Excavation Report

St. Matthew's Primary School Cambridge

Excavation Report

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A 19th Century Baptist Cemetery at St Matthew's Primary School, Norfolk Street, Cambridge

Archaeological Excavation

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Summary

Between the 6th and 13th of November 2012 Oxford Archaeology East carried out archaeological excavations at St Matthew's Primary School, Norfolk Street, Cambridge (TL 45926 58418). The excavation was commissioned after the discovery of human remains during the construction of new school buildings.

A trench measuring 12m by 6m was opened in the north-west part of the development area. Seven complete burials were uncovered in the excavation area with a further four surviving only in part. The remains of 13 individuals were recovered from the site only one of whom was an adult; nine of these were fully articulated. Two of the graves contained two burials which had probably occurred simultaneously.

The cemetery was associated with a Baptist chapel, seen on historic map of the area and since demolished. The Providence Calvanistic Baptist Chapel was in use for four years between 1833 to 1837 before it was sold to pay off debts. This narrow period of use enables the results of this excavation to be of great value to the study of the non-conformists of Cambridge at this time. The pathology of the skeletal remains is indicative of these children having a poor diet and perhaps having died during a bout of disease or epidemic. The graves contained shroud pins as well of coffin fittings giving an insight into the burial rights here.

The adult remains are associated with a gravestone inscribed with the name 'Harriet Halls' and that of her husband 'James Henry Halls'.

The earliest deposits on the site are those of backfilling in quarry pits. During the early 19th century the land where the development site is located was leased for gravel quarrying, which may have been associated with construction related to the rapid expansion of Cambridge at this time.

1 INTRODUCTION

1.1 Location and scope of work

1.1.1 An archaeological excavation was conducted at St Matthew's Primary School, Norfolk Street, Cambridge (Figure 1; TL 45926 58418).

1.1.2 On discovery of human remains during the excavation of footings for a new school building contractors contacted Cambridgeshire County Council archaeologist Quinton Carroll. An initial site visit by Quinton Carroll and a forensic anthropologist, Corinne Duhig, confirmed that human skeletal remains were present, where upon an archaeologist from Oxford Archaeology East was engaged to visit the site. Based on this second site visit it was decided that full excavation of the threatened area was necessary to avoid further damage to the human remains. This archaeological excavation was undertaken after consultation with Andy Thomas (CCC), supplemented by a Method Statement prepared by OA East (Mortimer 2012).

1.1.3 The work was designed to define the character and extent of any archaeological remains within the proposed redevelopment area, in accordance with the guidelines set out in *National Planning Policy Framework* (Department for Communities and Local Government March 2012). A licence was acquired from the Ministry of Justice (no.12-0214) permitting the excavation of human remains.

1.1.4 The site archive is currently held by OA East and will be deposited with the appropriate county stores in due course.

1.2 Geology and topography

1.2.1 The site lies on 3rd terrace quaternary deposits just over 500m to the south of the river Cam (British Geological Survey 1981). East Road is located 22m to the north-west of the excavation area. The road lies at 14m OD, whilst the site of the school is located down a steep embankment at 12m OD The development are is bounded by East Road to the north-west, Caroline Place to the north-east, Broad Street to the south-west and existing school buildings to the south-east.

1.3 Archaeological and historical background

1.3.1 The site sits on the eastern edge of the historic city of Cambridge in an area first developed in the early 19th century. Mill Road cemetery (CHER15751), consecrated in 1848, lies 250m to the north-west where there are also records of Early Saxon burials having been found (HER04622). An evaluation of the grassed areas of the development site in 2008 uncovered pits thought to have been the remains of coprolite mining. These pits had been backfill deliberately in order to level the ground ready for development in the Victorian period (Lyons 2008).

1.3.2 Historic mapping (see below) depicts a chapel on this plot from 1840. There are few references to this chapel, which stood immediately to the north-west of the current development area. The Providence Calvanistic Baptist Chapel is described by the Royal Commission for Historic Monuments of England (1959, 303) as consisting of:

> *….rectangular block with pedimental gables to the N.W and S.E. and a single storey porch on the N.W. below a semicircular-headed window within a wall recess of the same shape.....the porch, which is now incorporated into later additions, has an outer semicircular-headed archway of two plain brick orders.*

1.3.3 This chapel was one of several Baptist meeting houses founded in the mid 19th century by members of the Eden Baptist Church, located on the corner of Burleigh Street and Fitzroy Street. The Eden Baptist Church, founded in 1825, was one of the first purpose-built Baptist churches in Cambridge and its congregation was descended from the first non-conformist ministry in the town, which had previously rented meeting rooms on Green Street (Beynon - www.eden-cambridge.org/history).

1.3.4 The second pastor of the Eden Baptist Church, Rev. William Allen, was a high Calvinist whose style of preaching attracted so many to the congregation that the church had to be expanded. His popularity led many conservatives in the church, including Allen himself to comment, "*It cannot be truth, or we should not have so many come to hear it*"! (Allen 1851, cited in Beynon).

1.3.5 Allen was forced out of the Eden Baptist Church and went on to set up the Providence Chapel on Eden Street as well as the Providence Chapel on East Road, adjacent to the current site. The East Road church was purpose built with a mortgage of £400 from Mr Samuel Cooke, and opened in 1833. Unfortunately Samuel Cooke died in 1834 and his executors called in their debt which was eventually paid in 1837 from the sale of the church building (Anon 1937). The congregation, now without a place of worship, spent some years in a chapel in Barnwell before moving to a new premises, in 1848, which stands today at No.1 East Road.

1.4 Cartographic sources

1.4.1 The plot of the development area is shown on several historic maps after 1800. The Inclosure map of 1813 (Figure 2) shows the development area covering part of several narrow rectangular fields emanating from East Road. The land where the excavation area is located is recorded as belonging to a Thomas Broadbelt. This man was a local beer brewer who leased the Blue Lion Inn from Corpus Christi College in 1823 (CCCC09/10/82). The plots either side of this belonged to a Charles Humfrey. This is likely to be the same Charles Humfrey famous for being the architect behind houses on Maid's Causeway and Willow Walk between 1815 and 1826.

1.4.2 By 1832 (*Post-Inclosure map,* Figure 3) the fields around Broadbelt's plot had begun to be filled in with buildings, but the plot remained undeveloped. The earliest map on which buildings appear on this site is the 1840 *Dewhurst and W. Nichols* map (Figure 4) The building is likely to be the chapel, facing onto East Road, with a passage leading out of the rear to School House Lane to the south.

1.4.3 Detailed mapping of the area was first produced in 1858 by R.R. Rowe (Figure 5). The frontage of the chapel can clearly be seen in the middle of the plot between Caroline Place and School House Lane.

1.4.4 The 1st edition OS map of 1888 (Figure 6) clearly shows the chapel building standing in the plot to the north-west of the current development area with an entrance porch facing north-west onto East Road. This building had buttresses on its north, west and south corners and was aligned north-west to south-east. The plot at the rear of the chapel was divided into two with the southern half being a yard with access on to School House Lane. The northern half of the plot is unlabelled, but shaded indicating that it was in-use, possibly as a timber building, at the time of mapping. The boundary associated with this plot was attached to the chapel and so this area was presumably associated with it, and may have been a cemetery. This plot measured approximately 12.6m north-west to south-east and 5.10m north-east to south-west. It is notable that the Eden Baptist Chapel on the corner of Fitzroy Street and Burleigh Street and the Zion Baptist Chapel on East Road were labelled as chapels on this map and the

building adjacent to the current plot was not. This indicates that it was no longer functioning as a chapel at this time.

1.4.5 By the time of the survey for the 2nd edition Ordnance Survey map (1901; Figure 7) the chapel was shown but the back plots had been built on, with only a thin strip left undeveloped. By 1967 (OS 1:2500, not illustrated) all of the former buildings on the plot had been cleared and two new smaller buildings had been built at the East Road end of the plot. A photograph held at the Cambridgeshire Collection (40016) thought to have been taken in the early 1970s shows the plot shortly after the demolition of the chapel.

1.5 Acknowledgements

1.5.1 The author would like to thank Phil Clark of Kier Eastern and Joe Ackers of Cambridgeshire County Council who commissioned and funded the work. Initial site visits were undertaken by forensic anthropologist Corinne Duhig, and the archaeological works were monitored by Andy Thomas. The staff of the Cambridgeshire Archives and the Cambridgeshire Collection were also a great help with the background research. The project was managed by Richard Mortimer. Rachel Clarke edited the report whilst specialist advice was provided by Carole Fletcher, Louise Loe, Mark Gibson and Brian Dean. The site was directed by the author with assistance from Louise Bush, Andy Greef and Steve Morgan. The site survey was conducted by the author. Dave Brown and Stuart Ladd produced the illustrations.

1.5.2 I am grateful to the Cambridge Family History Society, particularly Maureen Nicholls, whose research added greatly to the background of Harriet and James Halls.

2 Aims and Methodology

2.1 Aims

2.1.1 The initial site visit aimed to establish whether a cemetery was located on the site or whether the remains that had been found by the construction workers were isolated finds. During the second visit it was clear that the foundations of part of the new school building had been located over a post-medieval cemetery and that an excavation was required.

2.1.2 The objective of this excavation was to determine as far as reasonably possible the presence/absence, location, nature, extent, date, quality, condition and significance of any surviving archaeological deposits within the development area. The recording and removal of human skeletal remains was a high priority during this excavation.

2.1.3 Due to the location on the outskirts of historic Cambridge, this work also aimed to contribute towards the regional research aim of characterising the post-medieval urban environment and urban development (Medlycott 2011, 79).

2.2 Methodology

2.2.1 A trench measuring 12m north-west to south-east by 6m north-east to south-west was excavated by machine down to the archaeological horizon. Machine excavation was carried out under constant archaeological supervision with a tracked 360-type excavator using a toothless ditching bucket.

2.2.2 Spoil, exposed surfaces and features were scanned with a metal detector. All metal-detected and hand-collected finds were retained for inspection, other than those which were obviously modern.

2.2.3 All archaeological features and deposits were recorded using OA East's *pro-forma* sheets. Trench locations, plans and sections were recorded at appropriate scales and colour and monochrome photographs were taken of all relevant features and deposits.

2.2.4 Samples were taken around the hands and feet of all of the burials in order to retain all of the remains. Where neonates were encountered or bones were particularly fragile, samples were taken of the entire fill around the skeleton. A single sample was taken from the torso of a skeleton in a brick-lined grave (Grave **8**) in order to assess the potential for dietary evidence.

2.2.5 Given the potential, albeit low, for the survival of human tissue in post-medieval graves the Risk Assessment was updated in order to allow for risks associated with disease spores that may have been present (Razzel 1976, 35). Respiratory masks, surgical gloves and protective clothing were made available, with the risks of each burial judged on a case-by-case basis. With the exception of hair in Grave **39**, no bodily tissue was uncovered during the excavation.

2.2.6 Building work on the new school buildings continued in other parts of the site whilst the archaeological excavation took place (Plate 1). The north-western part of the cemetery had already been removed during the excavation of footings. This footing had been partially filled with concrete at the time of works. The overburden consisted of layers of post-medieval refuse and rubble which had been used to fill quarry pits. The upper layers of this deposit were removed by a machine until the grave cuts were clear. A second phase of machining took place when graves became too deep to work in safely.

3 RESULTS

3.1 Introduction

3.1.1 The results of the excavation are discussed below, beginning with a discussion of the stratigraphy encountered in the excavation area (Figure 8; Plate 2). This is followed by a description of each of the graves including size, shape and contents as well as a brief description of the human skeleton remains (HSR). The graves are described by row from south-west to north-east. A comprehensive listing of contexts recorded during the excavation, including widths, depths and soil descriptions can be found in Appendix A. A catalogue and discussion of the H.S.R. And the coffin fittings can be found in Appendix B1 (Table 2) and Appendix C (Table 9).

3.2 Stratigraphic Sequence

Quarrying and Levelling (Plate 3)

3.2.1 Natural terrace sandy gravels were encountered in the north of the excavation area. These gravels had been cut by a large quarry pit that may have been used for gravel extraction. The pit, measuring in excess of 3.50m wide, 12m long and over 1m deep, had been filled with a mid brown fine sandy silt (22), the base of which was not encountered during this excavation (Plate 3). This deposit was overlain by a light orange-brown loose sand (23) which may have derived from up-cast from the pit. Post-medieval bricks and rubble were present in these deposits. The pit fills were sealed by up to 0.60m of post-medieval mixed levelling material (24) (Figure 9, section 1). The graves had been cut through this levelling deposit and their backfill deposits included material derived from it.

3.3 The Cemetery (Figure 8 and 9)

3.3.1 It is estimated that a maximum of sixteen graves may have been present in this cemetery, evidence for five rows having been uncovered. The majority of the graves were earth-cut whilst two had brick-lined shafts. Seven graves were fully excavated, whilst one (Grave **48**) could only be partially excavated since it had been truncated. The excavated graves contained the remains of thirteen individuals including one adult, one neonate, two infants and nine children aged 6 years or younger (Appendix C, Table 9).

3.3.2 A modern foundation trench, in which the original burials were found, had been excavated at the north-western end of the cemetery. Judging by the extent of this truncation and the layout of the surviving cemetery, it is estimated that up to five graves had been totally removed prior to the commencement of the archaeological works. Three other graves only survived in section to the north-east and south-west of this truncation. The partial remains of two skeletons, one adult and one child, were recovered by construction workers from this foundation trench.

3.3.3 The post-medieval layer (24) through which graves **8**, **30**, **33** and **48** could be seen to be cut was initially revealed at a height of 11.08m OD; this was reduced to the level of the sandy pit fill (23), at 10.45m OD in order to facilitate excavation. If all of the graves were cut from the top of the post-medieval level the average grave depth would have been 1.62m and the deepest shaft would have been 1.99m (Grave **39**). A second reduction in surface level (to 10.08m O.D.) was required in order to excavate Graves **44** and **39**, perhaps indicating that the ground level varied at the time of interment. This is quite likely given the nature of the made-ground in this area. Unless otherwise stated,

the depths of the graves are given from the top of the post-medieval make-up layer (24), assumed to be consistently 11.08m O.D.

*Grave **8***

3.3.4 This grave, measuring 2m long, 0.80m wide and 1.95m deep, was orientated north-west to south-east. It was sub-rectangular in plan with vertical sides and a flat base. A brick-lined tomb had been built within the grave cut (Figure 9, Section 1; Plate 4). The bricks were well coursed with a vaulted roof bonded with cement mortar. This mortar had also been plastered over the top of vaulted roof at the north-eastern end perhaps to seal the grave after the coffin had been placed inside. The internal dimensions of the tomb were 1.45m long, 0.46m wide (max) and 0.92m high. The tomb was shaped to fit a coffin, being wider at the north-eastern end, and angling in by 5 degrees after 0.46m to form a narrower south-western end. No intrusive material had penetrated the brick tomb since the time of burial, but backfill above the tomb contained part of a green glass bottle, pottery dating to the early 19th to 20th century as well as a clay pipe, stamped 'BALLS CAMBS' from the early to middle 19th century (Appendix B4).

3.3.5 The grave contained the remains of two individuals, skeleton 5 and skeleton 6, who had been buried in a single coffin (Plate 5). Skeleton 5 was aged between 5 to 6 years old and skeleton 6 was aged between 3.5 to 4 years old. The bodies had been placed one on top of the other in the casket with their heads at the north-western end. Nails, handles and a coffin plate all attest to the presence of a coffin in the original burial (Appendix B1). A large amount of coffin wood was also present in the grave as well a solidified residue which may have been the remains of the coffin lining. A copper pin was found adjacent to the skull of skeleton 6 indicating a shroud, cap or bonnet may have been attached before burial.

*Grave **11***

3.3.6 Located 0.25m to the north-west of Grave **8**, this grave measured 1.40m long, 0.60m wide and 1.31m deep. Orientated north to south with a sub-rectangular plan and vertical sides, this grave was earth-cut and unlined (Plate 6). The remains of one individual, skeleton 10, were contained within. This individual, whose head had been laid to the north and was facing west, was aged between 3 to 4 years old when they died. Nails, handles and a coffin plate provide evidence for the location of the coffin in the grave, whilst a small copper alloy pin may indicate that mortuary garments had been included before burial.

3.3.7 The backfill of this grave grave contained earthenwares and redwares dating to the late 18th to mid 19th century as well as several sherds of glass and clay pipe. Two residual sherds of St Neots type pottery may indicate that there was activity in this area in the mid 11th-12th century AD.

*Grave **12***

3.3.8 Parts of three individuals, skeletons 18, 19 and 20, had been interred in this unlined grave (Plate 7), orientated north-east to south-west. The cut, measuring 1.92m long, 0.65m wide and 1.40m deep, was sub-rectangular in plan with vertical side and a broad concave base. Two complete skeletons were uncovered; skeleton 18 aged around 4 years old and skeleton 19 aged 3 to 4 years old. The two complete individuals had been buried with their heads to the south, with 19 lying on top of 18.

3.3.9 The third individual (skeleton 20, 3 to 3.5 years old) was only represented by two long bones placed at the base of the legs of skeleton 19. It is not clear whether these were part of the primary deposit or if they had been disturbed and were deposited as backfill; if this were the case their location within the coffin stain at the end of the legs of the other skeletons would seem somewhat coincidental.

3.3.10 Ferrous handles, nails and a dark stain around the bodies indicated the location of the coffin (Appendix B1). The backfill of the grave contained pottery and glass dating from the late 18th to the mid 19th century (Appendix B2; B3).

*Grave **48***

3.3.11 Most of this grave had been truncated by building work by the time archaeological excavations began. A maximum of 0.75m of the length survived, whilst the full width and depth measured 0.90m and 1.66m respectively. It was apparent that the grave had been sub-rectangular in plan with vertical sides and a flat base. A lining (47), consisting broken brick and re-used worked limestone, had been constructed at the base of the grave (Plate 8). A small amount of coffin wood survived, along with a handle and nails, to the south-east of the lining surface, over which were the partial remains of skeleton 46. These consisted of the lower left leg and foot of an adult only, the rest of the body having been removed during construction work. The grave and skeleton within would have been aligned north-east to south-west with the head at the north-western end.

3.3.12 The skull of an adult (2) recovered during unmonitored excavations of a footing were recovered in the vicinity of this grave. This skull may be part of the same person as skeleton 46.

3.3.13 A shard of bright olive green bottle glass and pottery dating to the early to mid 19th century were recovered from the backfill of this grave. A limestone headstone, measuring 620mm x 440mm was recovered from the top of the fill of this grave prior to the start of the excavation (Figure 10). It was inscribed with the words:

TO THE MEMORY OF
HARRIET
THE BELOVED WIFE OF
M^{R} JA^{S} H. HALLS,
WHO DIED JUNE 7, 1835
AGED 27 YEARS.

3.3.14 It is unclear exactly where in the backfill the stone was located. It is possible that it was deposited residually when the grave was filled, however, given the date on the stone it seems likely that it had been in-situ above Grave 48. It may have fallen or been laid flat on the ground. No other headstones were recovered from the cemetery.

*Grave **26***

3.3.15 The remains of a child aged 1.5 to 2.5 years old (skeleton 28) were recovered from a grave at the south-western end of the central row of burials. The grave cut, measuring 1.32m long, 0.58m wide and 1.87m deep, was sub-rectangular in plan, with steep sides a flat base. The grave was orientated north-north-east to south-south-west whilst the burial was orientated north to south with the head at the northern end.

3.3.16 The complete outline of the coffin was visible during excavation but was not solid enough to extract for analysis. Three coffin handles were found associated with it. A

single sherd of post-medieval redware pottery dating from the 16th to the end of the 18th century was recovered from the backfill of the grave.

*Grave **44***

3.3.17 Located 0.40m to the north-west, Grave **44**, orientated north-north-east to south-south-west, was sub-rectangular in plan with vertical sides and a flat base. The unlined grave cut, measuring 1.30m long, 0.65m wide and 1.95m deep, contained the remains of a single neonatal individual (skeleton 43) aged between 1.5 and 4.5 months. The body was orientated north to south with the head at the northern end (Plate 10). The complete outline of the coffin could be seen during during excavation and three coffin handles were also recovered. Copper alloy pins at the head and feet may indicate that a shroud was pinned in place around the body before interment (Appendix B1).

*Grave **17***

3.3.18 The third row of graves consisted of two unlined graves on slightly different alignments. Grave **17**, measuring 1.10m long, 0.45m wide and 1.13m deep, was sub-rectangular in plan orientated north-east to south-west, with steep sides and a flat base. The grave contained the remains of a single individual, skeleton 16, who had died within 9 months of birth (Plate 11). The remains of this neonate were very fragile and only a fraction of the skeletal material survived. This individual was one of three interments in the cemetery who had been buried with their head at the south-western end of the grave.

3.3.19 Staining around the edges and underneath the skeleton indicated that a coffin had been used for this burial. A single nail was recovered from this coffin. Copper alloy pins by the neck and feet of the body may indicate where funerary garments had been pinned in place.

3.3.20 Pottery dating from the late 18th to early 19th century was recovered from the backfill of this grave.

*Grave **39***

3.3.21 Aligned north-south, the most easterly grave in the cemetery was unlined and sub-rectangular in plan and measured 0.92m long, 0.55m wide and 1.99m deep. It had vertical sides and a flat base which would have formed a deep shaft. A neonate, 2 to 5 months old (skeleton 38; Plate 12) had been interred in this grave with their head placed to the north.

3.3.22 The coffin stain survived almost complete on the sides and base of the grave, perhaps due to the depth of this burial. Several coffin nails were recovered along with copper alloy pins from around the head of the skeleton. A coffin plate with cherub and folliage decoration was also recovered (Appendix B1). Clay pipe and pottery dating the late 18th to early 19th century was recovered from the backfill of this grave.

Other Burials

3.3.23 Excavation of the footing to the north-west of the excavation area uncovered the location of three other graves (Figure 9, Section 1). One was visible in the north-eastern baulk and two in that to the south-west. That to the north-east had been almost completely truncated on all sides and survived only as a thin section up against a concrete footing. This grave (**50**) measured 0.45m wide and 1.45m deep and had vertical sides. The only other grave with a similar width in the cemetery was Grave **17**

which contained a neonate burial and so it is likely that the person interred in this grave was under one year of age.

3.3.24 Grave **30** was located to the north-west of the Grave **8** (Plate 13). It had steep sides in excess of 1.40m deep and measured 0.60m wide. No human bones were recovered from the grave, but the width of the grave tends to suggest that a child was interred here. Pottery in the backfill dated from the late 18th to early 19th century.

3.3.25 A second grave with brick lined tomb (Grave **33**) was uncovered in the north-western corner of the cemetery. Measuring 1.60m deep and 0.65m wide, this grave had vertical sides and a flat base. The tomb was smaller than that in Grave **8** and did not have a lining at the base. The brick vault measured 0.52m high and 0.62m wide creating an internal space for burial of 0.40m high and 0.38m wide. This is smaller than brick vault 4 probably indicating that this grave was for a single child, rather than two together. Bones reportedly removed from the area of this grave (recorded as skeleton 1) were from a child 1.5 to 2.5 years old.

3.4 Finds Summary

3.4.1 *Coffin Fittings*: Metal coffin fittings were recovered from eight graves and these comprised iron nails, grips, coffin plate fragments, wood stains, and 39 copper alloy pins. A small quantity of residue was recovered from one burial (7), as well as an unstratified, unidentified tubular iron object, from the fill above the grave that contained skeletons 5 and 6, and a small quantity of unidentified, heavily corroded ferrous objects, found with skeletons 43, 38 and 28. It was not possible to say whether the unidentified objects were coffin fittings or not.

3.4.2 *Ceramic and Glass*: The excavation produced a small pottery assemblage of 57 sherds, weighing 0.666kg, recovered from 10 contexts. The condition of the overall assemblage is moderately abraded. The average sherd weight from individual contexts is low at approximately 12g. A small assemblage of clay tobacco pipe stems (0.027kg) was also recovered from various contexts. The glass assemblage consisted mainly of vessel glass. A base shard from a black glass bottle recovered from context 14 dates from the late 18th or early 19th century, and a partial rim from the same context is early-mid 19th century.

3.4.3 *Human Bone*: A total of 12 articulated skeletons was recovered from eight plain earth cut graves and one brick shaft grave. In addition, a total of five discrete deposits of disarticulated human bone were recovered, from grave fills.

3.4.4 *Stone*: An inscribed headstone was recovered from the upper fill of Grave **48**.

4 Discussion and Conclusions

4.1 Changing Land-use

4.1.1 The plots of land in which the development area is now located are shown on the 1813 Inclosure map as narrow strip fields. It is likely that some of these were used for agricultural and pastoral purposes. However, given that the occupations of two of the leasees of the field is known it is possible to speculate what the land was being used for. Thomas Broadbelt, who was leasing the land in which the excavation area is located in 1813, was a local beer brewer and so there is a possibility that malt or barley was grown in this field. Charles Humfrey was, among other things, an architect and developer (www.openplaques.org/plaques/1339) who would have had an interest in leasing this land in order to quarry the gravel that lay there; this is supported by the toponymic evidence, East Road being called Gravelpit Road at this time.

4.1.2 Results of previous work at the site of St Matthew's Primary School have suggested that large pits uncovered in this area were used for coprolite mining in the mid 19th century (Lyons 2008). However, given that the chapel and cemetery built over the backfill of these pits date from 1833 to 1837 and that coprolite mining was not practised in England until 1842 (O'Connor 2001, 46), it is more likely that these pits were for gravel extraction.

4.1.3 Artefacts recovered from the back fill in these pits consisted almost exclusively of material dating to the late 18th to mid 19th century. The quarrying appears to be quite closely dated between 1813 and 1833 and so was most likely associated with the expansion of the city of Cambridge taking place at that time. It is possible that some of the material taken from these plots was used in the construction of Humfrey's buildings on Maid's Causeway and elsewhere.

4.1.4 The thick homogeneous nature of the contexts that made up the fills tends to suggest deliberate backfilling of these pits with up-cast material. They may have been filled and levelled in order to facilitate construction in these plots.

4.1.5 Although buildings had been built in the north of the plot prior to 1832 it was not until the construction of the Baptist chapel in 1833 that any construction work took place in the location of the excavation area. It is clear from the plan of the site on the 1888 map that the cemetery was laid out at the same time as the chapel was built.

4.2 The Chapel and the Cemetery

4.2.1 The footings of the chapel itself did not fall within the excavation area but what may have been the back half of the cemetery plot was uncovered. Removal of the post-medieval levelling revealed the full south-easterly extent of the cemetery and modern footings excavated to the north and south attest to those extents. The extent of the cemetery to the north-west is not clear but no burials were observed by ground workers when a footing was excavated 2.5m to the north-west. If these are the true extents then the cemetery would have covered an area approximately 7m from south-east to north-west and 8m from north-east to south-west.

4.2.2 A maximum of 20 graves could have fitted into this plot and there is evidence for at least 16, assuming that the rows of graves seen in section continue in a similar way to those that survive in plan.

4.2.3 Grave **48** was associated with headstone. The name of Mr (James) H Halls had originally been wrongly positioned too far to the right and had been corrected without starting a new piece of stone. This may indicate that the stone mason was some how

related to the deceased or her family and that it had been provided out of charity rather than having been paid for.

4.2.4 No record of Harriet Halls, named on the headstone, could be found amongst the archives of the Eden Street Baptist Church or the Zion Baptist Church and this reflects a general derth of records for non-conformists in this period. Records for smaller chapels often ended up with families associated with the church or were kept only in family bibles. The list of members of the Zion Baptist Church in 1848 does not include Mr James Halls and so it appears that he did not move with the congregation or died before this time.

4.2.5 It has been possible to find traces of James Henry Halls in parish records and electoral registers; the fact that his middle name is known has enabled this search to be narrowed down to just a few possible references.

4.2.6 The England and Wales Christening Records hold an entry for a 'James Henry Halls' being christened in Cambridge on the 10th January 1798 (MM9.1.1/J94M-7LL) and by 1818 James Halls appears to be working as a fishmonger in Cambridge (1818 and 1820 electoral registers. London, England, UK and London Poll Books 1538-1893).

4.2.7 A man of the same name is recorded as marrying 'Harriot Leake' in Gautby in Lincolnshire on 28th August 1831 (England marriages 1538-1973 MM9.1.1/NV5V-H6G). It seems likely that this is the couple mentioned on the gravestone. The gravestone recorded that Harriet then died four years later.

4.2.8 Since James Halls does not appear in the records of the Eden or Zion Baptist chapels it is possible that he left Cambridge after the death of his wife. Records from Great Yarmouth in 1838 attest to the marriage of a James Henry Halls to Mary. If this was the same man, he can be found living with Mary and two children in Halesworth in Suffolk in 1841 (census 1841). The oldest child, Henry, was 8 at the time and may have been the son of Harriet.

4.2.9 Harriet's death at the age of 27 appears to have been exceptionally old for those buried in this cemetery. The high proportion of juveniles is unusual for 18th and 19th century Baptist burials. Assemblages from Kings Lynn, Poole and Oxford (Boston 2011; McKinley 2008; McCarthy *et al*. 2012) contained less than 50 per-cent juveniles. This may be a symptom of half of the cemetery having been truncated. However it is notable that a high number of burials took place over a short period of time and that at least two of these were multiple burials. This may indicate that there was an outbreak of disease in the 1830s, at the time that the Providence Chapel was in use. This may explain why such a high number of juveniles were interred.

4.2.10 The pathology of the skeletons indicates that these children were not leading healthy life styles, one having rickets, four with scurvy and all deficient in vitamins or iron. This tends to suggest that the families attending the new chapel were not of high status. Baptists in Cambridge at this time are likely to have been derived from the middle and working classes, particularly those in trades (McCarthy *et al*. 2012).

4.2.11 The variation in burial practice in the cemetery may be indicative of a broad section of society being part of the Providence Chapel break-away congregation. Although coffins were present in all of the graves only two contained brick shaft tombs which may be a sign of greater wealth. All of the graves contained shroud pins, indicating that certain burial customs were applied to all of the individuals interred.

4.3 Significance

4.3.1 Excavation of the 19th century Baptist cemetery at Norfolk Street, Cambridge has provided results of great significance both locally and regionally. Non-conformist

cemeteries of this period are rarely excavated and so the findings from this cemetery will add to regional and national narratives of burial practice among non-conformist communities.

4.3.2 The identification of a previously unknown cemetery in the centre of modern Cambridge is quite unusual especially given its relatively recent date.

Appendix A. Context Inventory

Context	Cut	Cat.	Type	Length	Breadth	Depth	Colour	Fine component	Coarse component	Compaction	Shape in Plan	Side	Break of Slope	Base
1		Unstrat	-	-	-	-	-	-	-	-	-	-	-	-
2		Unstrat	-	-	-	-	-	-	-	-	-	-	-	-
3	**8**	Fill	Burial	-	0.8	0.8	Dark Reddish Grey	Clay sand	Mod. Grit and gravel	Loose				
4	**8**	Masonry	Burial	1.66	0.6	1.06	-	-	-	-	-	-	-	-
5	**8**	Skeleton	Burial											
6	**8**	Skeleton	Burial											
7	**8**	Fill	Burial	1.44	0.45	0.1	Dark reddish brown	Humic silt	-					
8	**8**	Grave Cut	Burial	2	0.8	1.95	-	-	-	-	Sub-rectangular	vertical	sharp	flat
9	**11**	Fill	Burial	-	-	0.63	Mid grey brown	Clay sand	Mod. Sub-angular stones	Friable				
10	**11**	Skeleton	Burial											
11	**11**	Grave Cut	Burial	1.4	0.6	1.31	-	-	-	-	Sub-rectangular	Vertical	Sharp	flat
12		Grave Cut	Burial	1.92	0.65	1.4	-	-	-	-	Sub-rectangular	Very Steep	Sharp	Concave
13	**-**	-	-	-	-	-	-	-	-	-	-	-	-	-
14	**12**	Fill	Burial	1.92	0.65	0.6	Mid grey brown	Fine sandy silt	Mod. Sub rounded stones	Loose				
15	**17**	Fill	Burial	1.1	0.45	0.5	Dark Grey brown	Silty sand	Freq. gravel	Firm				
16	**17**	Skeleton	Burial											
17	**17**	Grave Cut	Burial	1.1	0.45	1.13	-	-	-	-	Rectangular	Vertical	Sharp	Flat
18	**12**	Skeleton	Burial											

Context	Cut	Cat.	Type	Length	Breadth	Depth	Colour	Fine component	Coarse component	Compaction	Shape in Plan	Side	Break of Slope	Base
19	**12**	Skeleton	Burial											
20	**12**	Skeleton	Burial											
21	**21**	Cut	Quarry	>10	>7	>1.50	-	-	-	-	Linear?	Steep	Sharp	?
22	**21**	Fill	Quarry	>10	>7	>1	Mid brown	Sandy silt	Occ gravel	Loose				
23	**21**	Fill	Quarry	>10	>3	0.6	Mid yellow brown	Sand	Occ. gravel	Loose				
24	**-**	Layer	Levelling	-	-	0.7	Dark reddish grey	Clay sand	Brick, tile, stone , rubble	Friable				
25	**8**	Fill	Burial	0.6	0.6	0.05			Mortar	compacted				
26	**26**	Cut of Grave	Burial	1.32	0.58	1.87	-	-	-	-	Sub-rectangluar	Steep	Sharp	Concave
27	**26**	Fill	Burial	1.32	0.58	1.3	Dark brown grey	Fine sandy silt	Occ. Sub angular gravel	-				
28	**26**	Skeleton	Burial											
29	**30**	Fill	Burial	-	0.6	>1.40	Mid brown grey	Clay sand	Occ. gravel	Friable				
30	**30**	Cut of Grave	Burial	-	-	-	-	-	-	-	Sub-rectangular	Vertical	Sharp	Flat
31	**33**	Fill	Burial	-	0.6	>1.40	Mid grey brown	Clay sand	Rubble	Friable				
32	**33**	Masonry	Burial	0.5	0.62	-			Brick					
33	**33**	Cut of Grave	Burial	-	0.6	0.6	-	-	-	-	Sub-rectangular	Vertical	Sharp	Flat
34	**30**	Skeleton	Burial	-	-	-	-	-	-	-	-	-	-	-
35	**33**	Skeleton	Burial	-	-	-	-	-	-	-	-	-	-	-
36	**39**	Fill	Burial	0.92	0.55	0.8	Dark grey brown	Silty sand	Freq. gravel					
37	**39**	Coffin shadow	Burial	0.72	0.25	0.15			Coffin wood					
38	**39**	Skeleton	Burial											

Context	Cut	Cat.	Type	Length	Breadth	Depth	Colour	Fine component	Coarse component	Compaction	Shape in Plan	Side	Break of Slope	Base
39	**39**	Cut of Grave	Burial	0.92	0.55	0.8	-	-	-	-	Rectangular	Vertical	Sharp	Flat
40	**44**	Fill	Burial	-	-	0.8	Dark grey	Sandy clay	Freq. stones	Firm				
41	**44**	Fill	Burial	-	-	0.45	Mid brown grey	Sandy clay	Mod. Small stones	Friable				
42	**44**	Coffin shadow	Burial	0.6	0.22	0.15	Dark grey	Degraded wood		Loose				
43	**44**	Skeleton	Burial											
44	**44**	Cut of grave	Burial	1.3	0.65	1.25					Rectangular	Vertical	Sharp	Flat
45		Fill	Burial	-	0.9	1.5	Dark reddish brown	Clay sand	Occ. Grit and gravel	Friable				
46		Skeleton	Burial											
47		Lining	Burial	>0.7	>0.7	0.06			Brick					
48		Cut of Grave	Burial	>0.7	0.7	1.66					Rectangular	Vertical	Sharp	Flat
49		Fill	Burial	-	0.45	1.5	Dark brown grey	Clay sand	Occ. stone	Friable				
50		Cut of Grave	Burial	-	0.45	1.5					-	Vertical	Sharp	flat

APPENDIX B. FINDS REPORTS

B.1 Coffins, Coffin Furniture and Fittings

By Mark Gibson and Louise Loe

Introduction

B.1.1 The excavations at St Matthew's School recovered the remains for a potential 11 coffins dating to the 19th century. The mostly iron coffin fittings, along side copper alloy shroud pins, were recovered from 14 contexts; all but one of which were directly associated with one or more skeleton. The wood, which would have made up the majority of each coffin was highly decayed, leaving only a stain or a friable pulp.

B.1.2 Nineteenth century coffins were typically single break, or shoulder shaped with flat lids. They were usually upholstered in fabric, most often baize or velvet, which was held in place with upholstery studs. Upholstery studs, in common with other coffin fittings, were once purely functional, but became highly decorative during this period, forming elaborate patterns on the coffin's sides and lid. Between four and six (sometimes eight) decorative metal grips may have been present, used to steady the coffin as it was carried, each with a backing plate (grip plate), which became a highly decorative and stylised piece. There were also lid motifs and escutcheons which were decorated with funerary symbols on the lid, as well as a breastplate/departum plate, which detailed the individual inside. Grips were produced by casting, but all other fittings were mass produced using power assisted dies and were depicted in catalogues for mourners to choose from (Litten 1991).

Methodology

B.1.3 The coffin remains were recorded on a proforma context sheet, which included details relating to the materials, construction, size and shape of the coffin, as well as the decorative metal fittings (including fixing nails and screws, upholstery and upholstery studs, grips, grip plates, breastplates, lid motifs and escutcheons). Motifs on these fittings were described and, where possible, were matched to types presented in the coffin fittings catalogue of Christ Church Spitalfields (Reeve and Adams 1993), as well as styles recorded from numerous other post-medieval sites excavated by OA and other archaeological contracting units. All analysis was macroscopic.

Assemblage composition and quantification

B.1.4 The coffin remains comprised numerous iron nails, 27 grips, nine grip plates, multiple small coffin plate fragments, 39 copper alloy pins (Table 1) and wooden coffin stains, found with most burials. In addition, a small quantity of residue was recovered from one burial (7), as well as an unstratified, unidentified tubular iron object, from the fill above the grave that contained skeletons 5 and 6, and a small quantity of unidentified, heavily corroded ferrous objects, found with skeletons 43, 38 and 28. It was not possible to say whether the unidentified objects were coffin fittings or not.

B.1.5 Metal coffin fittings were recovered from eight graves and were associated with at least eight individuals, possibly more: due to the multiple occupancy of two graves (**8** and **12**), the fittings had become commingled with skeletons 5 and 6, and 18, 19 and 20. One set of coffin plate fragments was unstratified and was not associated with any burial. Wood stains from coffins were associated with virtually all of the skeletons.

Results

B.1.6 Where evidence of wooden coffins had been observed, the wood of the coffin had largely, or more often, completely decomposed, leaving simply a stain or a friable pulp which was beyond further analysis to determine the species. The iron nails used to hold the coffin together were corroded, though, where observable, they were the square-cut, flat-head type. The fixing nails, used to attach the decorative plates to the coffins were also made of iron, though many of them appeared to have been tin-dipped. They were much smaller than the coffin nails and were rounded in cross section with slightly domed heads.

B.1.7 Evidence of iron and tin-dipped iron fittings was widespread, although universally these were corroded and, in the case of the thin embossed coffin plates (which had been present on the majority of coffins), were illegible, encrusted and highly fragmented. Due to this it was impossible to identify their function (*i.e.* breastplate or grip plate), except where plates still adhered to grips, identifying them as grip plates (7 and 14) or where they had been recorded on the plan as a breastplate (7 and 10). Cherubs and foliage could be identified on one coffin plate (37) of unknown function, but not enough survived to classify its type. It was possible to identify four grip plates from 7 as CCS 19, a relatively simple design that had foliage decorating the border of a blank oval space (Reeve and Adams 1993). All of the grips recovered from the site were identified as type CCS 2a, which is plain and curved (Reeve and Adams 1993). This is with the exception of the grips found in 9 and 27, which were too corroded to identify.

B.1.8 In one case fragmentary coffin lace, a decorative strip of painted/black enamelled metal (pressed tin), was observed in multiple grave 14. Applied either on the lid or sides of the coffin, it was often used in place of upholstery studs to hold exterior fabric to the coffin. Upholstery studs were observed in association with skeleton 38. These may have formed a decorative pattern on the coffin, but if this had been the case it was no longer preserved.

B.1.9 The 39 copper alloy pins were recovered from 10 contexts, associated with 10 skeletons. Most contexts had less than 5 pins, but 15 had 12. In general, the pins were far less corroded than the iron coffin fittings, although they tended to be fragmentary. It is most likely that these pins had been used to hold the shrouds in place around the corpses.

B.1.10 The residue found in association with **7** could not be identified, but does not appear to be bitumen or any other kind of sealing tar or pitch.

Context	Associated SK	Grips	Grip plates	Fe coffin Nails, (y/n)	Studs, (y/n)	Fe fixing nails, (y/n)	Cu pins	Other	Condition
3	-	0	0	n	n	n	0	Fe coffin plate frags	Poor
7	5, 6	12	7	y	n	y	5	Fe breastplate frags	Poor
9	10	4	n	y	n	n	3	Fe coffin plate frags	Poor
10	10	0	0	n	n	n	0	Fe breastplate frags	Poor
14	18, 19, 20	6	2	y	n	y	5	Fe coffin plate frags, coffin lace	Poor
15	16	0	0	y	n	n	12		Poor
16	16	0	0	y	n	n	2		Poor
27	28	5	0	y	n	y	3	Fe coffin plate frags, Fe frags, Fe	Poor

								object	
36	38	0	0	y	y	n	2	Fe objects	Poor
37	38	0	0	y	y	n	1 + frags	Fe coffin plate frags with cherub and foliage decoration, nails and studs	Poor
38	38	0	0	n	n	n	1		Poor
40	43	0	0	n	n	n	0	4 Fe objects	Poor
42	43	0	0	y	n	y	0		Poor
45	46	0	0	y	n	n	0	Fe Coffin plate frag	Poor

Table 1: Summary of coffin fittings

Discussion

B.1.11 The coffin remains from St Matthew's were in very poor condition, but it was possible to identify some of the ferrous coffin furniture, including grips, grip plates, breastplates and upholstery studs. The assemblage would seem to be comparable with other 18th and 19th century Baptist assemblages, such as West Butts St, Poole in Dorset (McKinley 2008) and Kings Lynn, Norfolk (Boston 2011). None of the breastplates were sufficiently preserved for biographical details to be observed and it was not possible to comment on any pattern that the upholstery studs may have formed. The cherubs and foliage observed are two motifs that were popular in the 19th century, the latter most commonly encountered as an abundance of stylised or generic plants on breastplates and grip plates (May 2003; Boston *et al.* 2009).

B.1.12 The identifiable grips (CCS type 2a found in 7 and 14) were plain, undecorated and were also the most common grip type found at West Butts St, Poole (McKinley 2008, although identified as type 1) and Littlemore, Oxford (McCarthy *et al.* 2012). The grip plate types identified from St Matthew's were all relatively plain and simple compared with other documented types (Reeve and Adams 1993), but were slightly more decorative than the completely plain ones seen in West Butts Street (McKinley 2008). These reflect a tradition in which relatively simple, plain coffins, decorated with pressed iron fittings, characteristic of the lower to middle classes, were used, rather than the highly adorned double or triple layered coffins known to the upper middle to upper classes of the period (for example, St George's, Bloomsbury; Boston *et al.* 2009). This is consistent with the common belief that Baptists were generally working-class and their theological emphasis was on eschewing worldly values and possessions in pursuit of more spiritual goals. That said, some records from other Baptist chapels show that these beliefs were also popular amongst the middle-classes, such as those in trade, yeoman farmers etc (McCarthy *et al.* 2012).

B.1.13 It was not possible to identify the coffin wood which was observed in some contexts, but elm is a possibility, being the most commonly used type due to its water retentive properties (Litten 1991). In addition, the resin found with **7** could not be identified based on macroscopic analysis alone, although it could be confirmed that it was not pitch or bitumen.

Detailed record of coffin fittings (and other metal objects found with burials)

Context	Associated Sk(s)	SF no.s	Fe object descriptions	
3		159, 160	Breast plate frag, object/tube	Found in fill above

				tomb containing sk 5 and 6
7	5, 6	105, 106, 107, 108, 109, 110, 111, 112, 113, 115, 117, 118, 119, 120, 121, 162 164, 168, 171, 173, 174, 184 185, 203, 205, 207	12 grips, 7 grip plate, nails, breast plate frags, plate frags. Fe frags, fixing nails	Grip plates = CCS19 Grips = CCS2a
9	10	101, 123, 169, 176, 177, 206	4 grips, plate frags, Fe frags, nails	Grips too corroded
10	10	104	Plate frag, fixing nail	
14	18, 19, 20	100, 122, 163, 165, 167, 182, 188, 208	6 grips, 2 grip plates, plate frags, coffin lace frag, nails, fixing nails	Grips = CCS2a
15	16	124, 125, 152	Nails	
16	16	186	Nails	
27	28	128, 129, 135, 143, 149, 150, 151, 155, 156, 181, 183, 189, 201, 202, 209, 210	5 grips, Fixing nails, plate frags, Fe frags, nails, object (156) knife or file (149)	Grips too corroded
36	38	154, 172, 178, 187	Nails and studs, fe objects	
37	38	130, 131, 132, 133, 134, 142, 147, 190, 191, 204	Coffin plate frags with cherub and foliage decoration, nails and studs	
40	43	157, 158	4 Fe objects	
42	43	136, 137, 138, 139, 179, 180	Fixing nails, nails	
45	46	145, 146, 170	Fe frag, nails	
-	-	161	nails	
			Cu alloy object descriptions	
7	5, 6	114, 116, 195	5 pins	
9	10	102	3 pins	
14	18, 19, 20	153, 192	5 pins	
15	16	103, 126, 127	12 pins	
16	16	194	2 pins	
27	26	196, 197	3 pins	
36	38	148, 175, 198	Coin (148), 2 pins	
37	38	144, 199	1 pin, pin frags	
38	38	166	1 pin	
42	43	140, 141, 200	5 pins	

Table 2:Coffin fittings and objects in burials

B.2 Glass

By Carole Fletcher

Results

B.2.1 The excavation generated a small assemblage of mainly vessel glass (Table 3). A base shard from a black glass bottle recovered from context 14 dates from the late 18th or early 19th century, and a partial rim from the same context is early-mid 19th century. The remainder of the glass is not closely datable. A shard of of window glass recovered from context 40 may be 19th-20th century.

Context	*Form*	*Count*	*Weight (kg)*	*Date*
3	Vessel; iridescent green glass body shard most likely from a bottle	1	0.008	Not closely datable
9	Vessel; dark olive green bottle glass body shards from ? two different vessels.	2	0.029	Not closely datable
	Vessel; opaque shard due to the glass degrading. Body shard most likely from a bottle	1	0.005	
	Vessel; clear colourless glass body shard	1	0.001	
14	Vessel; base from a natural black glass bottle	1	0.226	Late 18th-early 19th century
	Vessel; fragment from the neck and finish from a dark olive green bottle	1	0.008	Early-mid 19th century
	Vessel; wall-heel from a natural black glass bottle	1	0.048	Late 18th-early 19th century
40	Window glass; clear, near colourless glass with few if any faults	1	0.003	19th-20th century
	Window or vessel glass; clear glass with slightly blue cast and lightly iridescent surfaces.	1	0.002	Not closely datable
	Window or vessel glass; opaque shard due to the glass degrading.	1	0.001	
41	Vessel; mid olive green glass shard from a cylindrical bottle.	1	0.011	Late 18th-19th century
45	Vessel; pale bright olive green glass shard from a bottle.	1	0.010	Not closely datable

Table 3: Catalogue of glass

B.3 Pottery

by Carole Fletcher

Introduction

B.3.1 The excavation produced a small pottery assemblage of 57 sherds, weighing 0.666kg, recovered from 10 contexts (Table 4). The condition of the overall assemblage is moderately abraded. The average sherd weight from individual contexts is low at approximately 12g.

Methodology

B.3.2 The Medieval Pottery Research Group (MPRG) documents *A Guide to the Classification of Medieval Ceramic Forms* (MPRG 1998) and *Minimum Standards for the Processing, Recording, Analysis and Publication of Post-Roman Ceramics* (MPRG 2001) act as a standard.

B.3.3 Dating was carried out using OA East's in-house system based on that previously used at the Museum of London. Fabric classification has been carried out for all previously described medieval and post-medieval types. All sherds have been counted, classified and weighed. All the pottery has been recorded and dated on a context-by-context basis. The archives are curated by Oxford Archaeology East until formal deposition.

Assemblage

B.3.4 Context 3 produced a mix of early 19th-20th century pottery including a single sherd of Bone China, fragments from several Refined White Earthenware plates, a body sherd from a Yellow Ware vessel and a single sherd from a Post-Medieval Redware bowl.

B.3.5 Context 9 produced the largest group of pottery in the assemblage (18 sherds, 0.181kg). The pottery present includes transfer-printed Pearlware and engine-turned, industrial slipware, the presence of which suggests a late 18th to early-mid 19th century date. Also present were Post-Medieval Redware sherds and a transitional redware sherd from what has tentatively been identified as a chafing dish. Two residual sherds of St Neots Ware indicate some Late Saxon-early medieval activity in the vicinity of the excavation, and may have been disturbed by the use of the site as a 19th century burial ground.

B.3.6 Four sherds of pottery were recovered from context 14. These include a single sherd of Staffordshire Type Slipware, alongside Bone China and transfer-printed Pearlware, suggesting a date of late 18th-mid 19th century. Context 15 also produced sherds from a Pearlware plate alongside Post-Medieval Redware sherds. Context 27 contained only a single sherd of Post-Medieval Redware

B.3.7 From context 29 a large sherd from a Bichrome vessel was recovered, the applied clay pads that survive on the body sherd indicate the location of a handle (now lost) and suggest the vessel was a pipkin. Also present is a sherd of transfer-printed Pearlware and engine-turned industrial slipware, both of which suggest a late 18th to early-mid 19th century date as with context 9. Only two sherds of pottery were recovered from context 36, a small sherd of Post-medieval Redware and one of Refined White Earthenware.

B.3.8 Context 40 produced the second largest group in the assemblage, by number of sherds although not by weight. The bulk of the pottery recovered was transfer-printed Refined White Earthenware including a sherd of flow blue which appeared in the early-mid 19th

century. Also present are a highly decorated sherd of 16th century Cistercian Ware, a sherd of Border Ware (mid 16th-mid 18th century) and a rim sherd from a medieval coarseware jar.

B.3.9 Context 41 produced a large sherd from an undecorated Tin Glazed Earthenware tile alongside two sherds of Pearlware, a sherd of transfer-printed Refined White Earthenware and a sherd from a Post-medieval Redware bowl. Overall the date for the context is late 18th to early-mid 19th century. Context 45 produced pottery from the early-mid 19th century.

B.3.10 The assemblage is domestic in origin, these sherds represent rubbish disposal on the site, although the site is not domestic but non-secular for part of the period when much of this material may have been deposited. The small number of late Saxon-early medieval and medieval sherds are residual elements in an otherwise late 18th-mid 19th century assemblage.

Pottery Catalogue

Context	*Full name*	*Basic Form*	*Sherd Count*	*Weight (kg)*	*Date Range*
3	Bone China	Bowl	1	0.002	Early 19th-20th century
	Post-medieval Redware	Bowl	1	0.018	
	Refined White Earthenware	Plate	2	0.021	
	Refined White Earthenware (transfer-printed)		1	0.002	
	Yellow Ware		1	0.010	
9	Post-Medieval Redware		1	0.021	Very late 18th to early-mid 19th century
	Post-Medieval Redware		1	0.005	
	Transitional Redware	Chafing dish	1	0.020	
	Refined White Earthenware	Drinking Vessel	1	0.003	
	Refined White Earthenware	Plate	5	0.016	
	Refined White Earthenware (Industrial Slipware-engine turned)	Drinking Vessel	1	0.004	
	Refined White Earthenware (transfer-printed)	Drinking Vessel	2	0.005	
	Refined White Earthenware (transfer-printed)	Plate or serving vessel	1	0.067	
	Refined White Earthenware/ Pearlware (transfer-printed)	Jar	1	0.005	
	Refined White Earthenware/ Pearlware (transfer-printed)	Plate	2	0.005	
	St Neots Type Ware		1	0.005	
	St Neots Type Ware	Bowl	1	0.025	
14	Bone China	Bowl	1	0.005	Late 18th-mid 19th century
	Refined White Earthenware	Plate	1	0.006	
	Refined White Earthenware/ Pearlware (transfer-printed)	Jar	1	0.012	
	Staffordshire Type Slipware		1	0.003	
15	East Anglian Redware		1	0.015	Late 18th-early 19th

Context	Full name	Basic Form	Sherd Count	Weight (kg)	Date Range
	Post-medieval Redware		2	0.037	century
	Refined White Earthenware		1	0.007	
	Refined White Earthenware/ Pearlware	Plate	2	0.032	
27	Post-medieval Redware	Jar	1	0.017	16th-end of 18th century
29	Post-medieval Redware-Bichrome	Jar/Pipkin	1	0.068	Very late 18th-early 19th century
	Refined White Earthenware (Industrial Slip ware-engine turned)	Drinking Vessel	1	0.002	
	Refined White Earthenware/ Pearlware (transfer-printed)	Drinking Vessel	1	0.010	
36	Post-medieval Redware		1	0.009	Late 18th-end of the 19th century
36	Refined White Earthenware	Bowl	1	0.004	
40	Cistercian ware	Drinking Vessel	1	0.004	Early-mid 19th century
	Medieval coarse ware	Jar	1	0.010	
	Post-medieval Redware		1	0.017	
	Refined White Earthenware	Plate	1	0.004	
	Refined White Earthenware (transfer-printed)		2	0.010	
	Refined White Earthenware (transfer-printed)	Plate	1	0.005	
	Refined White Earthenware/Flow blue (transfer-printed)		1	0.002	
	Staffordshire White Salt-Glazed Stoneware		1	0.004	
	Border Ware		1	0.002	
41	Post-medieval Redware	Bowl	1	0.022	Late 18th-early 19th century
	Refined White Earthenware (transfer-printed)	Drinking Vessel	1	0.009	
	Refined White Earthenware/ Pearlware		2	0.050	
	Tin Glazed Earthenware Tile	Tile	1	0.049	
45	Refined White Earthenware/ Pearlware (transfer-printed)	Plate	1	0.005	Early-mid 19th century
	Yellow Ware		1	0.012	

Table 4: Pottery Dating Catalogue

B.4 Clay Pipe

by Carole Fletcher

B.4.1 The excavation generated a small assemblage of clay tobacco pipe stems (0.027kg), recovered from various contexts (Table 5). A small portion of heel survives on one stem although not enough for an identification of form. A second stem is stamped BALLS CAMBS; Flood records a William Balls as a clay pipe manufacture in the city of Cambridge in 1820,1830,1832,1838 and 1839 using various written sources (Flood, 1976, p39). The remainder of the stems are not closely datable.

Context	***Number of Stem Fragments***	***Weight (kg)***	***Decoration***	***Date***
3	1	0.003	Stamped BALLS CAMBS within an oval border	Early-mid 19th century
9	1	0.004		Not closely datable
36	2	0.006		Not closely datable
40	2	0.011		Not closely datable
41	1	0.003		Not closely datable

Table 5: Catalogue of clay pipe

Appendix C. Human Skeletal Remains

By Mark Gibson and Louise Loe, with contributions from Brian Dean

Introduction

C.1.1 Excavations at St Matthew's School, Norfolk Street, Cambridge revealed part of a 19th century Baptist cemetery, possibly associated with a small chapel building, since demolished. A total of 12 articulated skeletons were recovered from seven plain earth cut graves and two brick shaft graves. This was in addition to one partial skeleton and two disarticulated human bones, recovered from an area on the west of the site that was disturbed prior to archaeological intervention.

C.1.2 Two graves contained multiple occupants, stacked one on top of the other. Two skeletons (5 and 6) were recovered from brick lined grave **8**, and three skeletons (18, 19 and 20) were recovered from earth cut grave **12**. The remaining skeletons occupied one grave each. Skeletons were orientated NNW-SSE (from graves **8**, **11**, **26**, **33**, **39**, **44** and **48**) NNW-SSE and SSE-NNW (from graves 12 and 17). All of the burials date to within four years of each other, spanning 1833 and 1837, when the chapel was in use. All of the skeletons were osteologically examined and the results are described below.

Methodology

C.1.3 Analysis was undertaken in accordance with published guidelines (Brickley and McKinley 2004). The preservation of each skeleton was recorded with reference to completeness (scored as: <25%, 25-50%, 50-75% or >75%), degree of fragmentation (scored as: low - <25% fragmented; medium - 25-75% fragmented; or high: >75% fragmented) and degree of surface erosion (after McKinley 2004, 16). These were combined to provided an overall preservation rating (scored as excellent, good, fair, poor, destroyed – appendix A). Due to its low level of completeness the single adult skeleton could not be assessed for either sex, or age beyond it being an adult. Juvenile ages were estimated with reference to dental development (Moorees *et al.* 1963), epiphyseal fusion and long-bone length (Scheuer and Black 2000). Juvenile skeletons were assigned to one of seven age categories (Table 6), and their likely age range indicated. For the purposes of analysis, the age categories have been employed, unless indicated.

Pre-term	<37 weeks gestation
Neonate	Birth-1 month
Infant	1 month-1 year
Young child	1-5 years
Older child	6-12 years
Adolescent	13-17 years
Juvenile (unspecified)	<18 years

Table 6: HSR: Age categories employed

C.1.4 Non-metric traits were scored (Berry and Berry 1967; Finnegan 1978) and pathology and trauma were identified, described and diagnosed with reference to standard texts (for example, Aufderheide and Rodríguez-Martín 1998; Ortner 2003; Resnick 1995). Results were analysed by calculating the crude prevalence rate (number of individuals with a condition out of the number observed; CPR) and the true prevalence rate (number of particular bones or teeth with a condition out of the number observed; TPR).

Results

C.1.5 All observations are summarised in Table 9.

Preservation and completeness

C.1.6 Overall, the preservation of the skeletons is good to fair (Table 9). Just under half (46.1%, 6/13) were 76% or more complete and over half were of low fragmentation (61.5%; 8/13). In addition, the bone surfaces of all skeletons were eroded, but this was limited in extent (grade one or two after McKinley 2004, 16). Only one individual (skeleton 18) had erosion on most of its bone surfaces (grade three after McKinley 2004, 16).

Demography

C.1.7 There is one adult of undetermined sex and age and twelve juveniles. All of the juvenile skeletons could be assigned to age categories (Table 9). There was one neonate (birth to one month), two infants (one month to one year) and nine young children (1-6 years).

Non-metric traits

C.1.8 Non-metric traits are minor anomalies in the morphology of the skeleton and are generally of no pathological significance. They may be present as localised deficiencies of bone (for example, as extra blood vessel openings or foramen), or as extra bones (for example, as wormian bones in the cranial sutures). Non-metric traits may be genetically or environmentally induced (Mays 1998, 110; Tyrrell 2000). Traits which involve variations in joint surfaces tend to be more environmentally influenced, a reflection of mechanical factors operating on the bones (Mays 1998, 110). Variations in the sutures of the skull have been proven to be under significant genetic control (Torgersen 1951a,b, 1954; Sjøvold 1984).

C.1.9 A single post-cranial trait was observed on adult skeleton 46 (bilateral double anterior calcaneal facets) and five cranial traits were observed in the juvenile skeletons. The majority of the cranial traits were additional bones forming in sutures (*i.e.* an epiteric bone, lambdoid ossicles and ossicles at lambda). These traits are among those that are considered to be under significant genetic control, but it is not possible to say whether they were shared by any of the other skeletons in the present assemblage, because poor preservation had precluded examination in some cases. Other observed cranial traits were foramina at various locations on the frontal bones (Table 9).

C.1.10 Non-metric traits are not always scored in juvenile skeletons because some do not become apparent until certain stages of development are reached and others vary greatly in their frequency with age at death (Mays 1998, 111). The present results should therefore be treated with caution.

Dental status

C.1.11 Ten of the juvenile skeletons had observable dentitions (teeth and/or jaws); the jaws and/or teeth of the remaining three juveniles and the one adult had not survived. A total of 206 teeth were recorded (161 deciduous and 45 permanent), out of which 129 (all deciduous) were observable for pathology. Unerupted teeth in sockets, even if partially visible, were not counted as 'observable' for the purposes of this report. Only five observable teeth, from two individuals, exhibited pathology. Three mandibular canines from two individuals (10 and 19) had dental enamel hypoplasia (TPR 2.32%, 3/129), identified as lines, pits or grooves on the enamel, believed to be caused by physiological stress (for example, childhood illness) during dental development (Hillson 1996, 166). Both of the maxillary lateral incisors from skeleton 10 had small carious lesions (TPR 1.55%, 2/129), that is cavities caused by the acid production of acidogenic bacteria in dental plaque (ibid, 269).

Skeletal pathology

C.1.12 A total of ten individuals (76.9%, 10/13), nine juveniles and one adult, displayed pathological lesions. Unsurprisingly, of the three individuals with no pathological changes, one was less than 25% complete and the other two were amongst the youngest individuals in the assemblage. Pathology is generally less prevalent among juvenile skeletons than adult skeletons (Lewis 2007).

C.1.13 Among the conditions observed were metabolic disorders, inflammation/infection and an undiagnosed condition.

Metabolic disorders

C.1.14 Metabolic disorders may manifest as a disruption of bone formation, bone remodelling and/or bone mineralisation (Brickley 2000, 337). In the present assemblage cribra orbitalia (CO) was the most prevalent metabolic disorder observed. This condition is identified on dry bone as small porosities or large interconnected trabeculae on the roof of the orbits. Several hypotheses exist as to the aetiology of these changes, but the most popular, and generally accepted, is iron deficiency anaemia (Stuart-Macadam 1982, 1991). It is thought that the changes are the result of the body's attempt to produce more red blood cells in the marrow, to compensate for the lack of iron (Roberts and Manchester 1995, 167), though more recently it has been suggested that a deficiency in vitamin B12 and/or folic acid may be the cause (Walker *et al* 2009). Aside from a diet nutritionally deficient, excessive blood loss through injury, chronic disease such as cancer, and parasitic infection of the gut, may all have played a significant part in iron deficiency (ibid, 166). Cribra orbitalia usually develops and the degree of healing may be indicative of on-going physiological stress into adulthood (Aufderheide and Rodríguez-Martín 1998, 349). The most minimal examples, presenting only as multiple, discrete pinhead-sized perforations, may, in older individuals, represent a healing stage of a previously more severe lesion (*ibid*, 349).

C.1.15 Six of the St Matthew's skeletons (1, 5, 10, 18, 19, and 28) had CO, all juveniles. This gives a crude prevalence rate of 46.2.% (6/13 skeletons), or 66.7% (6/9) if only those skeletons with at least one observable orbit are included in the calculation. In total, there were 18 observable orbits and 11 had CO (61.1%).

C.1.16 Another metabolic disease observed in the assemblage was probable scurvy, which is caused by a lack of dietary vitamin C (Stone 1965). A lack of vitamin C initially causes tiredness, lethargy and muscular weakness (Estes, 1997; Akikusa *et al.* 2003) and progresses to haemorrhaging of blood vessels and the depression of bone renewal (Ortner and Ericksen 1997, Ortner *et al.* 2001, Brickley and Ives 2006). Pathological changes consistent with childhood scurvy, such as abnormal porosity of the cortex on the sphenoid, mandible, maxilla and orbits along with new bone formation (Brickley and Ives 2008, 56-7) were observed on four of the juvenile skeletons (1, 5, 6 and 38). Although these lesions can occur in other conditions, such as anaemia, rickets and infection, their presence on multiple bones (as observed in the present skeletons) is more consistent with scurvy (*ibid*, 57).

C.1.17 One possible case of residual rickets was observed on the partial skeletal remains of a young child (skeleton 35, 1-5 years). Rickets is caused by a deficiency in vitamin D, either by a diet lacking in the vitamin and/or by a lack of exposure to sunlight. Vitamin D deficiency prevents calcium from being deposited in developing bone and cartilage resulting in deformities, such as bending of the long bones or flaring/fraying of the growth plates (Brickley and Ives 2008, 90). In the present skeleton, the proximal and distal growth plates of both tibiae were swollen and flared with frayed edges. Whilst

diagnostic of rickets, these features alone cannot be used to confirm diagnosis alone (ibid, 106).

Non-specific inflammation/infection

C.1.18 Non-specific bone inflammation/infection included periostitis, erosive lesions and endocranial lesions. Periostitis (inflammation of the outermost surface of the bone, identified as increased porosity, striations, plaque like new bone formation and/or swelling involved four juveniles (skeletons 6, 10, 35 and 38) and one adult (skeleton 46). The periostitis observed in the orbits of infant skeleton 38 is consistent with the changes caused by scurvy elsewhere in the skull, as is the new bone formation at the attachment sites of the biceps on both ulnae of young child sk6 (Brickley and Ives 2008, 56-7). It is not possible to say what had caused the inflammation the tibiae of either skeletons 35 or 46.

C.1.19 Skeleton 10 had periositis on their right distal humerus in addition to erosive lesions, all possibly caused by infection of unknown aetiology. Erosions were observed in the coronoid fossae of the left and right humerii, the olecranon fossa of the right humerus and a smaller corresponding lesion on the proximal articulation of the right ulna. On these bones, the erosive lesions penetrated into the trabeular bone, but not into the meduallary cavity. All of the lesions were ovoid, with well defined margins. The olecranon fossa and coronoid fossae had been increased in size and depth by the lesions and had exposed the underlying trebecular bone which had become sclerotic.

C.1.20 Endocranial lesions were present on three individuals, all young children (skeletons 1, 10 and 28). They appeared as increased porosity, deposits of new bone, capillary formations or 'hair-on-end' lesions (Lewis 2004, 90). In all three cases the lesions were dispersed over the endocranial surfaces of the both left and right parietal bones. The exact aetiology of these lesions is still open to debate, but trauma, primary and secondary infections of meninges, tumours, tuberculosis, syphilis and certain vitamin deficiencies are among the possibilities (*ibid*. 93). However, in the case of skeleton 1, it is possible that the endocranial lesions are related to it having scurvy (*ibid*. 93).

Undiagnosed skeletal pathology

C.1.21 A single individual, young child skeleton **28** exhibited an undiagnosed condition which affected the proximal femoral and humeral shafts. In all cases the shafts appeared to be slightly flattened, anterior to posterior for the femora and posterio-lateral to anterio-medial for the humerii. The reason for this flattening is unclear and it may just be normal variation. Another possibility is metabolic disease, such as rickets. Given its young age (1.5-2.5 years) it seems unlikely that activity would cause this flattening, although this cannot be entirely ruled out.

Disarticulated human bones

C.1.22 The disarticulated human bones from St Matthew's School consist of a partial cranial vault (**2**) and a partial juvenile fibula (unstratified). The juvenile fibula was incomplete and therefore could not be measured to determine an age, however its general size and morphology suggested that it may have belonged to either a neonate or an infant. The partial cranial vault consisted of the majority of a frontal bone with fragments of the left and right parietals still attached. The vault could not be assigned to a specific age category, but it was clearly adult, and could be sexed as probably male, based upon the appearance of the glabella and orbital margins. Both orbits exhibited cribra orbitalia and there was a slight ovoid depression on the frontal bone, probably a healed depression fracture. It was not possible to say whether either of the disarticulated bones belonged to any of the discrete, articulated individuals, described above.

Discussion

C.1.23 The assemblage from the Baptist cemetery at St Matthew's School, Cambridge consisted of a minimum of 15 individuals (13 articulated skeletons and two individuals represented by two disarticulated bones). All but one of the skeletons buried there were juveniles (92.3%, 12/13) and are notable for having a number of pathological lesions, indicative of bone inflammation (probably infection), scurvy and rickets. These conditions are typically associated with malnutrition and over crowded, poorly sanistised, living conditions (Roberts and Cox 2003). Conclusions about the population are limited because the assemblage is too small. However, a few observations are worth noting.

C.1.24 Two and three skeletons were recovered from two graves (4 and 12 respectively), stacked one on top of the other. In the absence of associated grave markers it isn't possible to say whether these were family graves, although this is likely. For example, some of the graves excavated at Bonn Square, Oxford (Webb and Norton 2009, 151) and Redearth Primative Methodist Chapel, Darwen (Gibson and Griffiths 2001, 41) were associated with memorials bearing the names of multiple occupants from the same family, many of whom were young children and infants. Osteologically, there was nothing about the skeletons (for example, shared traits) from the multiple graves at St Matthew's that suggested they were related.

C.1.25 The orientation of the skeletons NNW-SSE or SSE-NNW is in keeping with non-comformist practice, in which burials are aligned with the chapel or street by which they are interred, rather than observing the traditional west-east Christian orientation. The burials from West Butts Street and Littlemore were also aligned with either the chapel or the road, the former lying primarily SW-NE (McKinley 2008) and the latter, SW-NE and SE-NW (McCarthy *et al.* 2012).

C.1.26 Lastly, the high number of juveniles contrasts with other 18th and 19th century Baptist burial grounds where lower numbers have been excavated. For example, juveniles made up 12% (2/17) of the excavated assemblage at Kings Lynn, Norwich (Boston 2011), 28% (28/100) at West Butts Street, Poole (McKinley, 2008), and 50% (15/30) at Littlemore Baptist Chapel, Oxford (McCarthy et al 2012). The higher number from St Matthew's may refer to a tradition of zonation, which is a common feature of medieval burial grounds (Gilchrist and Sloane 2005, 67), and is seen in cemeteries today. However, family burial plots were an important aspect of 18th and 19th century burial traditions (Jupp and Gittings 1999) and no clustering of child burials was noted at Kings Lynn, West Butts or Littlemore.

C.1.27 An alternative explanation for the high number of juveniles might be that the individuals were all victims of an outbreak of disease not detected osteologically, such as smallpox, measles and whooping cough, which were all common in the 18th and 19th centuries and were linked to rising population density (Roberts and Cox, 2003, 335). This may be supported by the fact that the multiple occupancy graves did not show evidence for having being re-cut, as would be expected if the individuals had been buried months or years apart. That said, the re-cutting of graves can be difficult to identify in burial grounds where the soil through which they were cut was immediately reused to backfill the grave. This has been observed on several post-medieval cemetery excavations, such as St Paul's, Hammersmith (Boston 2009).

C.1.28 If the skeletons do not represent one burial event, they are likely to date to within four years of each other. It is unusual to encounter such closely dated burials as this in the archaeological record, and thus the skeletons afford a rare a snapshot of childrens' life (and death) in a post-medieval non-conformist community.

Fragmentation, surface condition and overall preservation

Fragmentation definitions

Low = <25% of present bones fragmented

Medium = 25-75% of present bones fragmented

High = >75% of present bones fragmented

Surface condition (McKinley 2004)

Grade 0: Surface morphology clearly visible with fresh appearance to bone and no modifications

Grade 1: Slight and patchy surface erosion

Grade 2: More extensive surface erosion then grade 1 with deeper surface penetration

Grade 3: Most of bone surface affected by some degree of erosion; general morphology maintained but detail of parts masked by erosive action

Grade 4: Heavy erosion across whole surface, completely masking normal surface morphology, with some modification of profile

Grade 5: Heavy erosion across whole surface, completely masking normal surface morphology, with some modification of profile

Grade 5+: As grade 5 but with extensive penetrating erosion resulting in modification of profile

Overall preservation

Surface condition (McKinley 2004)	**Fragmentation level/value**		
	Low (1)	**Medium (2)**	**High (3)**
0	1	2	3
1	2	3	4
2	3	4	5
3	4	5	6
4	5	6	7
5/5+	6	7	8

Table 7: HSR: Surface condition

Score	**Preservation category**
1	Excellent
2-3	Good
4-5	Fair
6-7	Poor
8	Destroyed

Table 8:HSR: Preservation category

Table 9: Summary of skeletal remains

Skeleton no.	Age category (likely age)	Sex	Completeness	Preservation	No. of teeth present	Non-metric traits	Dental pathology	Other pathology
1	Young child (3-4 yrs)	/	0-25%	Fair	3 decid 5 perm	-	-	Bilateral cribra orbitalia; endocranial lesions; diffuse unusual porosity/new bone growth on par basilaris, sphenoid and right maxilla (distribution consistent with scurvy)
5	Young child (5-6 yrs)	/	76-100%	Good	18 decid 14 perm	Bilateral epiteric bones	-	Bilateral cribra orbitalia; diffuse unusual porosity/new bone growth on sphenoid, anterior portion of the left and right TMJ, left and right maxilla and lingual surface of both mandibular ascending ramii (distribution consistent with scurvy)
6	Young child (3.5-4 yrs)	/	51-75%	Fair	20 decid 6 perm	Left lambdiod ossicle	-	Diffuse unusual porosity/new bone growth on sphenoid, left and right maxilla and lingual surface of both mandibular ascending ramii (distribution consistent with scurvy); porous new bone growth bilaterally on the proximal portions of the ulnae shafts – periostitis (possibly due to scurvy)
10	Young child (3-4 yrs)	/	76-100%	Good	20 decid 4 perm	Bilateral epiteric bones, bilateral lambdoid ossicles	DEH, caries	Bilateral cribra orbitalia; endocranial lesions; erosive lesions present bilaterally in the humeral coronoid fossae, right olecranon fossae and proximal articulation of the right ulnae, periosteal active new bone growth on distal right humerus and proximal right ulna (possible infection of both elbow joints)
16	Infant (6-9 mths)	/	26-50%	Fair	19 decid 1 perm	-	-	-
18	Young child (4 yrs)	/	51-75%	Fair	14 decid 5 perm	Bilateral supra-orbital foramen	-	Bilateral cribra orbitalia
19	Young child (3-	/	76-100%	Good	17 decid	Ossicle at	DEH	Bilateral cribra orbitalia

Skeleton no.	Age category (likely age)	Sex	Completeness	Preservation	No. of teeth present	Non-metric traits	Dental pathology	Other pathology
	4 yrs)				6 perm	Lambda, bilateral accessory supra-orbital foramen		
20	Young child (3-3.5 yrs)	/	0-25%	Fair	-	-	-	-
28	Young child (1.5-2.5 yrs)	/	76-100%	Good	19 decid 4 perm	-	-	Cribra orbitalia (left only); endocranial lesions; flattening of the proximal femoral and humeral shafts (bilaterally) – undiagnosed condition
35	Young child (1-5 yrs)	/	0-25%	Good	-	-	-	Active periosteal new bone growth on both tibial shafts; proximal and distal growth plates of both tibiae are swollen and flared (consistent with rickets)
38	Infant (2-5 mths)	/	76-100%	Fair	14 decid	-	-	Diffuse unusual porosity on ectocranial surfaces of the parietals, the sphenoid, left and right maxilla and lingual surface of both mandibular ascending ramii, periosteal new bone in both orbits (distribution consistent with scurvy)
43	Neonate (birth-1 mth)	/	76-100%	Good	17 decid	-	-	-
46	Adult (unspecified)	?	0-25%	Good	-	Bilateral double anterior calcaneal facets	-	Healed periostitis on the right tibial shaft

Key: TMJ = temporomandibular joint; DEH = dental enamel hypoplasia; decid = deciduous; perm = permanent

Appendix D. Bibliography

Akikusa, J D, Garrick D, and Nash, M C.	2003	Scurvy: Forgotten but not gone. *Journal of Paedriatric Child Health* 39:75-77
Aufderheide, A C and Rodríguez-Martín, C.	1998	*The Cambridge Encyclopedia of Human Paleopathology* Cambridge: Cambridge University Press
Berry, A..C. And Berry, R.J.	1967	Epigenetic variation in the human cranium. *Journal of Anatomy* 101. 361-379
Boston, C, Boyle, A and Witkin, A.	2009	*'In the Vaults Beneath'-* Archaeological Recording at St George's Church, Bloomsbury. Oxford Archaeology Monograph No.8
Boston, C.	2009	*St Paul's Church, Hammersmith: Interim Archaeological Excavation Report - Stage 1*, Oxford Archaeology
Boston, C.	2011	Appendix 4. Baptist Cemetery, in Archaeology of the Newland: Excavations in King's Lynn, Norfolk. East Anglian Archaeology Report No. 140, pp. 122-144.
Brickley, M.	2000	The diagnosis of metabolic disease in archaeological bone, in M Cox and S Mays (eds), *Human Osteology in Archaeology and Forensic Science,* London: Greenwich Medical Media, 183-98
Brickley, M. and Ives, R.	2006	Skeletal manifestations of infantile scurvy. *American Journal of Physical Anthropology* 129:163-172
Brickley, M. and McKinley, J.	2004	*Guidelines to the standards for recording human remains* IFA Paper No. 7 British Association for Biological Anthropology and Osteoarchaeology and the Institute of Field Archaeologists
British Geological Survey	1981	Cambridge: Solid and Drift Geology Map by British Geological Survey Sheet 188.
Estes, J. W.	1997	*Naval surgeon: Life and death at sea in the age of sail*. Canton: Science History Publications
Finnegan, M.	1978	Non-metric variation of the infracranial skeleton *Journal of Anatomy* 125: 23-37
Flood, R. J.	1979	*Clay Tobacco Pipes in Cambridgeshire*. The Oleander Press
Gibson, M. and Griffiths, J.	2011	*Redearth Primitive Methodist Chapel, Redearth Road, Darwen, Lancashire. Archaeological Post-Excavation Assessment Report (Project Stage 2 of 4)*, Oxford Archaeology North
Gilchrist, R. and Sloane, B.	2005	*Requiem: The Medieval Monastic Cemetery in Britain*, Museum of London Archaeology Service
Hillson, S.	1996	*Dental Anthropology* (3rd ed.) Cambridge: Cambridge University Press
Jupp, P.C. And Gittings, C.	1999	*Death and burial in England: An illustrated history*. Manchester: MUP
Lewis, M. E.	2004	Endocranial lesions in non-adult skeletons: understanding their aetiology *International Journal of Osteoarchaeology* 14: 82-97
Litten, J.	1991	*The English way of death: The common funeral since 1450.*

London: Robert Hale.

Lyons, T. 2008 *St Matthew's Primary School, Norfolk, Street, Cambridge. An archaeological evaluation*. Unpub. OA East report no. 1070

May, T. 2003 The Victorian Undertaker, 28, Shire Album 330, Shire Publications, Princes Risborough.

Mays, S. 1998 *The Archaeology of Human Bones* London: Routledge

Mccarthy, R. Clough, S. Boyle, A. and Norton, A. 2012 The Baptist Chapel burial ground, Littlemore, Oxford, in *Post-Medieval Archaeology*, **46/2** (2012), 281–290

McKinley, J. 2008 *The 18th Century Baptist Chapel and Burial Ground at West Butts, Poole, Dorset,* Wessex Archaeology Report, Salisbury

McKinley, J. I. 2004 Compiling a skeletal inventory: disarticulated and co-mingled remains, in: M Brickley and J I McKinley *Guidelines to the standards for recording human remains,* 14-17, IFA Paper No. 7 British Association for Biological Anthropology and Osteoarchaeology and the Institute of Field Archaeologists

Medieval Pottery Research Group 2001 *Minimum Standards for the Processing, Recording, Analysis and Publication of Post-Roman Ceramics* Medieval Pottery Research Group Occasional Paper 2

Medieval Pottery Research Group 1998 *A Guide to the Classification of Medieval Ceramic Forms.* Medieval Pottery Research Group Occasional Paper I

Medlycott, M. 2011 *Research and archaeology revisited: A revised framework for the east of England*. EAA Occasional paper 24.

Moorees, C. F. A., Fanning, E. A. and Hunt, E. E. 1963 Age variation of formation stages for ten permanent teeth *Journal of Dental Research* 42: 1490-1502

Mortimer, R. 2012 *Method Statement. St Matthew's Primary School, Norfolk Street Cambridge.* OA East Spec.

O'Connor, B. 2001 *The origins and development of the British coprolite industry.* Mining History: The bulletin of the Peak District Mines Historical Society **14/5**. 46-57

Ortner, D. and Ericksen, M. 1997 Bone changes in the human skull probably resulting from scurvy in infancy and childhood. *International Journal of Osteology* 7:212-220

Ortner, D. J. 2003 *Identification of Pathological Conditions in Human Skeletal Remains* London and San Diego: Academic Press

Ortner, D., Butler, W., Carfarella, J. and Milligan, L. 2001 Evidence of probable scurvy in subadults from archaeological sites in North America. *American Journal of Physical Anthropology* 114:343-351
Resnick, D (ed.) 1995a *Diagnosis of Bone and Joint Disorders* (3rd ed.), 6 Volumes, Philadelphia, London, Toronto, Montreal, Sydney, Tokyo: W B Saunders Company

R.C.H.M.E. 1959 *An Inventory of the historical monuments in the city of Cambridge. Part II.* London:HMSO.

Razzel, P. 1976 Smallpox extinction: A note of caution. *New Scientist* **71**. 35

Reeve, J. and Adams, M. 1993 *The Spitalfields project Volume 1 - The archaeology Across the*

Styx, CBA research report **85**

Resnick, D. 1995 *Diagnosis of bone and joint disorders*. London: WB Saunders Co. 433-444

Roberts, C.A. And Cox, M. 2003 *Health and disease in Britain: From prehistory to the present day*. Stroud: Sutton Publishing Ltd.

Roberts, C. and Manchester, K. 1995 *The Archaeology of Disease.* Stroud: Sutton Publishing

Scheuer, L. and Black, S. 2000 *Developmental juvenile osteology* Oxford: Elsevier Academic Press

Sjøvold, T. 1984 A report on the heritability of some cranial measurements and non-metric traits, in: G N van Vark (ed.) *Multivariate Statistical Methods in Physical Anthropology*, 223-246, Groningen: Reidel

Stone, I. 1965 Studies of a mammalian enzyme system for producing evolutionary evidence in man. *American Journal of Physical Anthropology*, 132:83-85

Stuart-Macadam, P. 1982 *A correlative study of palaeopathology of the skull*, unpublished PhD dissertation, Univ Cambridge

Stuart-Macadam, P. 1991 Anaemia in Roman Britain: Poundbury Camp, in: H Bush and M Zvelebil, *Health in Past Societies, Biocultural Interpretations of Human Skeletal Remains in Archaeological Contexts*, 101-113, BAR International Series 567 Tempvs Reparatvm Archaeological and Historical Associates Limited

Torgersen, J. H. 1951a The developmental genetics and evolutionary meaning of the metopic suture *American Journal of Physical Anthropology* 9: 193-205

Torgersen, J. H. 1951b Hereditary factors in the sutural patterns of the skull *Acta Radiologica* 36: 374-382

Torgersen, J. H. 1954 The occiput, the posterior cranial fossa and the cerebellum. In J. Jansen and A. Brodal (eds.) *Aspects of cerebellar anatomy*. Oslo:Gundersen. 396-418

Tyrrell, A. 2000 Skeletal assessment of non-metric traits and the assessment of inter- and intra-population diversity: past problems and future potential, in: M Cox and S Mays (eds), *Human Osteology in Archaeology and Forensic Science*, 289-306, London: Greenwich Medical Media

Walker, P. L., Bathurst, R. R., Richman, R., Gjerdrum, T.,and Andrushko, V. A. 2009 The causes of Porotic Hyperostosis and Cribra Orbitalia: A reappraisal of the Iron-Deficiency Anemia Hypothesis. *American Journal of Physical Anthropology* 139:109–125.

Webb, H. and Norton, A. 2009 The Medieval and post-medieval graveyard of St Peter-le-Bailey at Bonn Square, Oxford, *Oxoniensia*, **74**

Web-based sources

Beynon, G. - *History of Eden Baptist Church*. http://www.eden-cambridge.org/history/ accessed 15/08/13

Open Plaques *Charles Humfrey*. http://openplaques.org/plaques/1339. Accessed 16/08/13

ArchiveSources

Allen, W. 1851 *The depth of iniquity cast up*. (CRO R98/096)

Anon. 1937 *Zion: One hundred years of Baptist witness*. CRO R95/91

CCCC09/10/82 *Counterpart of lease to William and Thomas Asplen of part of the Red Hart estate* (as in 09/10/79/2 comprising four messuages for 40 years from Michaelmas 1828 at an annual rent of 7s 6d. http://janus.lib.cam.ac.uk/db/node.xsp?id=EAD%2FGBR%2F2938%2FCCCC09%2F10%2FCCCC09%2F10%2F82 accessed 16/08/13

APPENDIX E. OASIS REPORT FORM

All fields are required unless they are not applicable.

Project Details

OASIS Number	oxfordar3-156748		
Project Name	St Matthew's Primary School, Norfolk Street, Cambridge		
Project Dates (fieldwork) Start	06-11-2012	Finish	13-11-2012
Previous Work (by OA East)	Yes	Future Work	No

Project Reference Codes

Site Code	CAMSMS12	Planning App. No.	-
HER No.	ECB 3067	Related HER/OASIS No.	ECB3067

Type of Project/Techniques Used

Prompt: Direction from Local Planning Authority - PPS 5

Please select all techniques used:

☐ Field Observation (periodic visits)	☐ Part Excavation	☐ Salvage Record
☐ Full Excavation (100%)	☐ Part Survey	☐ Systematic Field Walking
☐ Full Survey	☐ Recorded Observation	☒ Systematic Metal Detector Survey
☐ Geophysical Survey	☐ Remote Operated Vehicle Survey	☐ Test Pit Survey
☒ Open-Area Excavation	☒ Salvage Excavation	☐ Watching Brief

Monument Types/Significant Finds & Their Periods

List feature types using the NMR Monument Type Thesaurus and significant finds using the MDA Object type Thesaurus together with their respective periods. If no features/finds were found, please state "none".

Monument	Period	Object	Period
Cemetery	Post Medieval 1540 to 1901	HSR	Post Medieval 1540 to 1901
	None	Ceramic\Glass	Post Medieval 1540 to 1901
	None	Coffin Fittings	Post Medieval 1540 to 1901

Project Location

County	Cambridgeshire	Site Address (including postcode if possible)	
District	S Cambs	St Matthew's Primary School Norfolk Street Cambridge	
Parish	Cambridge		
HER	Cambridge		
Study Area	65m²	National Grid Reference	TL 45926 58418

Project Originators

Organisation	OA EAST
Project Brief Originator	Andy Thomas
Project Design Originator	Richard Mortimer
Project Manager	Richard Mortimer
Supervisor	Gareth Rees

Project Archives

Physical Archive	Digital Archive	Paper Archive
OA East	OA East	OA East
CAMSMS12	CAMSMS12	CAMSMS12

Archive Contents/Media

	Physical Contents	Digital Contents	Paper Contents
Animal Bones	☒	☐	☐
Ceramics	☒	☐	☐
Environmental	☒	☐	☐
Glass	☒	☐	☐
Human Bones	☒	☐	☐
Industrial	☐	☐	☐
Leather	☐	☐	☐
Metal	☒	☐	☐
Stratigraphic		☐	☐
Survey		☐	☐
Textiles	☐	☐	☐
Wood	☐	☐	☐
Worked Bone	☐	☐	☐
Worked Stone/Lithic	☐	☐	☐
None	☐	☐	☐
Other	☐	☐	☐

Digital Media	Paper Media
☒ Database	☐ Aerial Photos
☐ GIS	☒ Context Sheet
☐ Geophysics	☒ Correspondence
☒ Images	☐ Diary
☒ Illustrations	☒ Drawing
☐ Moving Image	☐ Manuscript
☒ Spreadsheets	☒ Map
☒ Survey	☐ Matrices
☒ Text	☐ Microfilm
☐ Virtual Reality	☐ Misc.
	☐ Research/Notes
	☒ Photos
	☒ Plans
	☒ Report
	☒ Sections
	☐ Survey

Notes:

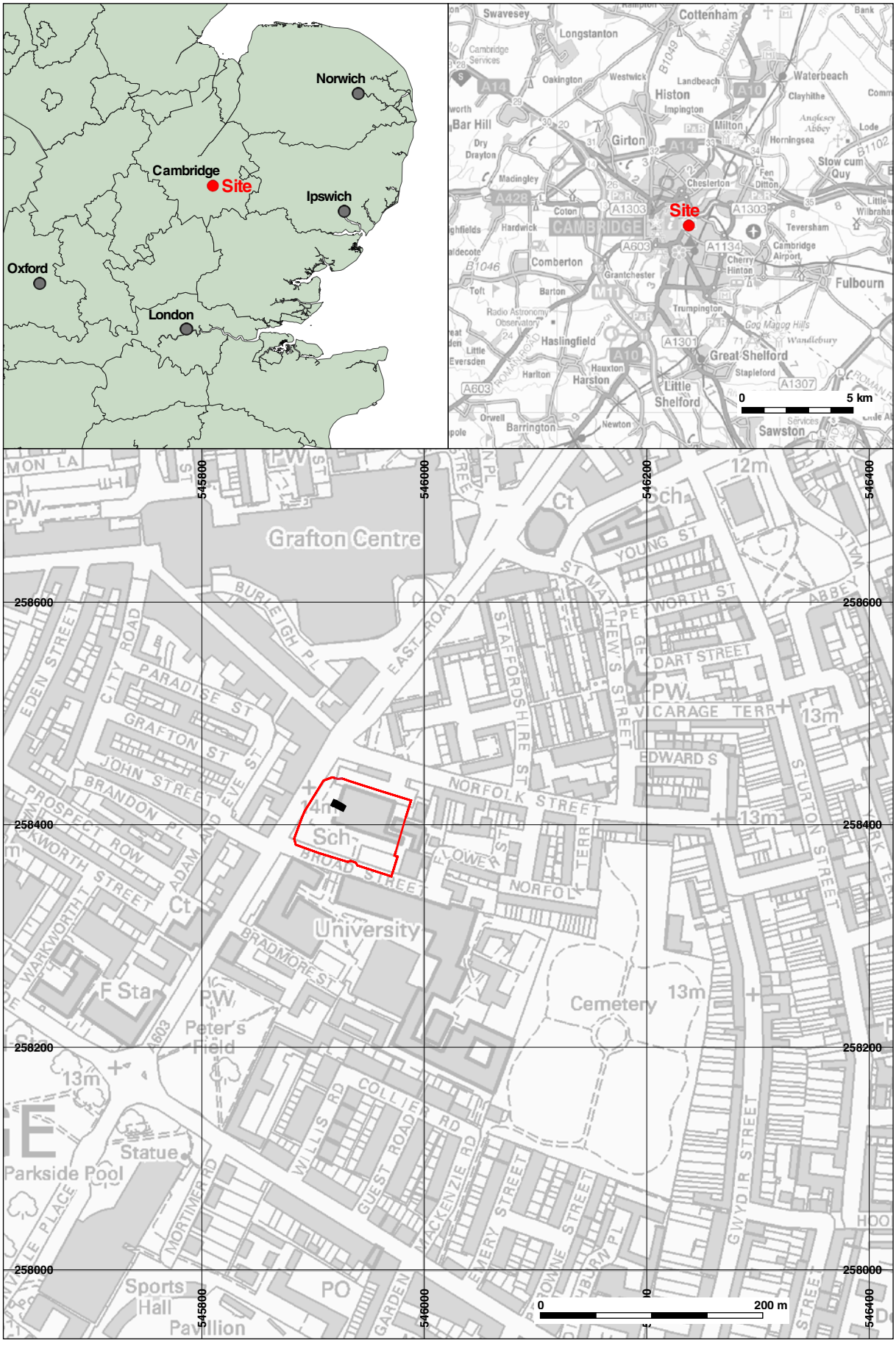


Figure 1: Site location map with excavation (black) and development area (outlined red)

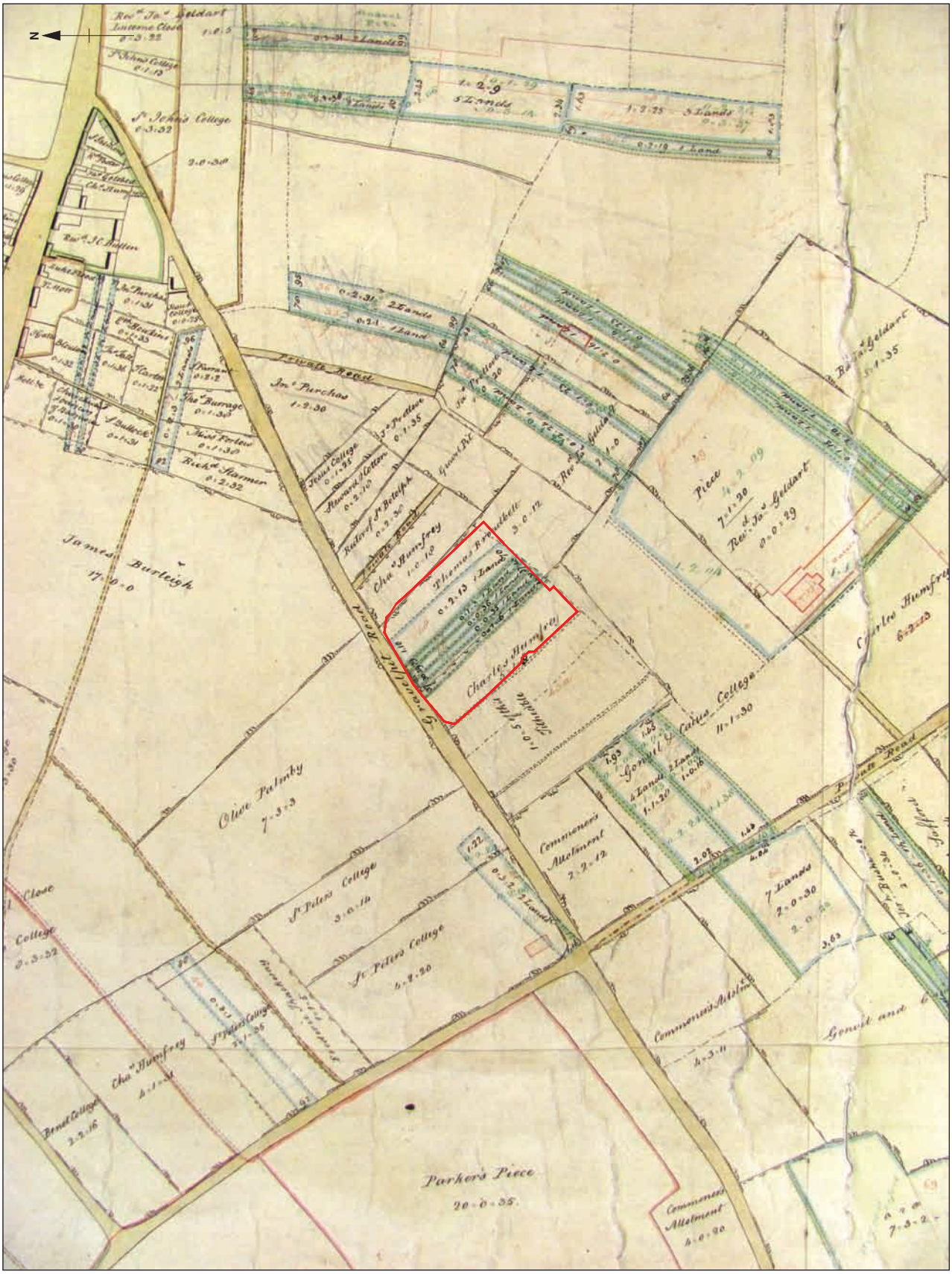


Figure 2: Inclosure map of the parish of St. Andrew the Less 1813 (CRO 107/P4) showing the approximate site location (outlined red)

Figure 3: Post-Inclosure map of the parish of St Andrew the Less 1832 (CRO 124/P34)

Figure 4: Map of Cambridge, Dewhurst and Nichols 1840 (CRO CUL)

Figure 5: Map of The Borough of Cambridge R.R. Rowe 1858 (CRO 4/19/1/6)

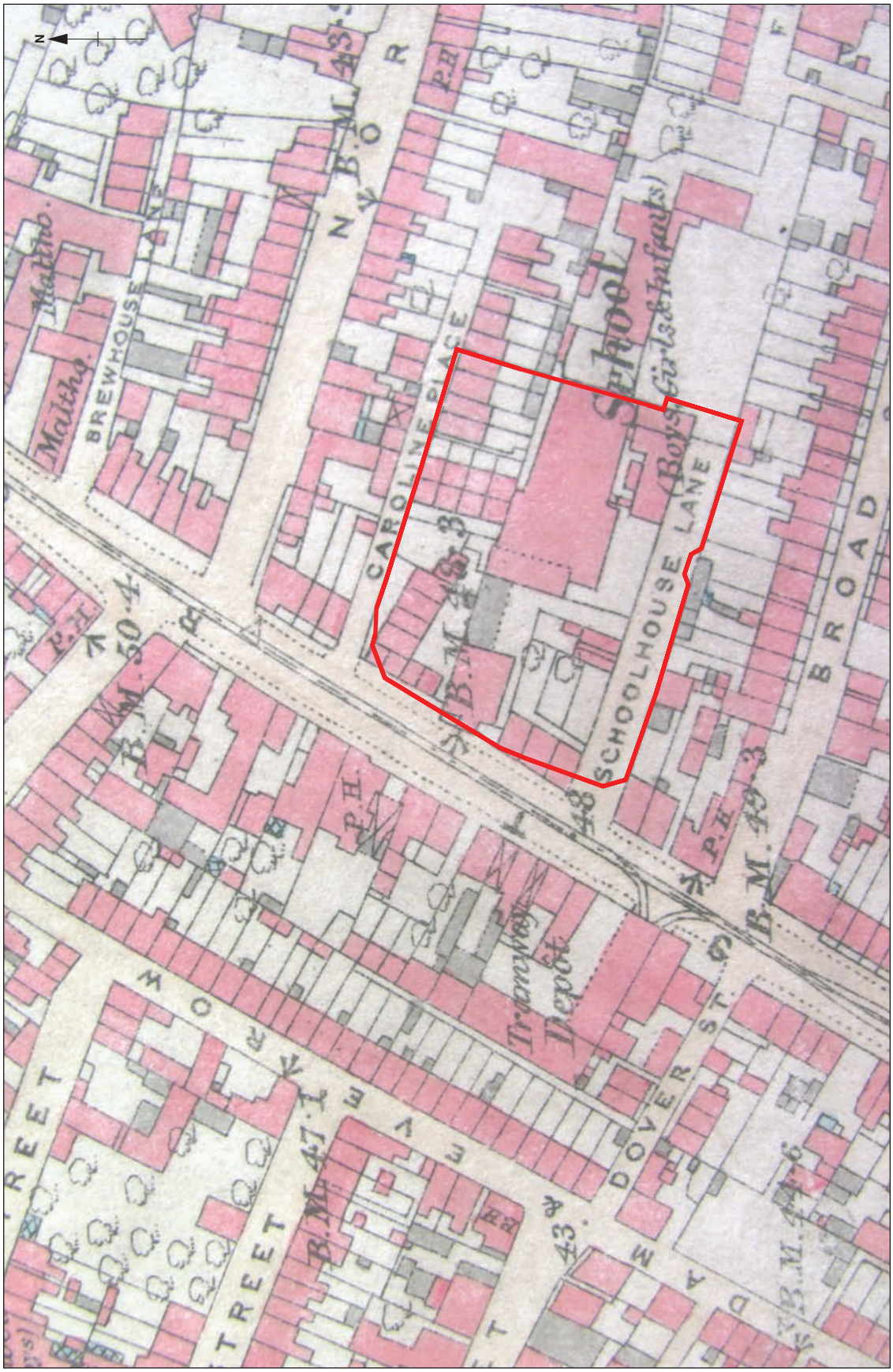


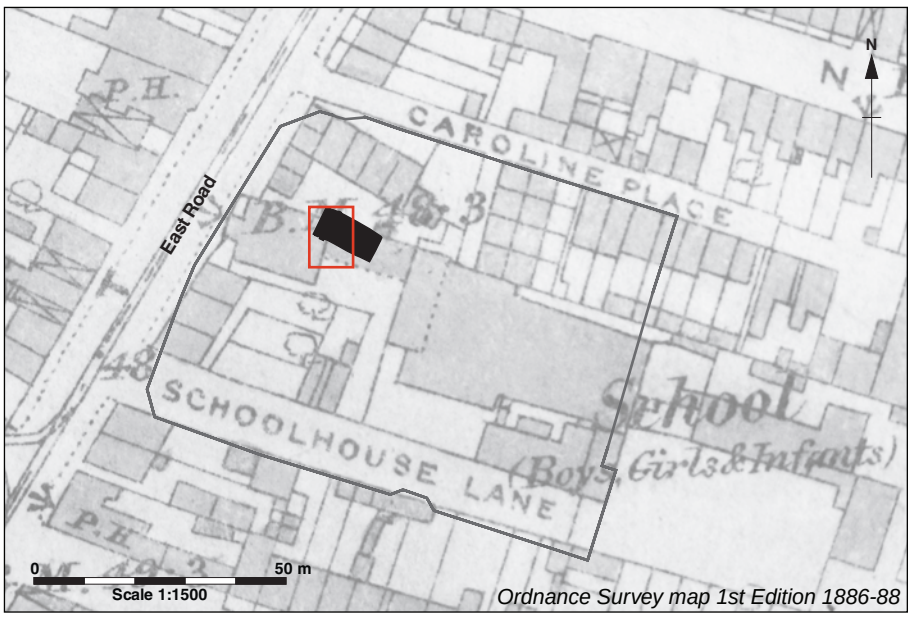
Figure 6: Ordnance Survey map 1st Edition 1886-88

Figure 7: Ordnance Survey map 2nd Edition 1901

Small find
Skeleton
Coffin fitting
Wood staining
Brick
Stone
Grave cut / conjectured
Archaeological feature (quarry)
123 Cut number
111 Section line and number
Break of slope
Limit of excavation

N

Grave 50
50
Grave 48
SK46
48
SF100 (coffin)
21
Grave 12
SK18, SK19, SK20
SK1 & SK2
unstratified burials
from this area
SF122
12
22
Grave 11
SK10
SF102
(pins)
23
SF123
(coffin plate)
SF101
(coffin)
Grave 44
SK43
SF140 (pins)
SF137
(handle)
SF138
(handle)
Grave 39
SK38
SF134
SF144
(pins)
SF133
11
SF139
(handle)
SF141 (pin)
SF131
SF132
44
39
33
SK35
Grave 8
SK5, SK6
SF110
SF115
SF116
SF120
SF121
SF111
(coffin plate)
SF119
30
S.1
SF109
SF112
SF118
SF108
SF114
8
Grave 26
SK28
SF117
SF105 (all nails)
SF107
SF128
SF135
SF129
26
Grave 17
SK16
SF126 (pins)
SF125
17
0 1 m
Scale 1:30



Ordnance Survey map 1st Edition 1886-88

Figure 8: Plan of cemetery

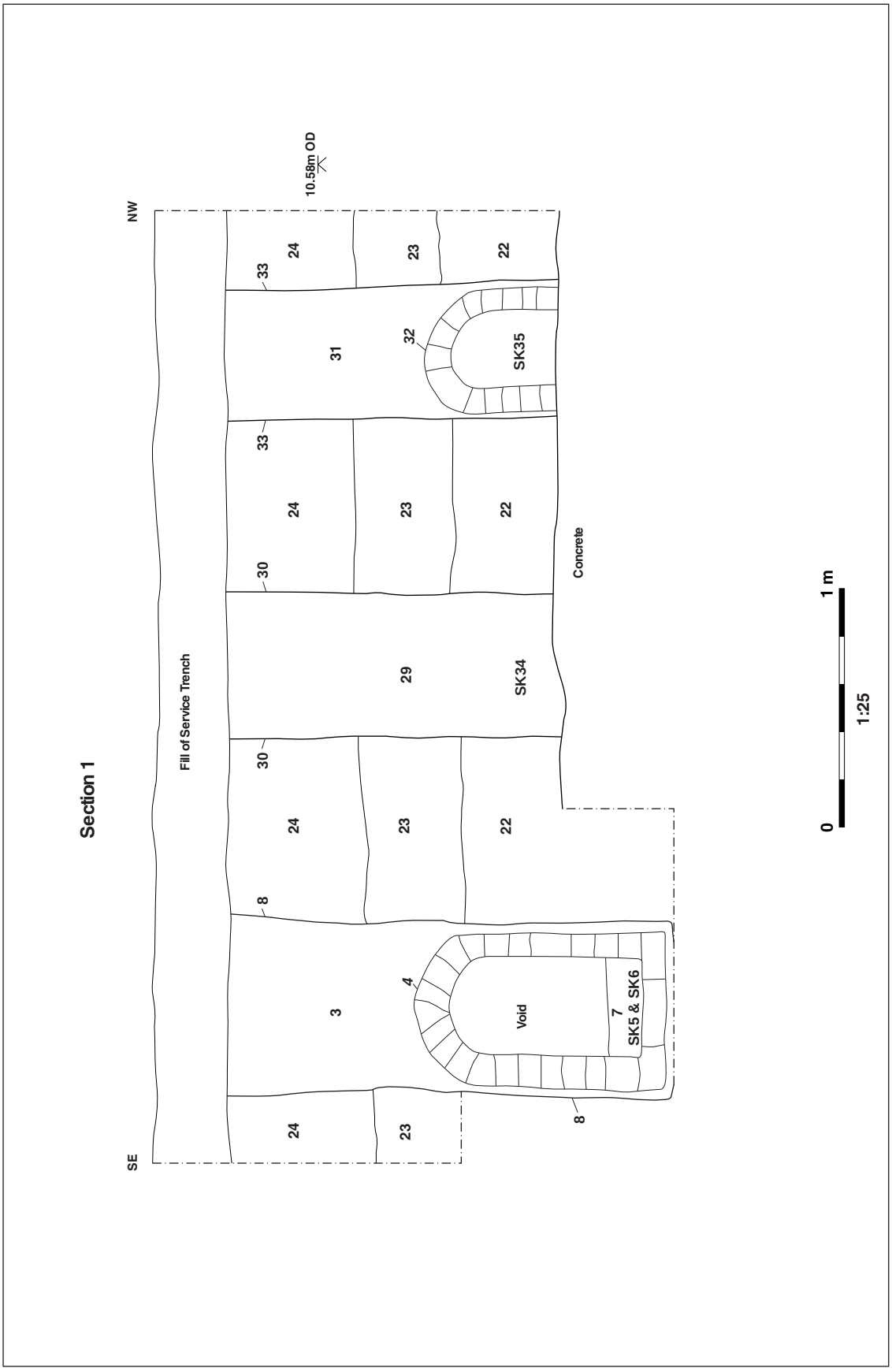


Figure 9: Section 1: Graves 8, 30 and 33

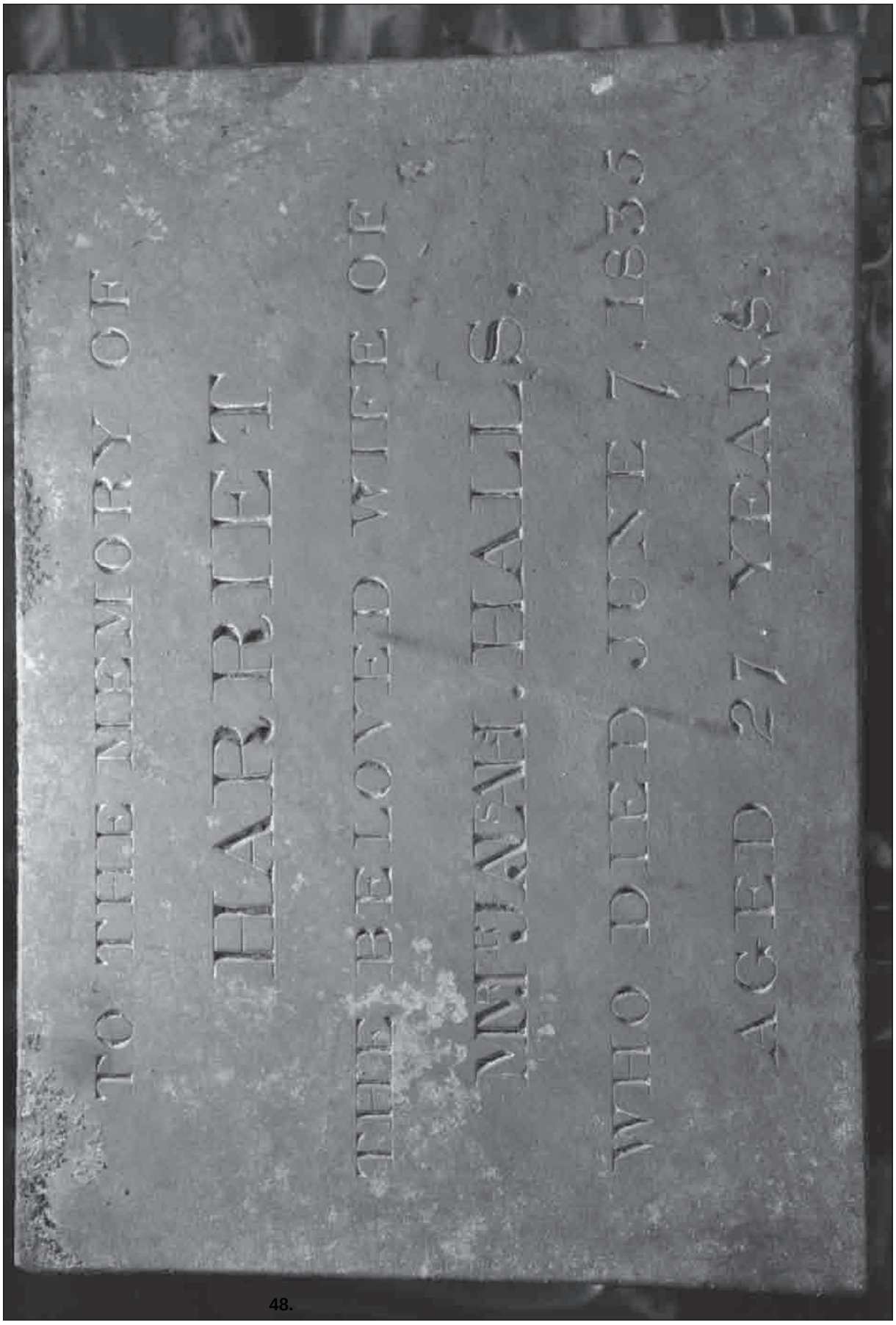


Figure 10: Headstone from Grave

Plate 1: Site situation

Plate 2: Cemetery prior to excavation, facing north-west

Plate 3: Quarry pit 21 cutting natural gravels, facing north-west

Plates 4a: Grave 8, brick tomb 4 pre-excavation, facing south-west

Plates 4b: Grave 8, brick tomb 4 post-excavation, facing south-west

Plate 5: Grave 8, skeletons 5 and 6

Plate 6: Grave 11, skeleton 10

Plate 7: Grave 12, skeletons 18, 19 and 20

Plate 8: Grave 48, left foot of skeleton 46 facing south-east

Plate 9: Grave 26, skeleton 28

Plate 10: Grave 44, skeleton 43

Plate 11: Grave 17, skeleton 16

Plate 12: Grave 39, skeleton 38

Plate 13: Graves 8, 30 and 33, facing south-west

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