows: Inhumation 1 (05), Inhumation 3 (09), Inhumation 5 (013). The dates were:

Beta 97085, WB145 (05), human bone sample 1 (inh 1) 1070+/-60BP

Beta 97086, WB145 (09), human bone sample 2 (inh 3) 960 +/- 50 BP

Beta 97087, WB145 (013), human bone sample 3 (inh 5) 950 +/- 50 BP

The dates are reported as RYCB (radio carbon years before present = 1950 AD) at 95% confidence. The C13/C12 value was estimated based on a typical C3 bone collagen value (-19 per mil).

ENVIRONMENTAL EVIDENCE

Three soil samples were taken from contexts (03) [3lts], (09) Inh 4 [4lts], and (16) Inh 6 [1.2lts] to recover charcoal for plant macrofossils. All were unproductive and no charred plant remains were identifiable.

DISCUSSION

The radio carbon dates from the inhumations at Kempston suggest the Brook Drive cemetery was in use in the late10th century, probably pre-Conquest. It is noteworthy for its position far from the known site of the manorial centre at Kempston Daubeny (Crick and Dawson 1996) and for its proximity to the small stream on the first terrace above the River Great Ouse. The lack of documentary evidence, the condition of the graves and the absence of grave goods suggest a mid/late Saxon Christian cemetery. The historic context of such a foundation can only be established in very general terms as follows.

The origins of Kempston parish may have followed the model in which a villa regalis, supported by a number of hamlets, grew out of an earlier Roman estate (Wood 1984, 30). In the late 9th and early 10th century Kempston was on the boundary of the Danelaw formed by the River Great Ouse between Bedford and Watling Street. By the late 10th century Kempston was the centre of an estate held by Earl Tostig. His lands, valued at 13 pounds and supporting 20 plough teams, were seized by Edward the Confessor when Tostig was banished and by Domesday the estate had passed to Countess Judith, niece of William the Conquer who also owned land in Potton through her marriage to Earl Waltheof. By the 14th century Judith's estate had been divided into three manors – Kempston Daubeny, Brucebury and Greys with Kempston Bourne End possibly monastic or freehold land. At Domesday the estate centre may have been at East or Up End, near the present day site called 'Kempston Manor', which may have been first established during the 10th -11th centuries (Crick and Dawson 1996). In addition to the estate centre Domesday attests two thegns resident at Church End, Box End or Hardwick and each of the three residences may well have supported a chapel and burial ground.

At Brook Drive, however, there is no evidence either for a chapel or of domestic activity: the cemetery may have been marked only by a simple cross. Yet although the limited range of dates from the cemetery suggests it did not remain significant into the Norman period it was in use concurrently with the early establishment of the estate centre at 'Kempston Manor'. The location of the cemetery some 600m west of the 'Kempston Manor' seems too far removed from this centre for it to be part of the manorial complex and it is even further from the historic parish church at Church End. This suggests it represents an early settlement pattern, probably the graveyard of a previously unknown missionary chapel. Whether its position can be attributed to the influence of the Danelaw or its demise to the result of changes brought about once tithes were made compulsory in the 10th century is equally uncertain (Blair 1988).

It seems appropriate, therefore, to suggest that the cemetery may once have belonged either to a private foundation or, possibly, a monastic missionary church which, once the parish boundaries and parish church became established in the 10th/11th century, lost its burial function.

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