

CLEH17



CUSTOS LODGE, VICARS CHORAL HEREFORD CATHEDRAL

ARCHAEOLOGICAL EXCAVATION
HER EVENT NO. EHE 80305

commissioned by Robert Kilgour Architects Ltd
on behalf of Dean and Chapter, Hereford Cathedral

March 2018

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PROJECT TEAM:

Project Manager **Luke Craddock-Bennett** / Author **Tom Cochrane** / Fieldwork **Iain Bennett, Tom Cochrane** / Graphics **Mano Kapazoglou, Rafael Maya Torcelly** / Finds **Amy Koonce, Julie Franklin, Julie Lochrie, Rebekah Pressler** / Osteology **David Henderson**

Approved by **Luke Craddock-Bennett**



Headland Archaeology Midlands & West
Unit 1 | Clearview Court | Twyford Rd | Hereford HR2 6JR
t 01432 364 901
e midlandsandwest@headlandarchaeology.com
w www.headlandarchaeology.com



PROJECT SUMMARY

Headland Archaeology (UK) Ltd undertook an archaeological excavation within Custos Lodge Yard, Vicars Choral, Hereford Cathedral prior to construction of a small building on the site. The excavation revealed four human burials at a depth of c 2m below the existing ground surface. Carbon dating on one of the burials revealed a pre-conquest date for their death, and analysis of the skeleton revealed evidence of several fatal battle wounds. A sequence of former yard surfaces sealed these burials. The excavation also uncovered evidence of the 15th century Custos Lodge, in the form of the foundation of its southern wall and a subterranean feature thought to be a cellar or latrine pit.

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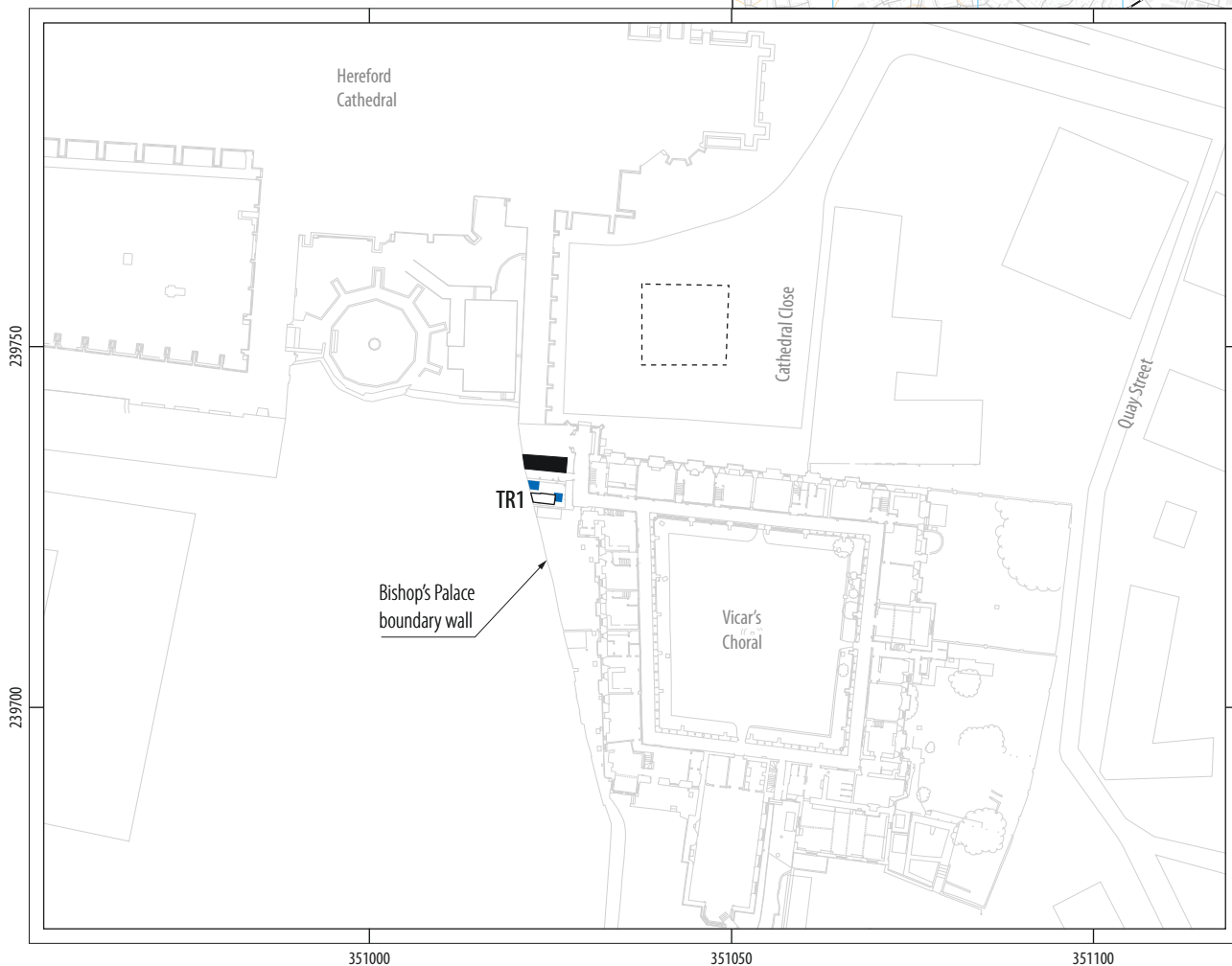
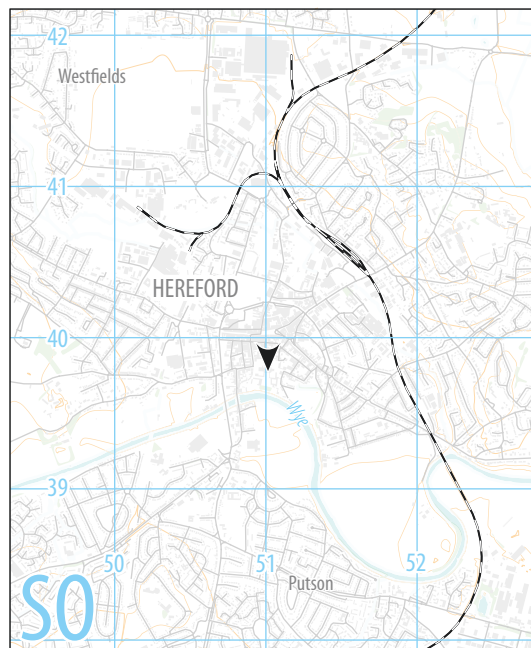
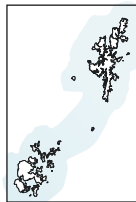
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CLEH/01

Custos Lodge
Hereford Cathedral
Herefordshire

0 200km
1:10,000,000 @ A4



0 20m
1:1,000 @ A4

trench location
 previous trench
 cellar location
 2009-2011 excavation site boundary

HEADLAND
ARCHAEOLOGY

MIDLANDS & WEST

Unit 1, Clearview Court, Twyford Road
Hereford HR2 6JR
01432 364 901
www.headlandarchaeology.com

CUSTOS LODGE, VICARS CHORAL HEREFORD CATHEDRAL

ARCHAEOLOGICAL EXCAVATION

1 INTRODUCTION

Headland Archaeology (UK) Ltd was commissioned by the Dean and Chapter of Hereford Cathedral, through their architect Mr. Robert Kilgour, to undertake a programme of archaeological works in connection with improvements to buildings and facilities in the Vicars Choral, Hereford Cathedral. The archaeological work was undertaken in order to mitigate against the impact on any surviving archaeological deposits of the construction of a building in a small yard in the northwest corner of the Vicars Choral.

1.1 PLANNING BACKGROUND

Planning permission (App. No. 161083) and Listed Building Consent (App. No. 161084) were granted by The County of Herefordshire District Council to the Dean and Chapter of Hereford Cathedral for the provision of a new changing room and offices within the Vicars Choral at Hereford Cathedral.

Due to the site's location within an Area of archaeological importance, Informative No. 4 of the planning permission required that an Operations Notice and accompanying Certificate were served on Herefordshire Council. This was served on 16th June 2017.

Following archaeological evaluation of the site, Headland archaeology (UK) Ltd was commissioned to undertake a program of archaeological works to mitigate against the impact of the development on any archaeological remains. This work took the form of the excavation of one foundation trench and a watching brief on other works carried out on the site. A Written Scheme of Investigation (WSI), was prepared by Headland Archaeology (Craddock-Bennett 2017) on behalf of the Dean and Chapter of the Cathedral. This report details the results of the subsequent fieldwork.

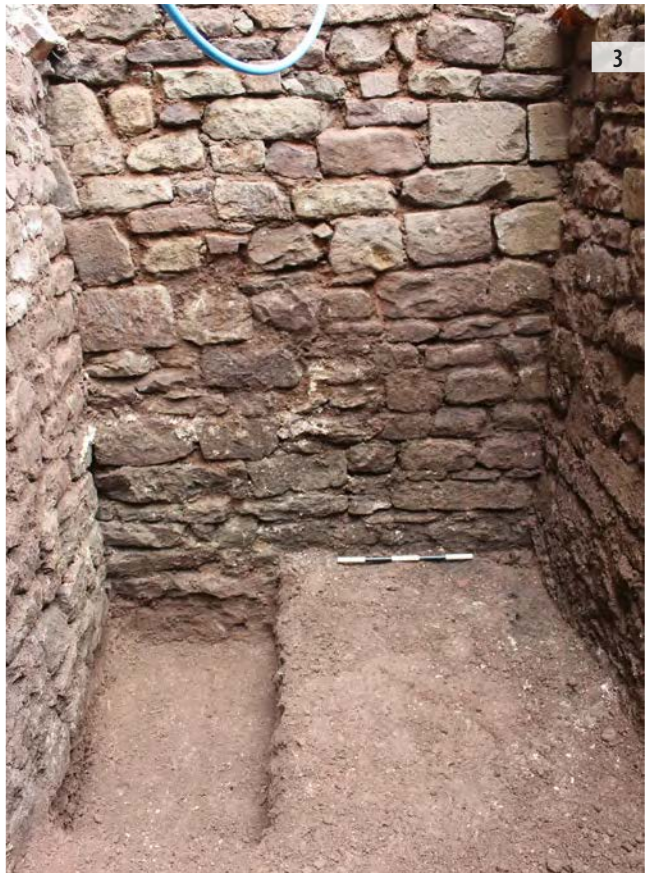
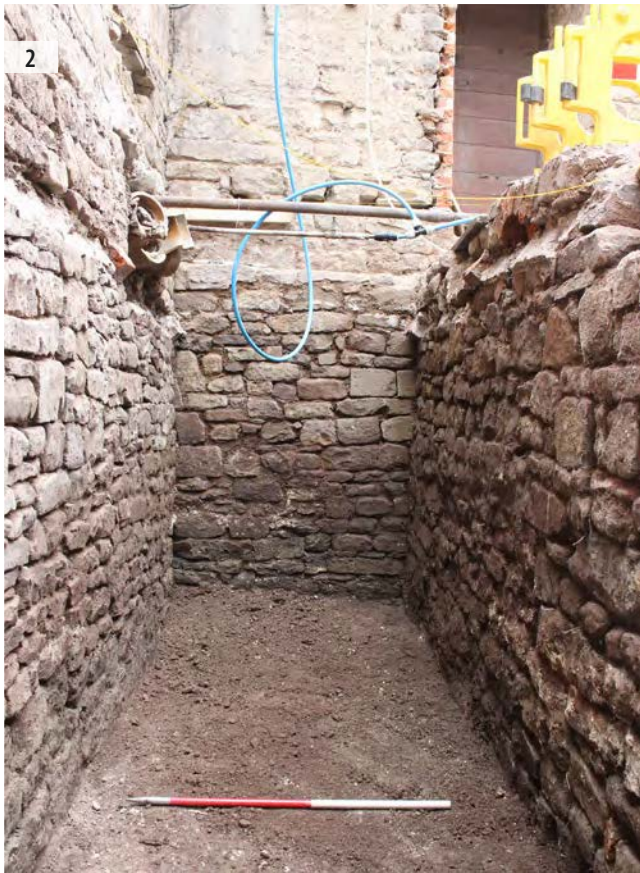
1.2 SITE DESCRIPTION

The site is centred on NGR 351026, 239723, and is located in the north-west corner of the Vicars Choral of Hereford Cathedral (Illus 1). This area was previously occupied by a 15th century building known as 'Custos Lodge', which was accommodation for the caretaker of the Vicars Choral. Prior to the current works the area comprised an irregular quadrilateral shaped yard, which contained a small brick built three celled toilet structure, which partially incorporated earlier medieval walls on its east, north and west side. This structure was Victorian in date and was demolished, leaving the earlier walls in place, at the start of the development. The underlying geology of the area is recorded to be Raglan Mudstone Formation.

1.3 ARCHAEOLOGICAL BACKGROUND

Hereford traditionally became the centre of a new diocese around 676 AD but little is known of the Saxon church or its claustral buildings. It is possible that the early wooden church was rebuilt in stone as early as the 9th century or, more probably, during the episcopacy of Bishop Aethelstan (1012–1056). This church was burnt during a Welsh raid in 1055 but the extent of the damage is unclear and it may not have been completely destroyed.

No new Norman church appears to have been built until the episcopacy of Reynelm (1107–1115), described as fundator ecclesie in his obituary; much of the early 12th century church survives despite later changes and additions to it, and both the nave and south aisle have late 11th century origins, though the latter had been radically rebuilt in the early 14th century. During that time a new crossing tower had been added, matched, at the west end, by a second tower, both probably started in the 1310s. By the mid 18th century the condition of the west tower was becoming critical and a total collapse in 1786 caused considerable collateral damage to adjacent parts of the cathedral, and particularly to the western half of the



ILLUS 2 East facing view of the 'Cellar' **ILLUS 3** East facing view of drain in east end of 'Cellar' **ILLUS 4** Enhanced view of photograph from backfill of 'Cellar'

nave and the aisles. The architect James Wyatt (1746–1813) was called in to rebuild the cathedral and the work took place between 1788 and 1796.

During excavations by Headland Archaeology (UK) Ltd in 2009–2011 (Boucher et al 2015), a substantial building radiocarbon dated to c AD 850–950 was identified in St Johns Quad to the east of the cathedral. Coinciding with, or predating, the construction of the building was a child's burial at the base of the foundation trench. The burial was the earliest identified out of the 2456 inhumations uncovered during the excavations. As the building was only partially excavated, its function is not fully understood. Also identified during the 2009–2011 excavations was evidence of industrial activity dating to the 10th and early 11th centuries, which was in turn truncated by the foundations of a substantial building continuing towards the area occupied by the Custos Lodge.

In December 2016 and January 2017 four evaluation trenches were excavated to determine the archaeological potential of the Custos Lodge site (Archer & Craddock-Bennett 2017). Floor surfaces and built structures were preserved below the current yard surface at a depth of c0.40m, and archaeological deposits continued to a depth of 2.19m below ground level. The former southern wall of the 15th century Custos Lodge was identified in the south of the site and a former cellar sealed beneath a 19th century toilet block was recorded in the north of the site. A possible 12th century yard surface was identified at a depth of c 1.00m below ground level, and archaeological deposits were shown to continue below this depth. Considering the significant archaeological deposits identified during previous excavations c 20m to the northeast of the Custos Lodge (Boucher et al 2015), the potential for the survival of significant archaeological deposits of medieval and Saxon date within the proposed development area was considered high.

2 OBJECTIVES

The general purpose of the investigation was to mitigate the impact of the development proposal on the archaeological resource through the acquisition of a full archaeological record and an interpretation of that record.

The archaeological investigations were carried out in order to:

- › assess extent, layout, structure and date of features and deposits of archaeological interest; and
- › place, where possible, the identified features within their local and regional context.

The resulting archive (finds and records) will be organised and deposited with Hereford Museum (under accession number HFG-MG-2017–33) to facilitate access for future research and interpretation for public benefit.

3 METHOD

Work on the site was carried out in two different parts, a watching brief monitoring the removal of backfill from the 'cellar' feature identified during the evaluation, and the hand digging of a foundation trench. All work took place from 19th June 2017 to 6th July 2017. Work was carried out as proposed in the WSI (Craddock-Bennett 2017), except for some alterations, explained below.

Demolition of the existing brick building and brick vaulting over the 'cellar' feature had already taken place prior to these dates and without archaeological supervision. A reduction in the ground surface of the yard of about 0.5m was also carried out without supervision prior to arrival on site, meaning that only another 0.5m needed to be reduced in the trench to reach the level reached during the evaluation.

Backfill inside the 'cellar' feature was removed using a 1.5t 360 excavator using a flat bladed bucket under archaeological supervision. Backfill was removed down to a floor surface deposit identified during evaluation.

The excavation of a small trial pit, located in the southwest corner of the yard, was also monitored. This was dug by the contractors in order to determine the width of the wall in the trench.

The upper 0.5m of deposits within Trench 1 (which comprised backfilled material from the previous site evaluation) was excavated by machine until undisturbed archaeological deposits were encountered. Past this point the trench was excavated by hand until natural geology was encountered.

Trench 1 originally measured 2m by 1.5m. This was extended west, by hand, due the requirements of the contractor, up to the wall of the bishop's garden. Due to this the full extent of the trench increased to be 3.50m x 1.50m. This also caused the trench to be a slightly irregular shape due to the angle of the bishop's garden wall, which runs roughly NNW-SSE. This extension of the trench was only excavated to a depth of 0.90m, as this was all that was required by the contractors. The original area of the trench was excavated to the natural underlying geology, which was first encountered at 54.87m AOD.

Upon reaching 1m in depth from the current ground surface, shoring was fitted into the trench by the contractor in order to secure the sides and allow for further excavation. The size of the shoring meant that the width of the trench was reduced by roughly 0.20m.

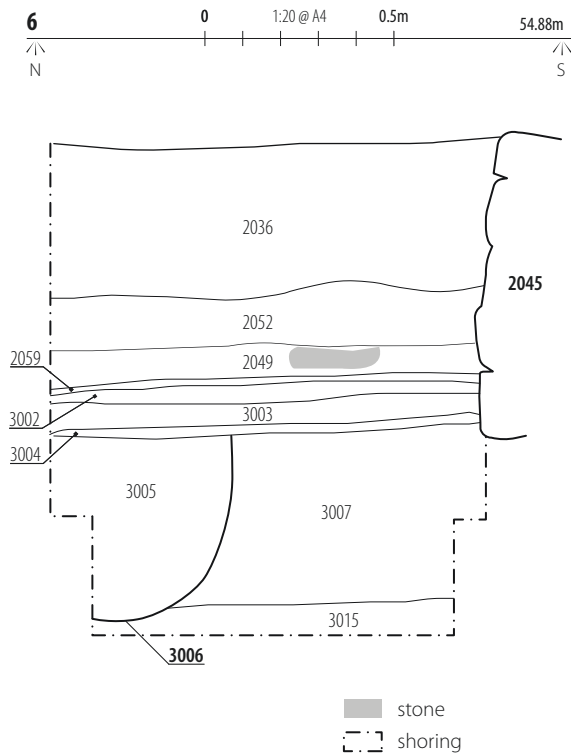
During excavation of the trench, spoil was bucketed to the centre of the yard, where it was then removed by the contractor.

Hand drawn plans of the trench were created at archaeologically significant levels. Spot heights on these plans were taken using a dumpy level. An overall site plan, including the locations of hand drawn plans, was recorded digitally using a differential GPS, using standard Headland Archaeology methodology. The site plan was accurately linked to the National Grid.

Detailed recording of features and sections was undertaken on permatrace. Plans were drawn at a scale of 1:10, and sections at a scale of 1:20.



ILLUS 5 Detail plan of Trench 1



ILLUS 6 West facing section of Trench 1 **ILLUS 7** West facing section of Trench 1

All contexts, drawings, samples and small finds were given unique identifying numbers starting at 3001. Recording was undertaken on Headland Archaeology pro forma record sheets and a diary record was kept of the excavation.

Photographs were taken on 35mm black-and-white film with a graduated metric scale clearly visible, and were supplemented by digital photography.

Artefacts and other finds from archaeological contexts were collected, identified by context and retained. Disarticulated human remains were collected, identified by context and stored within the Cathedral office. Articulated human remains were cleaned and recorded before being lifted and stored in the Cathedral office. All human remains were excavated under the Care of Cathedrals Measure 2011. Finds retrieved during the excavation were cleaned and stored using appropriate methods, as laid out in First Aid for Finds (Watkinson & Neal 1998).

Working practices followed the ClfA code of conduct (2014a) and all recording adhered to ClfA Standards and Guidance for conducting archaeological excavations (2014b) and the Headland manual.

4 RESULTS

A full context register is included in Appendix 1. Specialist reports on the finds, faunal remains, osteological remains and radiocarbon dating are included as Appendices 2–5.

4.1 VAULT

During the evaluation stage of the project, a large underground vault, interpreted as a cellar was discovered to the north of site (Illus 2). This vault measured roughly 6m x 1.8m and extended to just over 2.00m below the existing ground level. This vault had stone walls on all sides, each belonging to different phases of construction (Archer & Craddock-Bennett 2017).

One feature was identified in the base of this structure. This took the form of a possible N-S running ditch in the eastern end (Illus 3). Full excavation of this feature was not possible due to health and safety constraints, but was observed to be greater than 0.36m in depth. It appeared to continue beneath the north, east and south walls of the cellar. Although not fully visible in plan it was seen to be at least 1.21m in width. The nature of this feature is unclear, but could possibly be a foundation cut for the eastern wall, although it would be wide for such a cut. Another possible explanation is that this is some form of drainage feature, although interpretation is difficult without full excavation.

The wall of the Bishops garden, which formed the western wall of the vault, appeared to be the earliest of the walls forming this structure.



ILLUS 8 Skeletons SK3008 and SK3009 in situ **ILLUS 9** Skeletons SK3010 and SK3011 in situ

The foundation course could be seen beneath the main coursing of the wall. This foundation was 1.24m in depth and was roughly faced. Beneath this foundation could be seen roughly six more courses of walling, standing at roughly 1.00m high. This appeared to be faced, unlike the foundation above it, and it seems likely that these courses represent an underpinning of the existing wall, in order to extend it down to the base of the vault.

The south wall of the structure appears to have been purposely constructed for the creation of the vault, as opposed to a reuse of former structures. It appeared to be a single phase of construction, of roughly faced stones in rough courses. At the top of this wall, near to its centre, was a small brick culvert, running roughly N-S from the centre of the current yard with its northern end terminating in this wall. Its construction material would appear to suggest that this is a later addition into this wall. It would appear to be some form of drain, designed to drain into the vault. The later brick vaulting which covered this vault, was built onto the south wall in a place that would prevent this drain from functioning, which suggests that this culvert was earlier than the vaulting.

The north wall appears to be one event of building and therefore, due to its depth to the base of the vault, seems that it was contemporary with the construction of the vault. It seems likely that this wall is the North wall of the Custos Lodge, and that this vault is contemporary with the construction of this building. Another small brick culvert, similar to that in the south wall, was present at roughly the same level in this wall. This one, however, had been highly truncated by modern services, which seem to be from the later toilet block, passing through this wall. As with the culvert on the south side, this one was also blocked by the later brick vaulting.

The east wall also appeared to be one phase of construction, down to the base of the vault. Again, this would suggest that this wall was constructed concurrent with the vault and possibly formed part of the Custos Lodge. It was roughly coursed with fair faced stones, utilising some stones with dressed faces, probably re-used from nearby.

The backfill of the cellar was similar to that observed during evaluation of the site. It appeared to represent dumped material and contained a plethora of post medieval material, such as glass and ceramic bottles, clay pipes and bone toothbrush handles. One notable find from this backfill was a highly damaged photographic plate, possibly an ambrotype, on which a faint figure could be seen. Digital enhancement of this plate revealed the photograph was of a man wearing some form of formal attire (Illus 4). Also contained within this backfill were pieces of disarticulated human remains. These would seem to derive from the demolition of the overlying structures and levelling of deposits during the 19th century.

4.2 TRENCH 1

Trench 1 (Illus 5) was located to the south of the site, and was a continuation and enlargement of Trench 3 excavated during the evaluation phase of works (Archer & Craddock-Bennett 2017). The original footprint of the trench was excavated to the natural underlying geology, whereas the extension of the trench to the west was only excavated to a depth of 0.90m, as this was all that was required by the contractors. The underlying geology, which

was first encountered at 1.22m below the existing ground level, or 54.87m AOD, was a compact slightly clayey sand, intermixed with poorly sorted coarse gravels. A drawing of the west facing section of the completed trench can be seen in Illus. 6, and a corresponding photograph in Illus 7.

Overlying this geology was (3007), a layer of mid greyish brown silty clay, which contained occasional small charcoal and stone inclusions. This was observed to have a maximum depth of 0.44m. Contained in this deposit were the skeletal remains of two individuals, (SK3008) and (SK3009) (Illus. 8). These individuals were both aligned east to west with their feet at the west end and were both lying in a supine position. Individual (SK3008) appeared to be positioned with arms at its sides, however, individual (SK3009) was too badly truncated to ascertain the arm position. No grave cuts were visible within the surrounding deposit for these two burials, possibly due repeated re-use of burial ground causing homogenisation of the soil. The heads of these skeletons aligned with each other on a north to south axis, with only roughly 0.10m between their shoulders. This may suggest that they represent a double burial, although the invisibility of any grave cuts makes this difficult to verify. Another, possibly more likely explanation may be that the graves were marked with some form of grave marker, which made it possible to dig new graves in line and without disturbing older ones, although no trace of any sort of marker was observed. A third possibility may be that these graves were dug at the same time, or in relatively short succession, again making it possible to line up the graves.

A full osteological assessment of the burials is included as Appendix 4. (SK3009) was a female of about 25 to 35 years old at the time of death. She was of slight build and stood at about 1.55m tall. The only pathology noted on this skeleton was a small amount of calculus on the teeth.

(SK3008) was a male and was around 1.67m tall, with a quite robust build. It appears that he was 35 to 46 years old at the time of death. Osteological analysis of the skeleton revealed at least four, possibly five, blade injuries. There was a possible injury on the left humerus that appears to be a healed cut mark, which may have affected the use of his left arm. The other four injuries show no signs of healing and would appear to have all been inflicted around the time of death. These comprise a defensive wound on the right thumb, a stab in the lower left side of the chest, a downward stab in the back and a very powerful blow to the back of the head. The latter two would have almost certainly been fatal, and the stab in the side would have also most probably been fatal.

AMS dating carried out on this individual suggests a most likely date range of AD 680–780 for his death, but other possibilities are detailed in the table below:

TABLE 1 AMS dating results for (SK3008)

Calibrated date (AD) with a probability of	
68.2%	95.4%
687–777 (65.4%)	680–780 (68.3%)
794–900 (2.8%)	788–874 (27.1%)



ILLUS 10 Metallurgical surface (3004) with wall [2095] to rear **ILLUS 11** North face of wall [2045]

Cut through deposit (3007) and into the underlying geological deposits (3015), in the north-west corner of the trench, was grave [3013], which contained individual (SK3011). This grave was only partially exposed in the trench, as it extended past the western and northern limit of excavation. This meant that only the right side of the individual, from the pelvis downwards was exposed. This grave was cut by another grave [3006], cutting through just above the knee, and meaning that the lower legs were lost. The broken lower end of the femur of (SK3011) was found in the fill of [3006]. Both parts of the femur showed cut marks around the break, seemingly from when this bone was broken during the interment of [3006]. The fill of this grave (3014) was a mid-reddish brown silty, clayey sand with poorly sorted gravel, possibly representing backfill formed of a mix of the natural geological material and overlying deposits cut through by the grave. Only parts of the pelvis, right leg, right forearm and right hand were recovered from (SK3011), due to its partial exposure and truncation. This individual was not subject to osteological assessment due to this limited recovery.

Grave [3006], located on the northern side of the trench, cut through the eastern end of [3013], and also through (3007) and into the natural geological deposits, heavily truncating the left-hand side of (SK3009). This contained individual (SK3010) (Illus 9). Grave [3006] appears to be the latest grave in the sequence of burials in the trench. The fill of this grave, (3005), was again a mid-reddish brown silty, clayey sand with poorly sorted gravel. This was probably representative of a mixed backfill to this grave. There was no definable interface between (3005) and (3014), possibly due to the similar nature of deposition. The relationship between these two graves could only be identified from the disturbance of skeleton (SK3011). Several large pieces of charnel were present in (3005), possibly deriving from graves disturbed during the digging of grave [3006]. One piece of brick, or possibly unglazed floor tile, was recovered from (3005). Although this could not be accurately dated it was thought to be probably medieval or early post-medieval.

Grave [3006] contained the remains of a juvenile individual of indeterminate sex, (SK3010). Although roughly 10–11 years old at the time of death, this individual was probably about 1.23m in height, which is roughly the same height as a modern seven year old. This is a fairly common trait for medieval children. Osteological analysis of this individual revealed two developmental anomalies. The first was evidence of spina bifida obscura, which was probably symptomless in life. The second anomaly was that the right adult second molar had failed to form. This, coupled with hypoplastic lines noted on some of the teeth, is probably evidence of growth disturbance, probably caused by severe malnutrition or illness.

These deposits were sealed by context (3004). This appeared to a rough metallised surface formed of compacted pebbles that covered the entire area of the trench (Illus 10). The pebbles forming it varied in size, but most appeared to be roughly 0.05m in diameter, although the largest was measured to be roughly 0.26m in diameter. There was no visible pattern to the deposition of these stones. The layer itself was measured to be 0.04m in depth.

Overlying (3004) was a soft silty clay layer (3003). This contained occasional small charcoal inclusions and frequent small rounded

stone inclusions. It was noted to be 0.08m in depth. It was interpreted to be a build-up of material formed on (3004) over time.

Overlying (3003) was layer (3002), and overlying this layer was (2059). Deposit (3002) was a layer of very compact mid pinkish red clayey sand and gravel, with a maximum observed depth of 0.10m. This was interpreted as being some form of levelling or bedding deposit for layer (2059).

Layer (2059) was observed in the previous evaluation of the site. It was formed of small to medium rounded stones compacted with a silty clay matrix between them, measuring roughly 0.03m in depth. Similar to (3004), this context appeared to also be some form of surface or floor level. Like with (3004), there was no apparent pattern in the distribution or arrangement of the stones, giving the impression that this surface had been roughly constructed, rather than carefully laid. Pottery recovered from this context suggests a 14th to 15th century date for this deposit.

(2045) was an east-west running wall, located in the southern section of the trench (Illus 11) and cut through surface (2059) and the underlying deposits. This appeared to be the former southern wall of the Custos Lodge. To the west it could be seen that this wall butted up against the wall of the bishop's garden. The top of it was truncated by a modern brick wall on the same alignment. It was constructed of very roughly faced stone blocks in random courses. Five courses remained to an average height of 0.73m. The southern face of the wall was observed through the excavation of a trial pit to the west of the trench, along the Bishops' garden wall, and showed it to be approximately 0.86m in width. There was no evidence of mortar, but the wall appeared to have a soft earth bonding material between the stones. This trial pit also revealed fragments of a piece of worked stone, which appeared to be some form of grave marker, re-used in the fabric of the wall (Illus 12–13). This piece of stone was recovered from the wall, however it could be seen that more of it was present in the wall, visible in the section of the trial hole.

Against this wall, and overlying (2059) was layer (2049). This was a fairly compact layer formed of stones of varying sizes, ranging from 0.20m to 0.50m in diameter and intermixed with a sandy clay matrix. The layer itself measured roughly 0.09m in depth. It appeared to form some sort of surface, although not as neatly made or tightly compacted as (2049) or (3003). The stones that formed this deposit may have been re-used rubble.

Deposits (2029) and (2036) were observed and recorded in the previous evaluation, and appeared to possibly represent layers of demolition debris. One noteworthy piece of red deer bone was recovered from context (2029), which was a piece of skull with evidence that the antler had been sawn off, which suggests its utilisation for craftwork.

5 DISCUSSION

Excavations at Custos Lodge yard have revealed a range of archaeological deposits and features which represent varied use of the site and tell the story of the changing nature of the area over time.



ILLUS 12 View of (3012) in situ in wall [2045]



ILLUS 13 (3012) after retrieval

The earliest activity on the site is represented by the series of burials uncovered. The earliest two in the sequence, (SK3008) and (SK3009) appear to be of roughly the same date. This appears to be the case given the uniformity of the deposit they were present within, and the observation that the graves respect each other in some way, although the exact reason for this is not clear. Carbon dating on (SK3008) gives a most likely date range for his death of AD 680–780, although possibly as late as AD 874. It seems likely that (SK3009) would also have a similar date to this, due to the apparent relationship between the two burials, although this is not confirmed. This date range predates the construction of the current cathedral at Hereford, the earliest parts of which date to the early 12th century. The presence of these burials in the trench would suggest that this was the location of an earlier burial ground on the site, likely to be related to an earlier Cathedral building. It has been previously suggested (Boucher et al 2015) such a building may have been to the south and east of the current cathedral on the site. The existence of an earlier burial ground in this area, would imply that this may be true. Prior to excavations in the cathedral close between 2009 and 2011, little was known about the development of the cathedral close before the construction of the current cathedral (Boucher et al 2015). Bishop Aethelstan is recorded as carrying out the construction, or possibly re-construction, of a cathedral in the 11th century, and the 16th century historian Vergil, recorded a church built of stone by Milfrid in AD 825. Milfrid's church is recorded as replacing an older church, which may have been constructed of wood during the time of Offa. From this, it would seem that these burials relate to possibly the earliest wooden cathedral church on site. It has been speculated

that this earlier church was located to the south-east of the current cathedral, but no archaeological evidence of an earlier cathedral has ever been uncovered. All previous excavations on the site have not uncovered any burials this early in date, and none of these previous works have been located as far south of the current cathedral as this. One burial, uncovered during excavations at St Johns quad, c 30m north east of this site, was dated to AD 850–950. The location of these earlier burials towards the south east of the current Cathedral Close seems to support the theory of an earlier church in this area.

The fatal wounds noted on (SK3008) would indicate a very violent end for this individual, probably in some form of skirmish or battle. The date range given by the AMS dating points to a turbulent time in Hereford's history. At this time Hereford was located on the border between the Welsh and Anglo-Saxon kingdoms. Hostilities between the two sides at this time are well documented, and seem to culminate in AD 760 in the battle of Hereford. It seems probable, given the nature of the injuries sustained by (SK3008), that he was killed in such a skirmish, possibly even in the battle of Hereford itself. The possible healed injury on the left arm might also suggest that he had fought and survived battles prior to his death.

Individual (SK3011) was interred later than (SK3009), and (SK3010) later than this. Due to its limited recovery, (SK3011) offered limited opportunity for interpretation. Individual (SK3010) died at an early age, and showed signs of severe malnutrition or illness. It is quite possible that one of these factors lead to this individual's death, although this cannot be confirmed. Although not subject no

radiocarbon dating, it can be seen that SK3010 and SK 3011 are later than (SK3009), which is probably a similar date to (SK3008). It can also be seen that these graves are sealed by (3004). This would suggest a date range of the 8th to 15th centuries for these burials.

Above these graves appeared to be a sequence of rough cobbled surfaces, probably external, represented by deposits (3004), (2049) and (2059). Contexts (3003) and (3002) appear to be related to these surfaces, with context (3003) representing a build-up of material over time on top of surface (3004) and (3002) forming a bedding layer that (2059) was laid on top of. Pottery from the earliest of these surfaces, (3004), suggests a date of 14th to 15th century for this layer. Given that the Custos Lodge occupies the site from the 15th century, it seems likely that the date of this deposit is towards the earlier end of this date range. It would also suggest that these surfaces were formed in fairly quick succession, over a period of not much more than a century. These surfaces suggest that this area may have been utilised as some form of external yard area at this time.

Wall [2045] was identified in the previous evaluation of the site. It was interpreted as the southern wall of the Custos Lodge, due to its location matching with that on 18th century maps of the site. This seems to be likely explanation for this wall, although the fairly rough facing of this wall would suggest this was more probably the foundation of the wall than the wall itself.

The vault to the north of the site was seen, once fully exposed and its backfill removed, to extend the entire area under the Victorian brick outbuilding. Older walls appear to be underpinned below ground in order to utilise them in this structure. The south wall appears to have been built specifically for this structure.

The purpose of this structure is unclear but there are a few possible uses that can be suggested. Previous evaluation of the site suggested that this structure may be a cellar, which was related to the former Custos Lodge on site. If this is the case then it would have to be accessed using a ladder or similar, as no stairs or evidence of stairs were identified. A second possibility is that this structure was some form of latrine pit. The small brick culverts in the north and south wall, although probably inserted at a later date, seem to suggest that waste water is being drained into this structure. Certainly, this structure is not being used as a cellar at the time these culverts are inserted. The possible ditch in the east end could possibly represent some form of drainage feature, although this cannot be positively ascertained. The location of a 19th century toilet block above this feature may indeed show a continuation of use of this area, even if the subterranean structure is no longer utilised. This would explain why this toilet block directly overlays this structure in plan, although it may be that toilet block is simply utilising this structure as a foundation.

6 CONCLUSION

The excavation has identified the nature of archaeological deposition within the study area. It has shown that the burial ground of the Cathedral Close extends across the area, possibly with some of the oldest burials within the close, with implications about the location of an earlier cathedral on site being to the south-east of the current cathedral. Evidence of the areas later use as an external yard

prior to the construction of the Custos Lodge in the 15th century was uncovered. Finally, the nature of the subterranean vault, which appeared to be part of the Custos Lodge, was assessed. Although no definite conclusion could be drawn, it seems likely that this is either some form of cellar, or possibly a latrine pit. The excavation has succeeded in its aims of assessing the nature of the archaeology present, as well as placing it in its wider context, and mitigating the impact the development would have on it.

7 REFERENCES

- Archer B & Craddock-Bennett L 2017 *Custos Lodge, Vicars Choral, Hereford Cathedral: Archaeological Trial Pit Evaluation* [unpublished client document] Headland Archaeology, Ref. CLCH
- Boucher A, Craddock-Bennett L & Daly T (2015) *Death in the Close. A Medieval Mystery* Edinburgh
- Craddock-Bennett L 2017 *Archaeological excavation in the area of the Custos Lodge, Vicars Choral, Hereford Cathedral: Written Scheme of Investigation* V02 [unpublished client document] Headland Archaeology, Ref. CLEH
- Chartered Institute for Archaeologists (CIfA) 2014a *Code of Conduct* (Reading) <http://httpwww.archaeologists.net/sites/default/files/CodesOfConduct.pdf> accessed 10 January 2018
- Chartered Institute for Archaeologists (CIfA) 2014b *Standard and guidance for archaeological excavation* (Reading) http://httpwww.archaeologists.net/sites/default/files/CIfAS&GExcavation_1.pdf accessed 10 January 2018
- Watkinson D & Neal V (1998) *First Aid for finds* (3rd revised edition) Rescue: London

8 APPENDICES

APPENDIX 1 CONTEXT REGISTER

TR01	L (m)	W (m)	min D (m)	max D (m)
	2.00	1.50	1.25	1.42
Context	Description			DBGL (m)
2029	Light reddish brown make-up layer with demolition rubble inclusions–recorded in previous evaluation			–
2036	Stoney deposit–recorded in previous evaluation			0–0.20
2045	E-W running wall in southern section–recorded in previous evaluation			0–0.78
2049	Rough rubble surface–recorded in previous evaluation			0.54–0.62
2052	Silty clay deposit with burnt material–recorded in previous evaluation			0.20–0.32
2059	Cobbled/metalled surface–recorded in previous evaluation			0.60–0.64
3000	Cut of N-S linear in cellar			–
3001	Fill of [3000]			–
3002	Bedding layer for (2059)			0.64–0.78
3003	Mid greyish brown clayey silt below (3002)			0.78–0.84
3004	Rough cobbled/metalled surface			0.84–0.86
3005	Sandy gravel fill of [3006]			0.85–1.46
3006	Cut of grave			0.85–1.46
3007	Clayey silt deposit below (3004)			0.80–1.22
3008	Skeleton in (3007)			–
3009	Skeleton in (3007)			–
3010	Skeleton in [3006]			–
3011	Skeleton in [3013]			–
3012	Decorated stone re-used in wall [2045]			–
3013	Cut of grave in NW corner of trench			0.85–1.42
3014	Fill of grave [3013]			0.85–1.42
3015	Natural gravels at base of trench			1.22+
Summary	Trench positioned over Trench 3 from previous evaluation.			

APPENDIX 2 FINDS ASSESSMENT

The finds assemblage numbered four sherds (85g) of pottery, two sherds (202g) of ceramic building material and 174g of industrial waste. These were all found in the same trench, in four separate features. All appear to be medieval or post-medieval. The finds are summarised by feature in Table A2.1 and a complete catalogue is given at the end.

TABLE A2.1 Summary of finds assemblage by feature with spot dating

Feature	Pottery (Medi)		CBM		Ind Waste	Spot date
	Count	Wgt (g)	Count	Wgt (g)		
deposit 2052	1	18	–	–	–	13th?
deposit 3007	–	–	–	–	134	?
grave 3005	–	–	1	105	–	Medi–ePM
surface 2059	3	67	1	97	40	14th–15th
Total	4	85	2	202	174	

Methodology

The report includes only hand-collected finds. The finds were collected, processed and packaged for long term storage in accordance with professional guidelines (ClfA 2014; Watkinson & Neal 1998). The finds were each assessed and recorded by appropriate specialists. The resultant data was then drawn together into one MS Access database. A copy of this data is given at the end of the report.

The pottery was examined visually, using x20 magnification where necessary. It was recorded according to standards set out by specialist bodies (Slowikowski et al 2001). The medieval pottery was recorded using the fabric codes of Herefordshire (Shoesmith 1985).

Medieval pottery

Four sherds (85g) of pottery were recovered from the excavations, all in fairly good unabraded condition. Two sherds were of later Malvernian ware (B3/4) from surface (2059), consisting of a ribbed and twisted rod handle and a body sherd (probably from a jug or perhaps a cistern) with an olive-green glaze. A sherd of Malvernian ware cooking pot (B1) from the same context suggests a probable date of 14th to 15th century for the deposit. A Malvernian ware handle (B3) from deposit (2052) dates to the 13th century.

TABLE A2.2 Medieval pottery type series (Shoesmith 1985)

Fabric Code	Fabric	Dating	Sherds	Wgt (g)
B1	Malvernian ware cooking pot	12th–15th	1	13
B3	Malvernian ware	13th?	1	18
B3/4	Malvernian ware	13/14th–17th	2	54
Total			4	85

Ceramic building material

Two sherds (202g) of brick or unglazed floor tile were retrieved from both surface (2059) and grave (3005). The fabric was sandy pinkish-orange with sub-rounded quartz inclusions. Neither fragment can be accurately dated but are probably medieval or early post-medieval.

Industrial waste

Two pieces of slag (174g) were retrieved from surface (2059) and deposit (3007). They most likely derive from ironworking but they are not diagnostic pieces. They were retrieved from two deposits underlying a metal/cobbled surface. They are not diagnostic of a particular date though clearly must be Iron Age or later.

Discussion

The majority of the material dates to the medieval period though may continue into the early post-medieval period. This small assemblage represents typical domestic waste. The presence of ironworking waste in the area is in keeping with existing evidence that Hereford was an important ironworking centre during this period (Boucher et al 2015, 174).

Recommendations for further work

As it stands, the assemblage is too small to be of any further archaeological value. No further work is recommended at this time, however should further fieldwork be undertaken, then the finds assemblage should be re-evaluated in the light of any new material.

Recommendations for archive

The material should be retained for archive. The archive has been prepared in accordance with professional standards (AAF 2011) and the specific requirements of Herefordshire Museum Service (HMS 2016).

References

- Archaeological Archives Forum (AAF) 2011 *Archaeological Archives A guide to best practice in creation, compilation, transfer and curation* (2nd edn) (ClfA: Reading) http://www.archaeologyuk.org/archives/aaf_archaeological_archives_2011.pdf accessed 14 September 2017
- Boucher A, Craddock-Bennett L & Daly T (2015) *Death in the Close: A medieval mystery* Headland Archaeology
- Chartered Institute for Archaeologists (ClfA) 2014 *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* (Reading) http://www.archaeologists.net/sites/default/files/ClfA&GFind_1.pdf accessed 14 September 2017
- Herefordshire Museum Service (HMS) 2016 *Archaeology Deposition Policy 2016–19: Standards for the deposition of archaeological archives: conditions and guidelines* Herefordshire Council
- Shoesmith R (1985) *Hereford City Excavations* Volume 3: The finds CBA Research Report 56 London

Slowikowski A, Nenck B & Pearce J 2001 *Minimum Standards for the Processing, Recording, Analysis and Publication of Post-Roman Ceramics* Medieval Pottery Research Group, Occasional Paper 2 <http://medievalpottery.org.uk/docs/Standards.pdf> accessed 14 September 2017

Watkinson D & Neal V (1998) *First aid for finds: Practical Guide for Archaeologists* (3rd revised edn) London

Finds catalogue

Tr	Context	Qty	Wgt (g)	Material	Object	Description	Spot date
1	2052	1	18	Pottery (Medi)	Malvernian ware? B3	Drinking Vessel	13th?
1	2059	1	13	Pottery (Medi)	Malvernian ware? B1	Cooking vessel	12th-15th
1	2059	2	54	Pottery (Medi)	Malvernian ware? B3/4	Jug	13th/14th-17th
1	2059	1	97	CBM	Brick/Tile	Brick or unglazed floor tile fragment	Medi
1	2059	1	40	Industrial Waste	Slag	Probable iron working slag	–
1	3005	1	105	CBM	Brick/Tile	Brick or unglazed floor tile fragment	Medi
1	3007	1	134	Industrial Waste	Slag	Probable iron working slag	–

APPENDIX 3 FAUNAL REMAINS

The assemblage

A total of 146 items of animal bone was recovered from the site, by hand collection from eight contexts. Of these, 72 fragments (from five contexts), were from contexts associated with the area around and above the skeletons.

All bones were examined macroscopically and recorded on pro forma sheets and assigned, where possible, to species and skeletal element. The state of epiphyseal fusion and any marks of butchery or pathology were also recorded. Fragments of rib were assigned to either cattle-sized or sheep-sized categories, where definitive assignment to species was not possible. Given the limited suite of species recorded, these categorisations are likely to be accurate, and have been treated as such below. The designation of Sheep must always be understood not to preclude the possibility that some bones derived from goat, although no definite goat bones were recorded. Preservation of the bone was generally Good (44%) or Fair (38%), with little surface damage. Only 17 bones showed evidence of dog tooth marks. It is likely, therefore, that most of the material represents chance deposition of waste bones in refuse.

Species present

The most commonly occurring species was cattle (66 items); sheep/goat was represented by 21 fragments, pig by 18, two from domestic goose, and one bone fragment each from wood pigeon, cat, dog and red deer. These are commonly encountered domestic and wild species. Thirty-six small fragments of bone were not identifiable to species. A complete cattle metatarsal (context 3002) is from an animal 1.04 m at the withers, slightly below average for cattle of the Mediaeval period in England. As mentioned above, the presence of dogs is also attested to by marks on some of the bones.

Butchery and carcass utilisation

Much of the cattle bone was in small pieces (only the metatarsal mentioned above and two phalanges were complete) and derived largely from the 'meatier' parts of the carcass. Sheep bones showed a similar pattern, though pig bones tended to be derived from all areas of the carcass. The exception to this was material from (2059) where parts of the skull and 'waste' ankle bones of cattle were frequent, and where both the single dog and cat bones derived. It may be that this context received material from an area of butchery and general waste, while, in general the other contexts received domestic or kitchen waste from meals.

The long-bones of cattle and sheep showed few marks mid-shaft, but were often chopped and cut at the joints, where the meat had been separated into 'joints' for sale or consumption. Similarly, some vertebrae were bisected, indicating that the carcass was split into 'sides'.

The red deer bone (context 2028) was from the skull, with marks where the right antler had been sawn off, suggesting its presence on site relates rather to craft-work than consumption.

The domestic goose bones were from both breast and wing. It is likely that the wood pigeon was hunted as much for pest control as for the table.

Stock utilisation

The small assemblage makes assessment and interpretation of patterns of age-at-slaughter difficult. Cattle bones and teeth (where this could be ascertained) were all from full-grown animals, but none particularly old, suggesting that the herd was specifically raised for meat, rather than dairy or traction. Similarly, the sheep bones largely derive from prime animals, though a few were older and may have been stock kept for fleeces or dairy.

Discussion

All material derived from common domestic species. The pattern and numbers of skeletal elements recovered may indicate that the site was largely receiving kitchen waste, though probably only as occasional, chance deposits. It is possible that the animals were both raised and consumed by the ecclesiastical establishment, but there is little evidence of nearby butchery. There is no indication of particularly high-status consumption patterns on the site; mostly older animals are represented (no lamb or veal), there is no evidence of venison, and pigeon was not a high-status game bird.

Further work

No further work is indicated on this small assemblage. A record of age-indicators, butchery patterns, and a catalogue of material identified is available in the archive.

APPENDIX 4 HUMAN REMAINS ASSESSMENT

Introduction

In the course of excavation, three *in situ*, articulated human skeletons were recovered and excavated. Due to constraints of space and considerations of safety, it was not possible to recover all the remaining bones of two of these individuals. The third was essentially complete. In addition, a small quantity of non-articulated human bone was also recovered, likely to represent parts of inhumations disturbed by the insertion of later graves, a very common finding within Medieval burial grounds.

All material was catalogued and examined for indications of age, sex and health of the individuals. A full catalogue of measurements taken and ageing and sexing criteria is available in the archive.

The assemblage

Three articulated skeletons were recovered (SK3008, SK3009 and SK3010); one fragment of an ankle bone (talus) was recovered from context (3005); a fragment of left ilium (probably female) and a partial left femur shaft (possibly from an adolescent), were recovered from context (3004).

Preservation

Preservation of the bone was good in SK3010 and the surviving parts of SK3009 and fair in SK3008, however, the missing parts of the skull of SK3009 have probably been eroded by the action of groundwater. The unarticulated material was poorly preserved. Structural integrity of the bone was solid, but some areas of the bone surface were eroded.

Demography

Skeleton	SK3008	SK3009	SK3010
Sex	Male	Female	unknown
Age	MA (35–46 y/o)	YA (25–35 y/o)	YJ (10–11 y/o)
Parts present	Back of skull, spine, L ribs, Pelvis, L&R Femurs, L arm, L&R hands	R side of skull, R upper arm, Part of L hand, R leg.	Complete

The female was of slight build and around 1.55m tall and the male was around 1.67m tall and quite robust in build. As is typical of medieval and pre-modern children, the young juvenile, though of 10 or 11 years of age, was only about the height of a modern seven-year-old, probably around 1.23m.

Pathology

No pathology was noted on SK3009, except for a little calculus on the teeth. In SK 3010 two developmental anomalies were recorded; the laminae of the first two sacral vertebrae were unfused in the midline (spina bifida obscura, of note, but probably completely symptomless in life) and the right adult second molar in the mandible had failed to

form. This latter finding may be related to the hypoplastic lines in the enamel of other teeth in the dentition which had formed at around four years of age: these mark incidents of growth disturbance caused by severe malnutrition or illness, for example, which may have prevented the initiation of growth of the second molar.

The middle adult male, SK3008, had suffered at least four, possibly five, blade injuries, two of which would have been fatal individually. A mark in the left humerus at the back of the elbow joint may be an old, healed, cut mark, inflicted when the elbow was fully flexed (Illus A4.1). It is certain, however, that the elbow itself was injured, causing arthritis at the head of the radius and altering the form of the joint-facet between the radius and the ulna. The humerus itself is not as robustly developed as the rest of the skeleton, so may have been of restricted use, causing wastage of the muscle and subsequently the bone. If the mark in the olecranon fossa is indeed a cut, its position suggests that the tendon of the triceps muscle would have been severed, weakening the action of extending (straightening) the elbow.

The three other blade injuries are certain. None of these show any trace of healing indicating that they were all inflicted around the time of death.

The most trivial is a transverse cut across the palmar aspect of the body of the proximal phalanx of the right thumb, a typical site for a defensive injury when attacked with a blade (Illus A4.2).

A second injury appears to have been a stabbing injury penetrating the space between the 8th and 9th ribs, approximately 6cm from the rib ends (Illus A4.3). This blow would have been in 'the side' of the lower chest. Depending on the position of the body, the length and angle of the blade and the stage of the cycle of breathing, this may have penetrated the lung or the pleura or have entered the abdomen and penetrated the spleen or the stomach. While serious, it may have been a survivable injury, with luck.

The third blade injury was inflicted with a very sharp, narrow blade, possibly similar to what could be described as a stiletto, or a poignard. At the part of the blade 35mm from the tip, the blade was under 20 mm wide with both edges honed. The blade must have been over 120mm in total length. The blow was delivered from behind the victim, in a downward (infero-anterior) direction, at a very steep angle to the plane of the back. Initially, the spine of the left scapula was cut, then the blade cut through the spine of the 7th thoracic vertebra, passed through the vertebral foramen of the 8th thoracic, cutting the spinal cord, then the point of the blade was buried in the upper surface of the body of the 9th thoracic vertebra (Illus A4.4, A4.5 and A4.6). This injury would almost certainly have been fatal, and would have definitely caused paralysis of the legs, if survived.

The fourth injury was inflicted with an edged weapon, again from behind, a very powerful blow administered to the skull (Illus A4.7). The weapon was at about a 60° angle when the blow struck, swung from directly behind the head and penetrating the occipital bone from 20 mm left of lambda, the highest point of the bone in the midline, through to a point at asterion, just behind the left ear, a length of some 62mm. The blade cut through the entire thickness of the skull and into the brain and the injury must have been fatal very quickly. The force of the blow also caused a large 'S'-shaped

A4.1



A4.2



ILLUS A4.1 SK3008, wound to left humerus **ILLUS A4.2** SK3008, right proximal phalanx (thumb) with cut mark

A4.3



A4.4



ILLUS A4.3 SK3008, stab wound to left ribs **ILLUS A4.4** SK3008, stab wound cutting the left scapula, 7th and 8th vertebrae, finishing in the 9th vertebra



ILLUS A4.5 SK3008, wound to left scapula

ILLUS A4.6 SK3008, blade wound in 9th vertebra

ILLUS A4.7 SK3008, cut wound to the back of the skull

fracture in the occipital bone, running from the midpoint of the lambdoid suture on the right, curving under the external occipital protuberance at the thickest part of the skull, and ending at the left edge of the foramen magnum. Other, smaller fractures radiate away from this main fracture, adding to the evidence of massive trauma to the skull.

It seems probable that these are battlefield injuries, although the victim may not have had full use of his left arm and may not have been wearing armour. That the blows were mostly from behind and above may indicate an assailant on horseback.

Further analysis

No further ageing or sexing information would be revealed by further analysis. A photographic record of the trauma has been undertaken at assessment stage and is included within this report.

APPENDIX 5 RADIOCARBON DATING CERTIFICATE



Scottish Universities Environmental Research Centre

Rankine Avenue, Scottish Enterprise Technology Park, East Kilbride, Glasgow G75 0QF, Scotland, UK
Director: Professor F M Stuart Tel: +44 (0)1355 223332 Fax: +44 (0)1355 229898 www.glasgow.ac.uk/suerc

RADIOCARBON DATING CERTIFICATE

24 October 2017

Laboratory Code SUERC-75537 (GU45315)

Submitter Angela Walker
Headland Archaeology Ltd
13 Jane Street
Leith
Edinburgh
EH6 5HE

Site Reference CLEH

Context Reference 3008

Material Human bone - right patella : Adult Male

$\delta^{13}\text{C}$ relative to VPDB -20.1 ‰

$\delta^{15}\text{N}$ relative to air 9.5 ‰

C/N ratio (Molar) 3.1

Radiocarbon Age BP 1245 \pm 30

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD) and requires calibration to the calendar timescale. The error, expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. The laboratory GU coding should also be given in parentheses after the SUERC code.

Detailed descriptions of the methods employed by the SUERC Radiocarbon Laboratory can be found in Dunbar et al. (2016) *Radiocarbon* 58(1) pp.9-23.

For any queries relating to this certificate, the laboratory can be contacted at suerc-cl4lab@glasgow.ac.uk.

Conventional age and calibration age ranges calculated by :

E. Dunbar

Checked and signed off by :

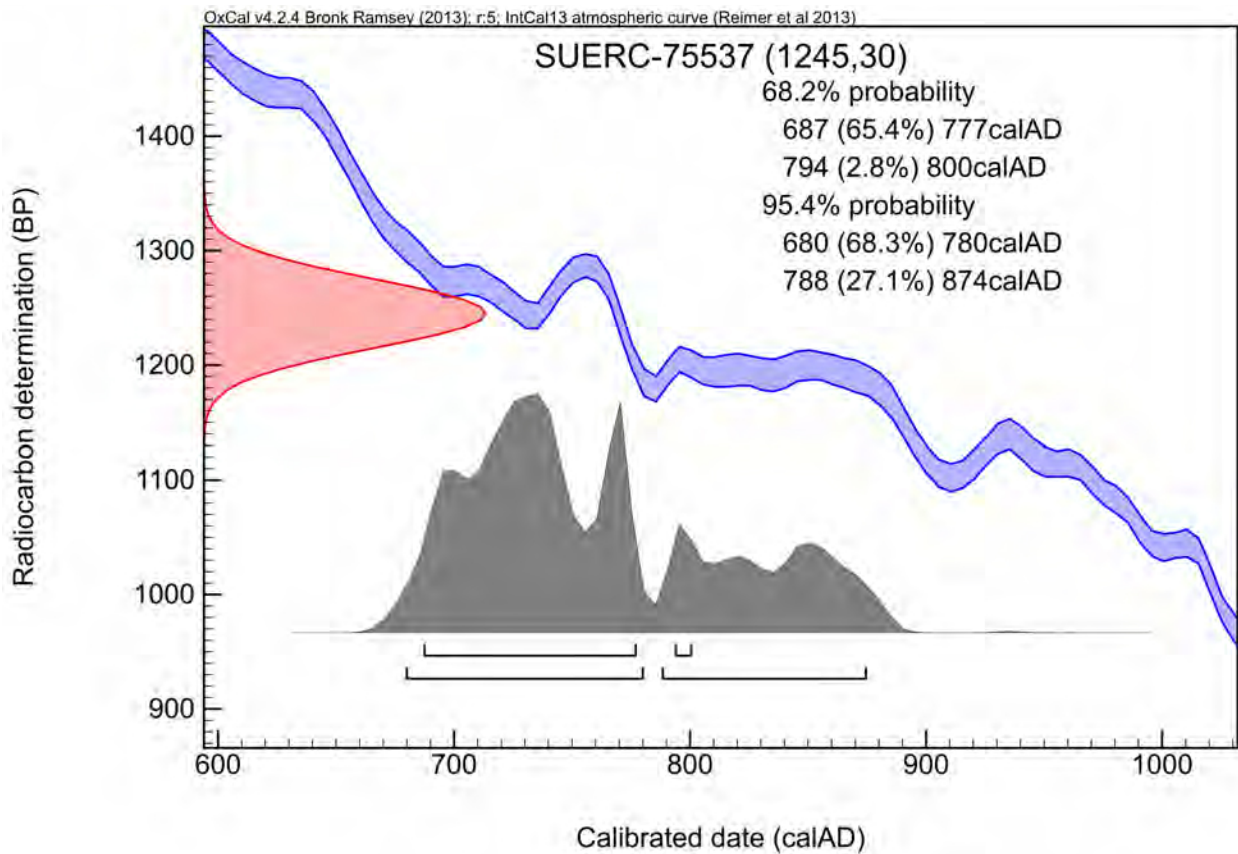
P. Nayantub



The University of Glasgow, charity number SC004401



The University of Edinburgh is a charitable body, registered in Scotland, with registration number SC005336



The radiocarbon age given overleaf is calibrated to the calendar timescale using the Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.*

The above date ranges have been calibrated using the IntCal13 atmospheric calibration curve†

Please contact the laboratory if you wish to discuss this further.

* Bronk Ramsey (2009) *Radiocarbon* 51(1) pp.337-60

† Reimer et al. (2013) *Radiocarbon* 55(4) pp.1869-87



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Headland Archaeology South & East
Building 68C | Wrest Park | Silsoe | Bedfordshire MK45 4HS
t 01525 861 578
e southandeast@headlandarchaeology.com

Headland Archaeology Midlands & West
Unit 1 | Clearview Court | Twyford Rd | Hereford HR2 6JR
t 01432 364 901
e midlandsandwest@headlandarchaeology.com

Headland Archaeology North
Unit 16 | Hillside | Beeston Rd | Leeds LS11 8ND
t 0113 387 6430
e north@headlandarchaeology.com

Headland Archaeology Scotland
13 Jane Street | Edinburgh EH6 5HE
t 0131 467 7705
e scotland@headlandarchaeology.com

www.headlandarchaeology.com