NEW LIGHT ON LEICESTER'S SOUTHERN ROMAN CEMETERY: RECENT EXCAVATIONS AT THE JUNCTION OF OXFORD STREET AND NEWARKE STREET

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incorporating specialist information provided by:
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Excavations at the junction of Oxford Street and Newarke Street revealed a well-preserved sequence of archaeology reflecting prehistoric, Roman and medieval occupation. Prehistoric evidence consisted of a scatter of struck flints and a pit containing Neolithic pottery. Early Roman evidence included a pit and post-holes, in association with a complex of boundary gullies dated to the later first–early second century. During the second–third century a large boundary ditch may have delimited the back edge of plots adjacent to the Tripontium Road, which led to the South Gate of the walled town. Three contemporary burials were associated with the boundary. By the fourth century, an area of the site formed part of the southern cemetery of the Roman town, and burials were found on either side of the earlier boundary; 17 burials were revealed, many of which were arranged in well-ordered rows similar to other burials from nearby excavations, interpreted as being buried in a Christian tradition. In other respects the burials from this site were different. Many contained grave goods, while others faced west, were decapitated or were buried in a prone position – strongly suggestive of a more pagan tradition of burial. Eight of the burials were radiocarbon dated and these results have been combined with artefactual information to refine the chronology of the cemetery. Medieval activity was reflected by a spread of large refuse and cess pits, and a malting kiln. During the seventeenth/eighteenth century the area was occupied by the town's Civil War defensive earthworks, and a massive ditch running along Newarke Street was revealed. Following the disuse and infilling of this ditch a building was constructed alongside Newarke Street, relating to the early reoccupation of the south suburb following the Civil War.

INTRODUCTION

The area around Newarke Street has long been known as the location of a large Roman cemetery. Frequent discoveries of Roman burials in the eighteenth and nineteenth centuries led to early suggestions that it was the location of a southern extra-mural cemetery to the walled town (Anon. 1877, 248; Dare 1927, 50–6). The burials known to Dare in 1927 included both cremations and inhumations, some of the latter in lead coffins (Anon. 1877), and their spatial patterning enabled him to suggest that the cemetery lay between Millstone Lane to the north, Pocklington's Walk to the east, Newarke Street to the south and Oxford Street/Southgate Street to the west (*ibid* 34).

Following on from these early observations, redevelopment of two areas on either side of Newarke Street led to the first modern archaeological excavations within the cemetery area that Dare had identified (Cooper 1996; Derrick 2009). The results of both projects were very similar; each showed evidence of early domestic

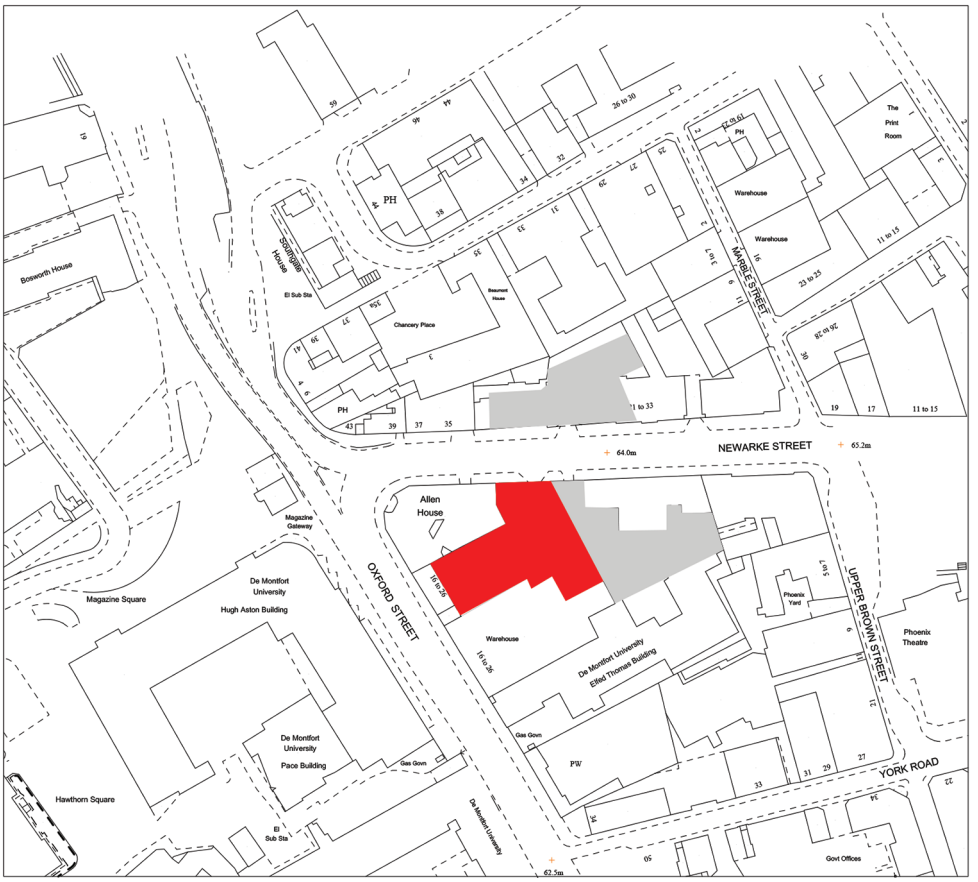

Fig. 1. Location of the site (in red) showing adjacent excavations (Elfed Thomas on the southern side of Newarke Street and 21–33 Newarke Street to the north).

activity dating to the late first–early second centuries – which was later replaced by a formal cemetery, possibly during the third or fourth centuries. The two excavations contained a total of 68 burials, the recording of which resulted in the first detailed examination of coherent areas within the cemetery, enabling a better understanding of its population and character.

The excavations showed that the cemetery was well-organised into regular rows of graves, with very little evidence for intercutting. Inhumations from the two excavations had remarkably similar characteristics, exhibiting a uniform trend of orientation and other traits indicative of a shared burial rite. With two exceptions, all of the burials lay on a west–east orientation, with the bodies laid on their backs (supine) and the head at the western end. There was evidence that many of the individuals were laid to rest in nailed wooden coffins, with some having additional stone linings that perhaps served to mark the grave and prevent later disturbance. There was also a distinct lack of any accompanying grave goods, a factor which,

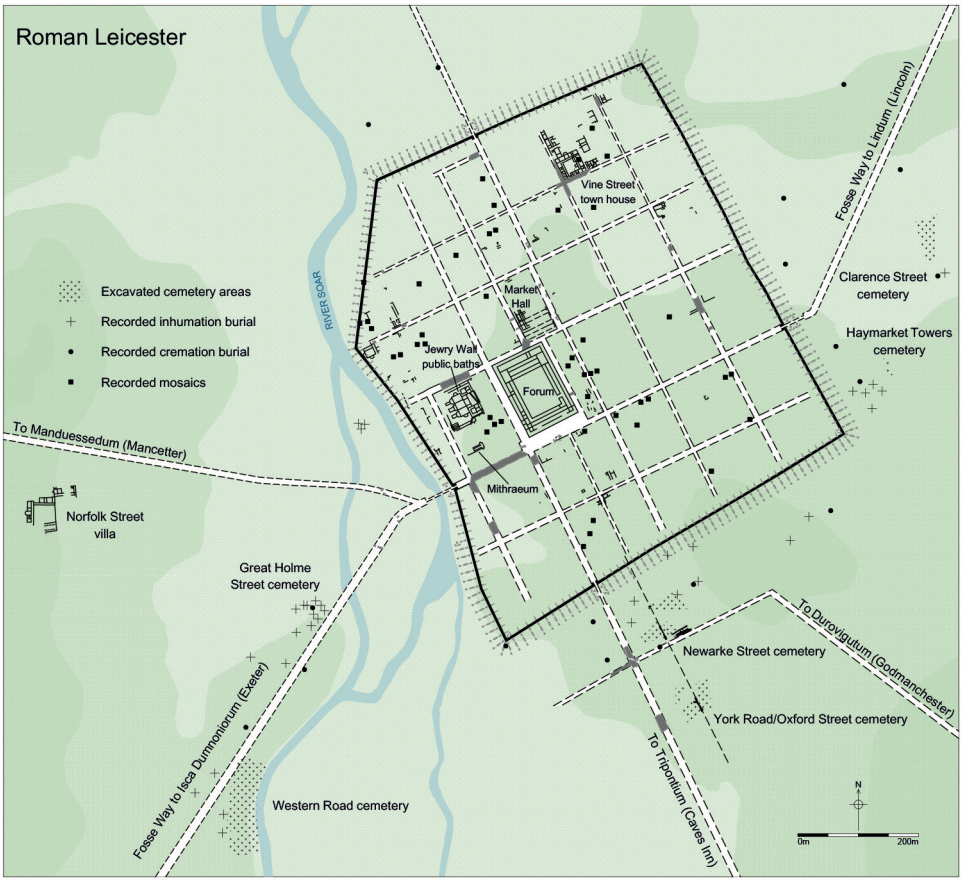

Fig. 2. The excavation in relation to current understanding of the layout of Roman Leicester (marked Newarke Street cemetery).

Fig. 3. Plan of the main excavation areas.

together with the predominating orientation of the graves, led the excavators to suggest that the burials most likely followed a Christian tradition (Cooper 1996, 27; Derrick 2009, 97).

The focus of this report is a newly excavated area at the junction of Oxford Street and Newarke Street, to the rear of 28 Newarke Street and Allen House (SK 585 040) (Fig. 1). The work was undertaken by ULAS in response to redevelopment proposals for student accommodation and took place over two phases in 2013 and 2015 (Thomas 2014, 2016). The site is located within the southern suburbs of the Roman walled town, lying approximately 150m south of the town wall and SSE of the South Gate (Fig. 2). It was also adjacent to both previous sites, raising the potential for further important discoveries, particularly in respect of the Roman cemetery. Indeed, remains of five Roman burials were recorded during the construction of Allen House in 1926 (Dare 1927, 53–4 and Plate 2), and a further burial was discovered against the eastern edge of the area during trial trench evaluation in 2007 (Parker and Jarvis 2007).

The development area measured approximately 0.27 hectares and occupied fairly flat ground at a height of around 64m OD. The extant buildings on the site were almost all cellared, reaching depths of up to 2m, resulting in the removal of any archaeological remains in these parts of the site. The excavations concentrated on four areas: Trenches 1–4 measuring 243m^2, 71m^2, 158m^2 and 200m^2 respectively, that were going to be directly affected by the development proposals (Fig. 3).

THE ARCHAEOLOGICAL SEQUENCE

The excavations produced evidence of a long history of human activity, predominantly of Roman, medieval and post-medieval date, but with some prehistoric evidence. The complexity of the site's archaeology varied between the four excavation areas, but in general the remains encountered consisted of deep, multi-layered deposits, resulting from the long-term occupation of the site. The archaeological evidence collected during the excavation provided detailed information about the activities associated with the site during the different periods.

Prehistoric activity

The earliest evidence for activity comprised a small scatter of six worked flints, with characteristics of Neolithic or Bronze Age date. All were found residually in later features across the four areas, but had a slight bias in location towards Trench 3, where half the assemblage was recovered. Also within Trench 3 was a shallow pit containing Neolithic pottery, its presence providing slightly more context to the scatter of similarly dated flints.

On the basis of such scant evidence, little more can be said about the assemblage, but the finds complement similar discoveries from nearby excavations that, together, indicate a wider spread of prehistoric activity in the general area. A thin scatter of flint tools and working waste was retrieved during excavations to the east (Cooper 1996, 5), and during excavations in advance of the PACE and Hugh Aston buildings for De Montfort University to the west (Morris 2010, 110). Slightly further afield, evidence for local Neolithic activity includes a stone axe and flint scatter recovered during the Bonners Lane excavations (Finn 2004), a flint scatter from Mill Lane (Finn 2002a, 2002b), Neolithic flints, including an arrowhead from Grange Lane (Thomas 2010), and a sherd of Peterborough ware pottery from Oxford Street (Higgins 2000) – all to the south-west of the present site.

Roman activity

Roman remains related principally to boundary and burial features, probably reflecting three broad phases of activity between the later first century and the fourth/fifth century.

Late first–mid-second century

Early Roman activity was characterised by a thin spread of features located in Trenches 3 and 4. Stratigraphically these were the earliest Roman remains revealed during the excavations, and were associated with pottery dating to the late first–mid-second century (Fig. 4). All of the remains from this phase had been truncated by later features, but the overall sparsity of the evidence suggested fairly low level occupation at this time.

A series of linear boundary gullies in Trenches 3 and 4 formed the bulk of the early Roman evidence. These were fairly shallow and had been truncated by later activity, but had clearly been laid out following NNW–SSE and ENE–WSW alignments, possibly relating to a gridded pattern of land allotment. Some of the

Fig. 4. Detail of the early Roman boundaries and associated burials (later intrusions indicated in white).

boundaries lay very close together, although later truncation had removed any evidence for inter-relationships. This clustering of boundaries in a restricted area does, however, suggest that they were the end result of several different phases of renewal, and also illustrates the long-term persistence of their boundary line.

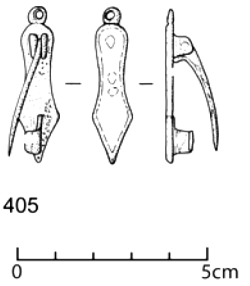

Fig. 5. The sandal-shaped plate brooch.

A slightly curving ditch at the northern end of Trench 3, closer to Newarke Street, may have related to a separate enclosure, but based on such sparse evidence interpretation is difficult. Slightly south of this, a large pit containing organic, cess-like deposits and a cluster of post-holes was indicative of domestic and structural activity within the gridded plots. A small assemblage of finds associated with these features consisted of grey, white, Samian and Black Burnished ware pottery in a range of forms, including jars, beakers/flagons and bowls, a quern fragment, animal bone, and occasional tile/brick fragments. One of the boundary features on the eastern edge of Trench 4 also produced a well-preserved second-century plate brooch in the shape of a sandal (Fig. 5).

Discussion

The nature of the early Roman remains provides complementary evidence to that gathered from the other nearby excavations, which offered a similar picture of early land allotment associated with small-scale domestic activity (Fig. 6). At the Elfed Thomas site to the east, a recut ditched boundary on an ENE–WSW alignment appeared to form the southern limit to an area containing limited evidence for domestic activity consisting of structural remains and pits, including a well-preserved cess pit. The spatial organisation of these remains suggested that they lay within a 'backyard' location behind properties existing further to the north (Cooper 1996, 8–9).

Similar evidence was revealed during excavations on the opposite side of Newarke Street (Derrick 2009, 67). Here, domestic activity was characterised by remains of cobbled surfaces, make-up layers and pits, one containing charred plant remains and animal bones, situated within a network of gullies/ditches. These boundaries also lay on an ENE–WSW orientation, illustrating continuity of alignment with the apparent plot layout to the south. All of these boundaries are parallel to the *Tripontium* road as it enters the town, and it seems likely that they represent a series of domestic/agricultural plots laid out alongside it.

A series of ditches also defined plots or paddocks on the western side of the road (Morris 2010, 110). Here, a generally dispersed landscape was characterised by a lack of domestic activity or associated material culture, perhaps suggesting an agricultural focus. In general, the evidence for early Roman activity in this part of the town's south suburb suggests a formative episode of 'ribbon' development characterised by the laying out of boundaries defining rectilinear plots, within which

Fig. 6. The early Roman boundaries shown in relation to other known contemporary features and nearby roads.

agricultural and domestic activities were carried out (Cooper and Buckley 2004, 56–7). The focus of domestic activity at this time was most likely located adjacent to the road frontage, and beyond the limits of the excavated areas to date.

The existence of the *Tripontium* road was originally postulated in the 1950s (Margary 1957, no. 572), and its position and alignment were confirmed by excavations at Bonners Lane in 1993–94, where the roadway was characterised by a *c.*11.5m–16.6m wide-metalled surface bordered by roadside ditches (Finn 2004). Since then, further sections of the road have been revealed to the south, at Grange Lane (Higgins 2010; Thomas 2010; Baker 2016), and closer to the town's south gate, beneath Oxford Street (Morris 2010). The collective evidence from these excavations suggests that the thoroughfare was formalised during the late first–early second century, corresponding with the evidence for broadly contemporary roadside activity defined by plot boundaries on the same alignment.

The orientation of the *Tripontium* road appears to have had a strong influence on the development of the early suburban topography in this area (see Fig. 6). Organisation of space would have been augmented by a contemporary secondary road that was perpendicular to the main street, and would have bordered the

southern edge of the plots to either side. Evidence for this was identified during excavations to the west, where linear metalled surfaces and roadside ditches were recorded to the east and west of the main thoroughfare (Morris 2010, 35–6). The projected alignment of this road would have run just to the south of the present site, but it may have been represented at the Elfed Thomas site to the east. Here, a negative linear feature may have been the remains of a road from which the gravels had been removed (Cooper 1996, 9). The suggested line of the secondary road was bounded to the north by the long-lived ENE–WSW boundary system, which may have partly functioned as a roadside drainage ditch.

Mid-second–third century

During the second century, a substantial V-shaped ditch, running along the eastern side of the excavations, formed a significant boundary arranged on a NNW–SSE alignment (Fig. 7; and see Fig. 4). This large ditch had been recut at least once during its lifetime and evidently had a long history of use, indicating that it held an important position in the landscape of the south suburb. Dating from associated pottery and coin evidence shows that the boundary originated from at least the second century, and was maintained over a prolonged period before eventually going out of use by the later third or early fourth century.

A large ditch with similar characteristics and orientation has been revealed at other excavations in the south suburb, enabling the boundary line to be projected for at least *c.*200m, and indicating the presence of a significant second/third century land division running parallel with the *Tripontium* road (Fig. 8). Where it has been observed, the boundary is consistently set back from the roadside at a distance of *c.*60m, and it probably marked the eastward limit of plots situated adjacent to the road.

To the north a short section of this boundary was revealed during excavations at 21–33 Newarke Street, where it was seen as part of a reorganisation of the site during the mid to late second century (Derrick 2009, 70). A longer section of the boundary was observed approximately 80m south of the present site during excavations at York Road and Oxford Street (Gossip 1998, 1999a, 1999b). This ditch had a similar profile and contained a pottery assemblage dating between the first–third centuries, as well as a fourth-century coin from the final layer of silting. Recent excavations on Southgates have revealed a previously unknown Roman road that corresponds with the position and alignment of the boundary (Morris and Thomas 2016), and suggests that the two may once have been part of a planned townscape before the defences were introduced.

The importance of the boundary in the local topography

Once established, the boundary ditch appears to have formed an important feature in the landscape of the southern suburb. Originally, it probably defined the eastern limits of domestic and agricultural plots, sub-divided by the smaller gullies that projected away from the *Tripontium* road, but it clearly outlived them. The evidence suggests that these gullies were going out of use by the end of the second century, perhaps in response to a general depopulation of the area once the edges of the town were more clearly defined, encouraging outlying households to move within the new defences (Finn 1993, 94; Cooper and Buckley 2004, 57; Derrick 2009, 96).

Fig. 7. The second/third-century boundary ditch facing north (the ditch was also excavated beneath the central building in the background during the 21–33 Newarke Street project).

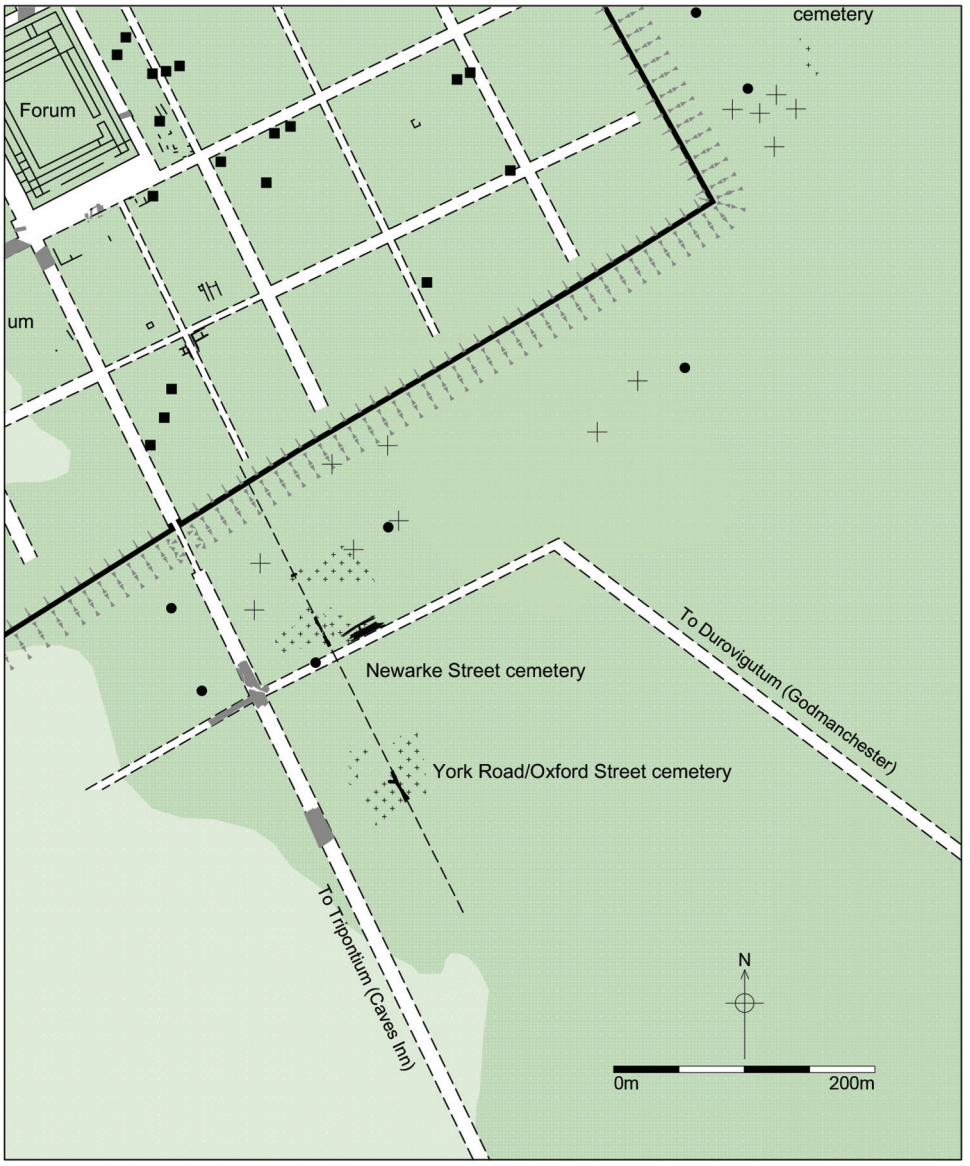

Fig. 8. Plan of the currently understood layout of the south suburb, showing the excavated areas of the boundary and its projected line.

The more prominent boundaries in the south suburb, including the one under discussion here, were maintained into the third and fourth centuries, when areas of the extramural landscape became the location for large organised cemeteries (Cooper and Buckley 2004, 57; Bidwell 2015, 118). Within the excavation area and the excavation to the north (Derrick 2009), the large boundary ditch developed a dual role: marking the back of plots projecting from the *Tripontium* road; and defining

the western edge of the organised cemetery. Its influence over the organisation and development of the cemetery can be seen in the dominant WSW–ENE alignment of the burials, which all lie perpendicular to the ditch.

Development of the cemetery

A sequence of burials developed adjacent to the boundary ditch. The earliest of these lay parallel to the ditch and were probably located at the back of household plots. Burials continued following the complete infilling of the ditch and appear to be part of a wider formal cemetery area associated with similar discoveries during nearby excavations. Samples of bone from eight of the 17 excavated burials were submitted for radiocarbon dating. The combination of the radiocarbon determinations, along with stratigraphic and artefactual evidence, has enabled the modelling of the cemetery's chronology, and the results of this are included in the descriptions that follow (see Radiocarbon Dating below).

Burials associated with the boundary

Lying adjacent to the western edge of the ditch in Trench 2 were two inhumation burials on the same alignment. One contained a complete adult female aged 26–35 years (SK 09), while the second contained disarticulated remains of a child aged one to three years (SK 07).

Burial SK 09

The adult SK 09 was radiocarbon dated to *cal AD 70–330* (95 per cent probability, 1906 ± 25 BP, SUERC-66166) (Fig. 9). Iron nails arranged around the rectangular grave cut indicated that she had been buried in a coffin with the head at the NNW end. A small collection of first–second-century pottery in the grave fill may have been incorporated by chance; however, several other artefacts accompanying the body may be interpreted as intentional grave goods. A concentration of hobnails across her ankles/feet indicate that shoes had been placed (not worn) at the foot of the grave, while two bone hair pins found beneath the head may have secured a bun hairstyle. The more diagnostic of the two hairpins (**Sf22**) was probably made in the period AD 70–100. Modelling of the dates suggest the burial was from *cal AD 135–325* (95 per cent probability) and probably *cal AD 195–315* (68 per cent probability). If the Bayesian modelling of the cemetery's chronology is correct, the hairpin was at least 95 years old when buried. Alternatively, the dating of the hair pin and the pottery assemblage could be interpreted as supporting a burial date in the late first or early second century, suggesting that SK 09 had been buried alongside the ditch whilst it was still in use.

Burial SK 07

The second burial contained the incomplete remains of a child, suggesting a disturbed burial that had also been aligned with the edge of the boundary ditch. The child's skull was associated with iron nails at the SSE end of the burial, while further fragmentary and disarticulated remains were found in other areas of the grave. The close clustering of the nails around the skull originally gave rise to the idea that a detached head had been buried in its own box; however, the discovery of the loose bones suggests that a more likely interpretation is that the grave had suffered some

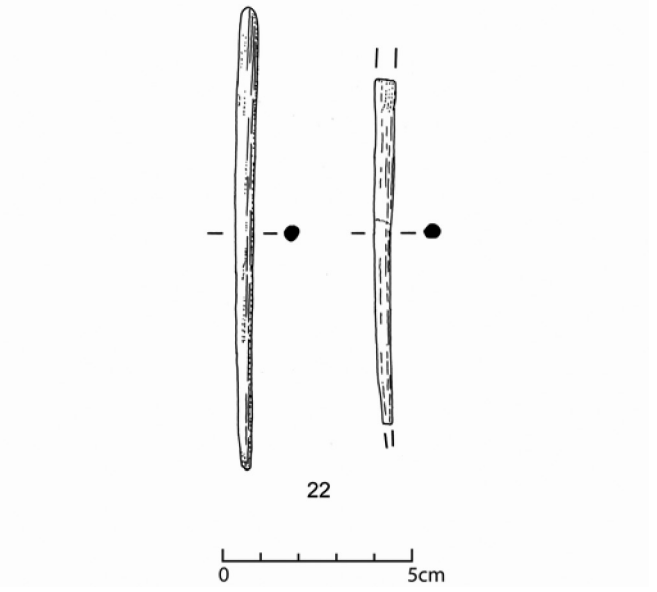

Fig. 9. Burial SK 09 and associated bone hair pins.

disturbance at a later stage. A small assemblage of second–third-century pottery was found in the grave fill, contemporary with the use of the boundary ditch.

Burials SK 15a and SK 15b

The remains of two individuals, SK 15a and 15b (a female and male respectively), had been buried in the top of the boundary ditch after it had been infilled, a short distance to the north of the earlier burials. The remains of a female aged 36–45 years were buried prone (face down) in the top of the backfilled boundary ditch on approximately the same alignment, with her head to the SSE. SK 15a was radiocarbon dated to *cal AD 170–390* (95 per cent probability, 1758 ± 30 BP, SUERC-66171). Finds evidence, excavated from the infilling of the boundary ditch cut by the burial, included three third-century (**Sf25**, **27** and **404**) and one fourth-century coins (**Sf23**, AD 330–335), which can be considered as a *terminus post quem* for the burial. The slightly later date for this burial shows that the attraction of the boundary as a locale for burial had not diminished, even though it was going out of use.

The fragmentary remains of a young man, SK 15b, were also found aged 18+ years, whose bones were mixed in with those of the other burial. Both had been disturbed by later activity and any associated grave cut was difficult to distinguish from the ditch soils. It was therefore unclear if this was originally a double burial, or one that had been recut resulting in the re-deposition of charnel.

All three burials appear to represent pagan tradition due to their orientation and the presence of grave goods, and these characteristics contrast sharply with the burial evidence recovered from Roman cemetery excavations at the Elfed Thomas site (Cooper 1996) and at 21–33 Newarke Street (Derrick 2009), where the evidence overwhelmingly supported a Christian burial tradition with E–W orientated, supine inhumations containing no grave goods.

Similarities may be found, however, at the York Road and Oxford Street excavations to the south, where a number of burials were located to the west of the boundary feature and within its upper fills (Gossip 1998, 1999a, 1999b). These burials did not appear to have been formally organised and lay on a variety of alignments, some in respect of the boundary and others lying at right angles, a short distance from it. Grave goods were also present in these graves, in the form of pottery vessels and hobnailed footwear laid near the feet. Another human-sized grave, cut into the top of a second/third-century ditch, contained only the remains of a dog, which may have been sacrificed prior to burial, hinting at Pagan traditions (Gossip 1998, 159).

To the north of the present site, one burial (SK 17), at 21–33 Newarke Street, was also buried adjacent to the eastern edge of the boundary ditch on a similar alignment (Derrick 2009, 97), and was also truncated by a later, west–east grave.

The graves associated with the large boundary ditch appear to belong to a tradition of peripheral burials located at the rear of domestic plots, often associated with the edges of settlement, and sometimes referred to as ‘backyard’ (Watts 1991, 44), ‘boundary’, ‘backland’ or ‘backplot’ burials (Esmonde Cleary 2001, 129). A similar burial was found on the line of a boundary at Mill Lane on the western side of the *Tripontium* road (Finn 2002a, 2002b). Disarticulated human remains from ditches at Bonners Lane, and from the backfill of a Roman well at 55 Grange

Lane, may be further examples of such approaches (Finn 2004; Baker 2016). Burials associated with boundary ditches have also been discovered on the eastern side of the walled town at Haymarket Towers (Higgins and Cooper 1997; Cooper 1998), and to the west during excavations at the Austin Friars (Mellor and Pearce 1976, 57). This tradition is commonly associated with burial at rural settlements (Pearce 1999, 153–5), but has also been recorded in suburban contexts such as the Roman small town at Ashton, Northamptonshire (Smith 1987, 115–19; Casa Hatton 1999; Taylor 2002). The burial of SK 15 in the top of the infilled ditch indicates that the 'boundary burial' tradition persisted even after the ditch had gone out of use.

Modelling of the radiocarbon dates, including the latest coin as a *terminus post quem* to Burial SK 15, does not show good agreement (Amodel:27), whereas a model excluding **Sf23** and including **Sf27** as a *terminus post quem* to burial SK 15 shows good agreement (Amodel:62), with posterior density estimates for the burial between *cal AD 265–330* (95 per cent probability) and probably *cal AD 270–310* (68 per cent probability), and it is likely that the fourth-century coin is intrusive.

THIRD–FOURTH CENTURY

Activity during the third–fourth century was characterised by two distinct zones of burial evidence to the west and east of the boundary ditch. Contrasting evidence for burial traditions was apparent on either side of the boundary, indicating that the ditch marked a significant division between cemeteries with differing attitudes towards disposal of the dead. Dating associated with these burials indicates broadly contemporary activity on both sides of the boundary, and shows that interments were still being made after the ditch had become infilled. This suggests either the persistence of the boundary line in local memory, or that it was defined in another, less archaeologically visible way such as a hedge.

Burials on the eastern side of the boundary

Remains of six burials were revealed on the very eastern edge of Trench 4 (Fig. 10). The graves were arranged into a single row aligned NNW–SSE, and were characterised by a shared tradition of extended, WSW–ENE orientated, supine burials and a lack of grave goods. All had suffered truncation from Victorian building foundations and drainage, and were generally in a poor and incomplete condition.

Burial SK 18

The northernmost grave contained the partial remains of an adult female aged 18+ years (Fig. 11). Several nails found within the grave fill indicated that the individual had been buried in a wooden coffin. Radiocarbon dating of this skeleton produced a date of *cal AD 130–330* (95 per cent probability, 1791 ± 26 BP, SUERC-66172); while the modelled *posterior density estimate* indicate the burial to date from between *cal AD 290–385* (95 per cent probability) and probably *cal AD 300–335* (68 per cent probability).

Disturbed grave

Approximately 1m to the south was a similar grave, containing only poorly preserved and fragmentary bones. It is unclear if this grave was disturbed in antiquity, as analysis of the bones has shown that they consist of mixed adult and juvenile bones as well as

Fig. 10. Detail of the burials on either side of the boundary ditch.

animal bone fragments. The grave fill contained a single iron nail, possibly indicative of the former presence of a coffin, while at the western end two large stones lay on the edge of the grave cut, close to the skull remains, perhaps once forming a partial stone lining.

Burial SK 16

A third burial lay a short distance to the south, but this was badly truncated to the point where no grave cut could be discerned. This grave contained the burial of a child aged between two and four years (Fig. 12). Due to the truncation of this grave

Fig. 11. Burial SK 18 under excavation.

Fig. 12. Burial SK 16 facing south.

Fig. 13. Burial SK 14 during excavation.

and the age of the individual, evidence for this burial was very fragmentary, with only the lower torso and upper leg areas represented.

Burial SK 14

To the south of SK 16 a fourth burial was also truncated, and lay at the junction of two modern walls (Fig. 13). Remarkably, despite this disturbance, SK 14 was one of the better-surviving individuals from the eastern group. The skeleton, comprising the remains of a male aged 46+ years, was virtually complete. Radiocarbon dating produced a date of *cal AD 370–580* (95 per cent probability, 1747 ± 30, SUERC-66176), while the modelled *posterior density estimate* for this burial is *cal AD 330–480* (95 per cent probability), and probably *cal AD 350–435* (68 per cent probability), suggesting that SK14 is one of the later burials from the excavations.

Burial SK 17

A fifth burial, approximately 2.7m to the south, consisted of very disturbed human remains in a poorly defined grave. The skeleton could be aged in the region of 18+ years, but disturbance made it difficult to assign gender to the individual. The surviving evidence indicated that the body had been buried facing ENE in a supine position, with the legs extended and arms across the pelvis. No nails or other associated finds were recovered from the grave.

A poorly preserved burial was also revealed during the evaluation phase of the project (Parker and Jarvis 2007, 10), which represented the most southerly of the

graves associated with this row. The burial was not excavated, but the information recovered showed that it lay on a WSW–ENE alignment in an extended supine position, sharing characteristics with the others in the row.

Burials on the western side of the boundary

Remains of 11 graves were revealed in Trench 3, to the west of the boundary ditch. The majority of these graves were laid out in two ordered rows on an ENE–WSW alignment, showing similarities of orientation with the burials on the eastern side of the boundary, and those recorded on previous nearby excavations (Cooper 1996; Derrick 2009). Other characteristics of these burials, however, were very distinctive, contrasting sharply with those to the east of the boundary, and highlighting potential differences in burial practice and attitudes or beliefs.

The graves were effectively divided into three groups as a result of their original organisation, and disturbance from later activity. Three burials were located in the northern half of Trench 3, one of which was severely truncated, leaving only partial skull fragments (SK 03), while the others (SK 04 and SK 05) were more complete.

Burial SK 04

SK 04 was a female aged between 26 and 45 years, who had been buried in an extended supine position within a rectangular grave on a WSW–ENE orientation (Fig. 14). On her left hand were two rings (one made of jet – **Sf11**; and one of iron – **Sf14**) and beneath her head was a composite bone comb held together with iron rivets (**Sf13**). The jet ring is noteworthy for the enigmatic design on its bezel. It resembles the Christian symbol *iota chi*, formed by superimposing an 'I' over an 'X' which represent the Greek initials Iota and Chi, of *Iesous Christos* (Petts 2003, 105). There are a number of examples of Christian symbols, including *iota chi*, *chi rho* and the *rho* cross occurring on finger rings and other artefacts; however, the additional cross-hatching in the opposing segments of the motif on this ring might argue for it simply being an attractive design.

A loose arrangement of nails around the head suggested the individual had been buried in a wooden coffin. The western end of the grave closest to the head was intermittently 'lined' (particularly noticeable on the southern side of the grave) with upright granite blocks, perhaps to stabilise the coffin or act as a marker. Included within these stones was a broken fragment of rotary quernstone (**Sf12**), which may have been incorporated into the grave deliberately, or perhaps represented recycling of a convenient piece of flat stone. A radiocarbon date of *cal AD 260–540* (95 per cent probability, 1719 ± 28 BP, SUERC-66167) was obtained for this burial. With the jet ring (AD 250–400) and the hair comb (AD 300–400) included as *termini post quos*, the *posterior density estimate* indicates a burial date of *cal AD 330–455* (95 per cent probability) and probably *cal AD 355–420* (68 per cent probability). The iron ring included with the burial is of first or second century form, and was probably buried as an heirloom.

Burial SK 05

Slightly to the south of SK 04 another rectangular grave contained remains of an adult male aged between 26 and 35 years, lying in an extended supine position on

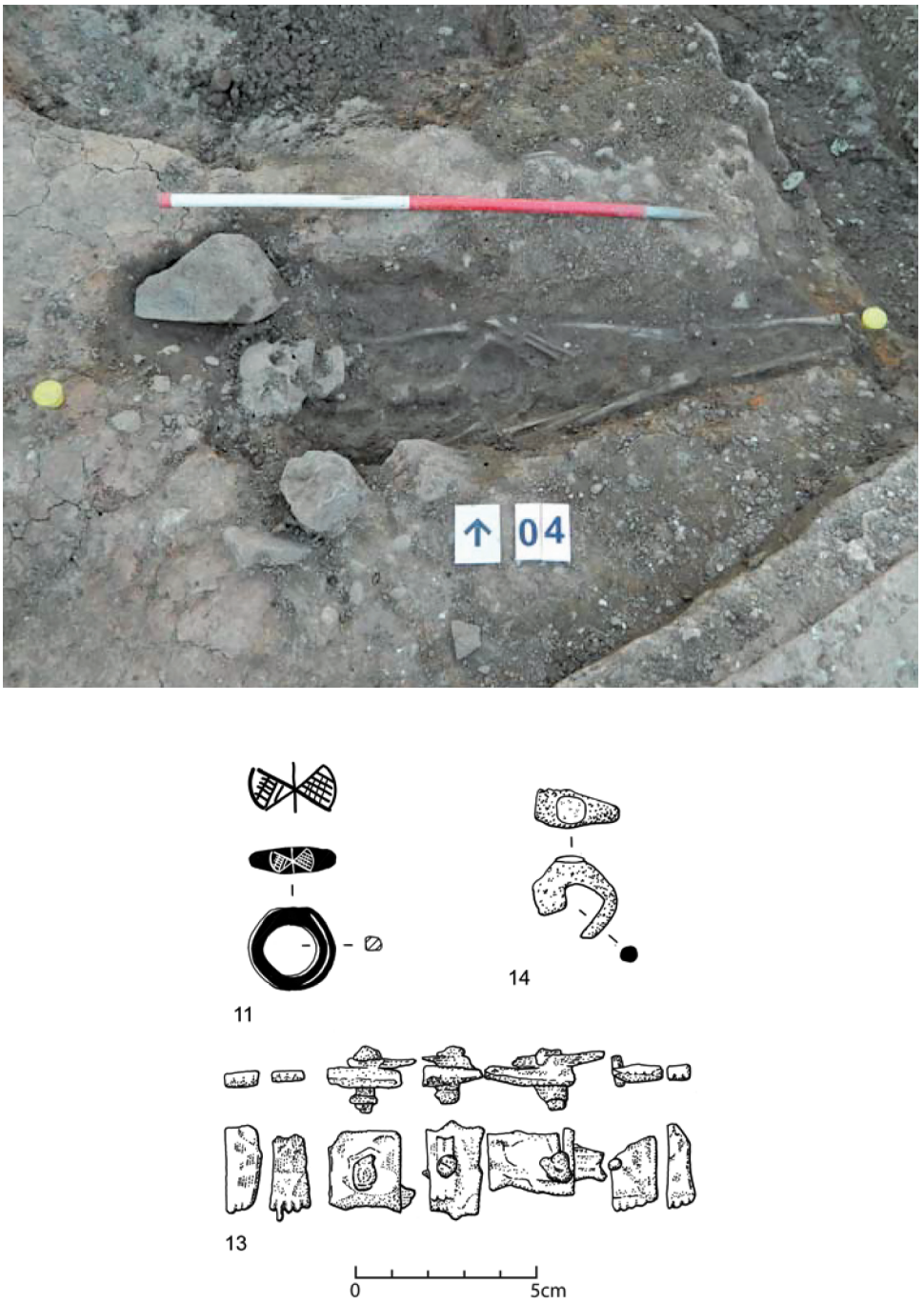

Fig. 14. Burial SK 04 and associated finds (the monogram on the jet ring (SF 11) is shown in inset).

Fig. 15. Burial SK 05 facing north and showing the partial stone-lining of the grave.

a WNW–ESE orientation (Fig. 15). A clear vertical boundary on the northern side of the grave cut suggested that a timber coffin had been used, although no nails were found. It seems likely that other methods of securing the coffin sides, such as wooden pegs, were used. A sequence of granite slabs, located between the grave cut and the possible coffin edge, formed a partial 'lining' around the burial. One stone was positioned close to the left-hand upper arm, while the rest concentrated around the feet at the eastern end of the grave.

Remains of eight individual burials were excavated in the southern half of Trench 3. There was a lack of later pitting in this part of the trench and survival was generally better, although some truncation was clear. In contrast to the burials to the north, the southern group displayed evidence for interment in regular rows, but there was also intercutting between the graves, indicating different phases of the cemetery's use.

The western row consisted of three graves and a grave-shaped pit that may represent a disturbed burial.

Burial SK 01

At the northern end of the row, SK 01 was a juvenile individual (unsexed) aged between nine and 12 years (Fig. 16). The body had been laid out west–east in an extended supine position. Nails located around the body indicated that the child had been buried in a wooden coffin which was contained in a rectangular grave.

Fig. 16. Burial SK 01 facing north and illustrating the east-facing orientation of the body.

The individual's legs were crossed at the shin area, with the right leg crossing over the left. Several tile fragments were found near the feet and a curved tile was found between the ankles of the crossed legs, but the significance of this (if any) is unclear.

The southern edge of the grave containing SK 01 had been slightly disturbed by a flat-bottomed rectangular pit containing seventeenth–eighteenth-century pottery (position shown in Fig. 10). There was no obvious purpose for this pit, yet it had distinctive grave-like characteristics and occupied an intriguing position within the surrounding grave group, appearing to be part of the row. Given the concentration of lead coffins previously discovered in this area, including a reference to one being discovered on the site by Dare (1927, Plate 2), it is tempting to speculate that this grave-like pit represents removal of an earlier lead coffin.

Burial SK 08

In the middle of the row, SK08 was partly located beneath modern wall footings which had caused some disturbance to the western end of the burial. This comprised the remains of a mature male individual aged 46+ years, who had been lain WSW–ENE in an extended supine position within a rectangular grave cut. The skull was missing and may have been disturbed by the wall footing. However, the western edge of the grave cut was very close to the top of the vertebrae, suggesting that the body could have been buried in a decapitated state. If so, it is possible that the skull (if it was included in the burial) was once located on the chest area and had been removed by the wall footing. No iron nails were recovered from this burial, although an intermittent stone 'lining' survived around the grave edge, perhaps indicating the former presence of a wooden coffin.

Burial SK 06

The southernmost burial in this row had been disturbed by the same wall footings, and contained partially surviving remains of a younger man aged between 18 and 25

years. This burial differed to the others in the row as the body had been laid on its side, with the head at the eastern end of the grave. Disturbance from the wall footing had effectively removed much of the skeleton, leaving only the skull, torso and part of the upper left arm, but the length of the grave suggests that the individual would have been laid in an extended or flexed position. Iron nails arranged around the head indicated that the individual had been buried within a coffin. Two metal finds were located in association with the burial: a copper alloy stud (**Sf15**) lay at the base of the torso; and an unidentified copper alloy object (**Sf18**) was found beneath the skull.

A cluster of five burials lay immediately to the east, representing a second row close to the western edge of the boundary ditch. Four of these were divided into two intercutting pairs and the fifth was a later burial cutting into the top of the northern pair.

Burials SK 10 and SK 11

The northernmost pair consisted of two slightly intercutting coffined burials with different characteristics. The earliest burial contained remains of a female aged 46+ years (SK 11), lying WSW–ENE on her left-hand side with flexed arms and legs. A second–third-century coin, found in the pelvic region of the body, may have been placed deliberately as a burial offering.

The second grave contained the skeleton of an adult male (SK 10) aged between 26 and 35 years lying in a prone (facedown) position on a WSW–ENE alignment (Fig. 17). Both legs and the left arm were extended, but the right arm was flexed with the hand lying under the pelvis. A bent copper alloy needle (**Sf16**) was found slightly above the right shoulder and a bronze buckle (**Sf17**) was located on the southern edge of the grave adjacent to the individuals hip. The burial provided a radiocarbon determination of *cal AD 240–430* (95 per cent probability, 1744 ± 26 BP, SUERC-66168). There is no direct parallel for the scalloped-edge buckle frame, although one of similar size and shape was found at the Lankhills Roman cemetery, from a grave dated to AD 350–370/90 (Clarke 1979, 272, fig. 34.126). Late Roman belt fittings are often associated with individuals in the military or civil service, which may suggest that this middle-aged man was of some status. This is a rare find from Leicester, the only other example coming from the Western Road cemetery where an elaborately decorated belt-set was found with the burial of another middle-aged male (Huxley and Morris 2016, 290 and fig. 5).

Modelling of the radiocarbon date produced a *posterior density estimate* for burial SK 10 of *cal AD 300–390* (95 per cent probability), and probably *cal AD 325–375* (68 per cent probability). This evidence, combined with the dating evidence from the near parallel buckle from the Lankhills cemetery, is interpreted as indicating a burial date in the later part of the fourth century AD.

Burials SK 12 and SK 13

The second pair lay slightly to the south and consisted of two separate female burials, both of which were buried in wooden coffins on a WSW–ENE orientation.

The earliest burial comprised the remains of a woman aged 26–35 years (SK 13), lying in an extended supine position. This burial had been disturbed by the cutting

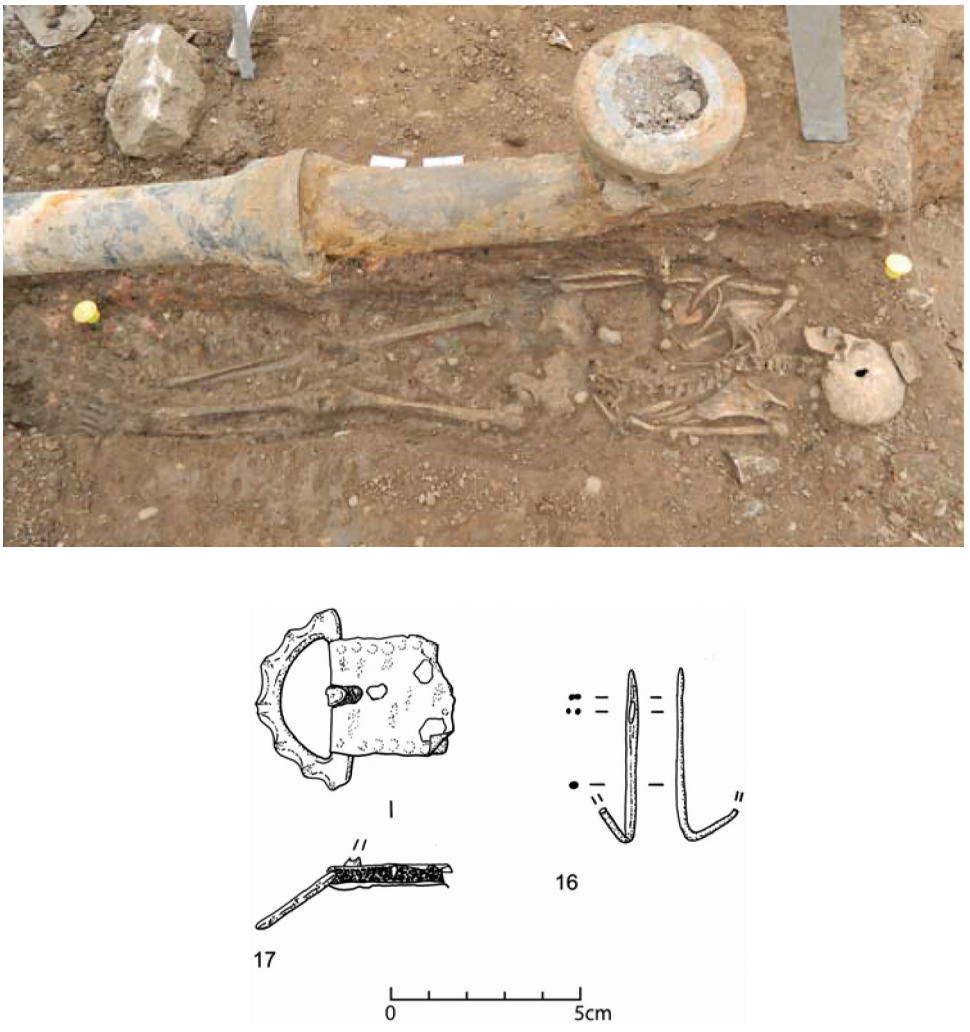

Fig. 17. Prone burial SK 10 and associated finds (the overlying pipe could not be removed during the excavation).

of the later grave of the pair and was missing its skull as a result. A concentration of hobnails near the feet indicated that she had been buried with footwear, although it was unclear if these had been placed in the grave (as with the shoes accompanying SK 09) or were worn by the individual.

The later burial cut through the northern half of its predecessor, and comprised the remains of a woman aged 46+ years (SK 12), laid on a WSW–ENE orientation in an extended supine position (Fig. 18). A copper alloy hair pin (**Sf26**) was found on the southern edge of the grave near the hip of SK 12, but the intercutting between the graves made it unclear if the object belonged to SK 12 or SK 13. A radiocarbon date *cal AD 240–530* (95 per cent probability, 1720 ± 30BP, SUERC-66169) was

Fig. 18. Burials SK 11 and SK 12 showing the copper alloy hair pin found with SK 12 or SK 13.

associated with this burial. Modelling of the date produced a *posterior density estimate* of *cal AD 315–430* (95 per cent probability) and probably *cal AD 340–400* (68 per cent probability).

Burial SK 02

The final burial in the group showed markedly different characteristics to the others in the group and consisted of a rectangular grave containing the remains of a young juvenile (unsexed due to the size and fragility of the bones), aged between two and

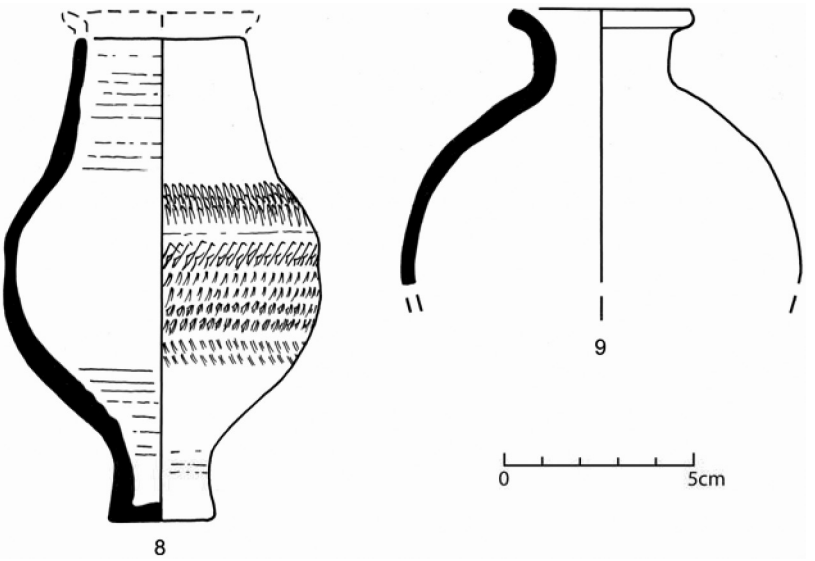

Fig. 19. Burial SK 02 showing the alignment and position of the body, and associated finds.

three years, buried on a south–north orientation, lying on their left side with slightly flexed arms and legs (Fig. 19). The individual's head had been removed and placed at the southern end, near the feet, alongside two broken but near complete pottery vessels: a fourth-century Nene Valley ware beaker and a grey-ware flask, at least one of which may have been included as grave goods. A radiocarbon date of *cal AD 130–380* (95 per cent probability, 1823 ± 28BP, SUERC-66170) was recorded for this burial. Modelling of the radiocarbon determination, including the finds evidence, provides a *posterior density estimate* for the burial of *cal AD 325–410* (95 per cent probability) and probably *cal AD 350–395* (68 per cent probability).

Radiocarbon dating

Matthew Beamish

A total of eight radiocarbon measurements were made on eight samples of human bone from separate burials from the cemetery. The samples were submitted to the Scottish Universities Environmental Research Centre (SUERC) for radiocarbon dating by Accelerator Mass Spectrometry (AMS).

The samples were pre-treated following the methods presented in Dunbar *et al.* (2016). The SUERC laboratory maintains rigorous internal quality assurance procedures, and participation in international inter-comparisons (Scott 2003) indicate no laboratory offsets; thus validating the measurement precision quoted for the radiocarbon ages.

The radiocarbon results are given in Table 1. These are conventional radiocarbon ages (Stuiver and Polach 1977), quoted according to the international standard set at the Trondheim Convention (Stuiver and Kra 1986), and individually calibrated with the internationally agreed Terrestrial and Marine curves of Reimer *et al.* (2013) using OxCal v4.3.2 (Bronk Ramsey 1995, 1998, 2001, 2009). The date ranges in Table 1 have been calculated using the maximum intercept method (Stuiver and Reimer 1986), and quoted in the form recommended by Mook (1986) with the endpoints rounded outward to ten years. The probability distributions seen in Fig. 20 were obtained by the probability method (Stuiver and Reimer 1993), and have been rounded out to five years.

C:N ratios suggest that bone preservation was sufficiently good to have confidence in the radiocarbon determinations (Table 1; DeNiro 1985; Masters 1987; Tuross *et al.* 1988). The stable isotope measurements for the samples indicate some variation in diet, which included a component of non-terrestrial resources, probably seafood (Chisholm *et al.* 1982; Schoeninger *et al.* 1983). This was most pronounced for SK 14. It is known that both oysters and seafish were available and consumed by people across some social classes in the Roman period, and it is likely that marine resources are the cause for the stable isotope values. Each determination has therefore been adjusted to account for this offset ('the marine reservoir effect'). Following Hamilton (forthcoming), the correction follows the methodology of Arneborg *et al.* (1999), where linear interpolation is used between the $\delta^{13}C$ end members –12.5‰ (purely marine) and –21‰ (purely terrestrial) to calculate the 'percent marine diet'. This percent marine value has been given a standard error of ±10 per cent, and is used for the modelled calibration that mixes the international terrestrial and marine

Lab. no.	Burial	Sample	δC13(%) 15/14N(%) C/N Ratio	Radiocarbon age (BP)	Curves	Calibrated date cal AD	Modelled range cal AD (posterior density estimate)	
						95%	*95%*	*68%*
SUERC-66166	SK 09	Right rib fragment	–19.0 11.9 3.3	1906 ± 25	IntCal13, LocalMarine, 24, 10	*70–320*	*135–325*	*195–315*
SUERC-66167	SK 04	Right rib fragment	–19.0 10.8 3.2	1719 ± 28	IntCal13, LocalMarine, 24, 10	*260–540*	*330–455*	*355–420*
SUERC-66168	SK 10	Right rib fragment	–19.5 10.6 3.3	1744 ± 26	IntCal13, LocalMarine, 18, 10	*240–430*	*300–390*	*325–375*
SUERC-66169	SK 12	Left rib fragment	–19.7 10.4 3.3	1720 ± 30	IntCal13, LocalMarine, 15, 10	*240–530*	*315–430*	*340–400*
SUERC-66170	SK 02	Left rib fragment	–19.6 12.4 3.2	1823 ± 28	IntCal13, LocalMarine, 16, 10	*130–380*	*325–410*	*350–395*
SUERC-66171	SK 15a	Left rib fragment	–20.6 10.9 3.3	1758 ± 30	IntCal13	*170–390*	*265–330*	*270–310*
SUERC-66172	SK 18	Right femur shaft fragment	–20.2 11 3.3	1791 ± 26	IntCal13	*130–330*	*290–385*	*300–335*
SUERC-66176	SK 14	Right rib fragment	–16.9 10.6 3.2	1747 ± 30	Intcal13, LocalMarine, 48, 10	*370–580*	*330–480*	*350–435*
Cemetery start							*35 cal BC–330*	*145–310*
Cemetery end							*345–540*	*370–460*
Boundary between S–N and W–E burials							*270–360*	*285–330*

Table 1. The radiocarbon results.

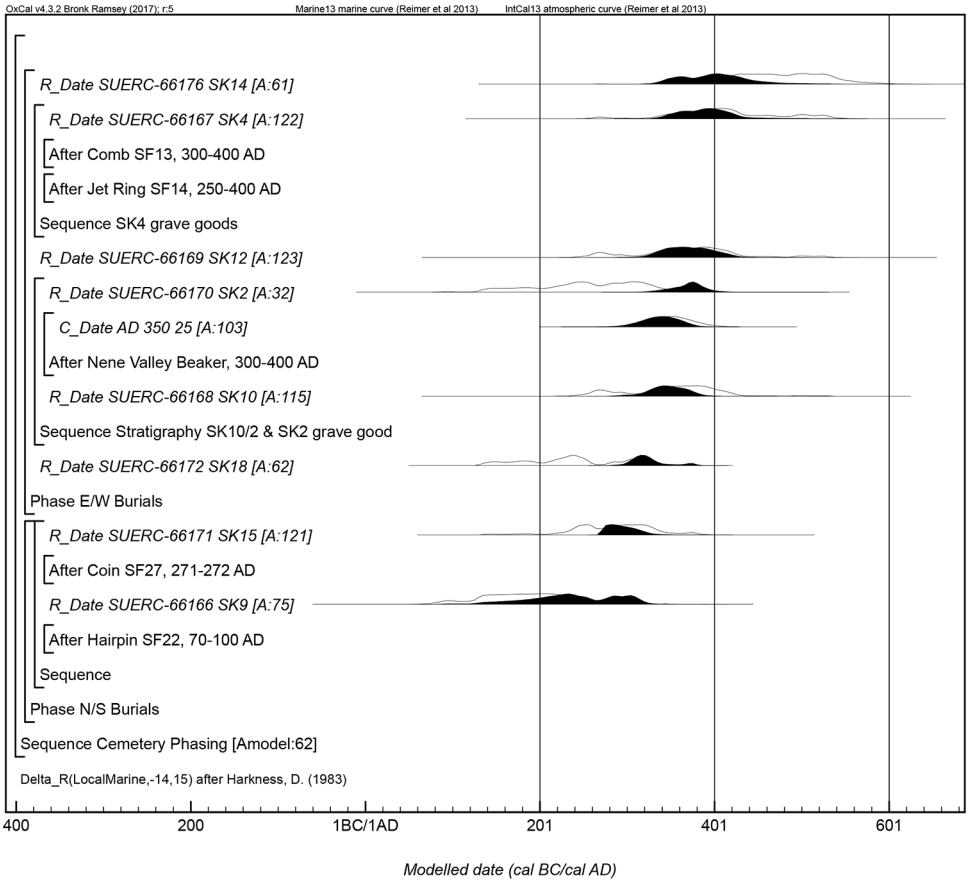

Fig. 20. Probability distributions for the burials. Each distribution represents the relative probability that an event occurs at a particular time. For each of the dates two distributions have been plotted: one in outline, which is the result of simple radiocarbon calibration; and a solid one, based on the chronological model used. The large square brackets down the left-hand side, along with the OxCal keywords, define the overall model exactly.

radiocarbon calibration curves of Reimer *et al.* (2013). Since the offset between these two curves is both spatially and temporally dependent, a further local ΔR correction of –14 ±15 years is derived from research into the marine reservoir of samples from the Irish Sea and English Channel (Harkness 1983).

Methodological approach

A Bayesian approach has been adopted for the interpretation of the chronology (Buck *et al.* 1996). The calibrated dates are accurate estimates of the dates of the individual samples, but it is the dates of the archaeological events represented by those samples which are of interest. In this case it is the overall chronology of the cemetery, and the date of the transition from one type of burial tradition. The

dates of these activities can be estimated not only by using the absolute dating information from the radiocarbon measurements on the samples, but also by using the stratigraphic relationships between samples including, in this instance, inferred phasing from the burial alignments (supported by parallel evidence from other sites), and the inclusion of artefact dating evidence.

Bayesian modelling allows the combination of these different types of information explicitly, to produce realistic estimates of the dates of archaeological interest. It should be emphasised that the posterior density estimates produced by this method are not absolute. They are interpretative estimates, which can and will change as further data become available, and as other researchers choose to model the existing data from different perspectives.

The technique used is a form of Markov Chain Monte Carlo sampling, and has been applied using the program OxCal v4.3.2. Details of the algorithms employed by this program are available from the online manual or in Bronk Ramsey (1995, 1998, 2001, 2009). The algorithm used in the model described below can be derived directly from the model structure shown in Fig. 20.

A model was constructed that included the evidence from the cemetery in an overall sequence (Fig. 20). Within the sequence, a phase of south–north burials (SK 09 and 15) was followed by a phase of west–east burials (SK 02, 04, 10, 12, 14 and 18) separated by a boundary. This model included stratigraphic relationships between SK 09 and SK 15 (south–north burials), and SK 10 and SK 12 (west–east burials), coin evidence from the infilling of the boundary ditch into which SK 15 was inserted, a bone hair pin from Burial SK 09, a pottery Beaker included as a grave good with Burial SK 02, and a jet ring and bone comb that had been buried with Burial SK 04.

A model, which includes the latest of four coins (**Sf23**, AD 330–335) recovered from the boundary ditch as a *terminus post quem* to Burial SK 15, does not show good overall agreement (Amodel=26). If this coin is excluded from the model and the other coin evidence included (**Sf27**, AD 271–272), the model shows good agreement (Amodel=62) (Fig. 20). Within the model the results are consistent with the phases of south–north and west–east burials being in a chronological sequence, with the boundary between these two traditions occurring in *cal AD 270–360* (95 per cent probability) and probably in *cal AD 285–330* (68 per cent probability) (Fig. 21). The cemetery started to be used in *35 cal BC–cal AD 330* (95 per cent probability) and probably in *cal AD 145–310* (68 per cent probability). It ceased being used in

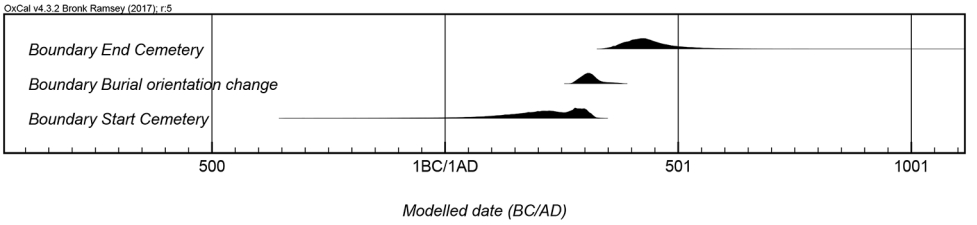

Fig. 21. Probability distributions for the start and end of the cemetery, and the change from south–north, to west–east burial orientation.

cal AD 345–540 (95 per cent probability) and probably in *cal AD 370–460* (68 per cent probability).

Discussion

Chronology and dating

In common with Roman cemeteries elsewhere, establishing secure dates for the use of Leicester's burial grounds has proven difficult. This is because of the general isolation of many graves and the lack of datable finds within them. The burials from this project are unusual in having stratigraphic relationships and a range of associated grave goods, as well as spatial distinction between different burial rites. They have provided the first opportunity to scientifically date a group of burials from the southern cemetery, which has helped tease out subtleties in the cemetery's chronology that would not have been possible based on the finds alone.

Eight dates were obtained from a range of the burials which had different characteristics and spatial locations. These suggest that burials were taking place from the late second century through to the later fourth and potentially fifth century AD. The earlier dates highlight a distinct phase of 'backyard' burial activity adjacent to the boundary ditch, which is supported by associated pottery. A concentration of similar dates suggests that the main phase of burial activity occurred during the third/fourth centuries, while a couple of examples appear to have been interred at a slightly later date. Other associated dating from pottery and other finds, included as grave goods, helps corroborate the radiocarbon dates. One of the pots buried with SK 02 was a form dated to the fourth century, and the incorporation of this evidence in a Bayesian model that shows good agreement (Amodel=62) has provided a date estimate of *cal AD 350–395* (68 per cent probability) for the burial. The jet ring from SK 04 was predominantly favoured in the later third to fourth century, and the inclusion of this evidence in the same model has provided a date estimate of *cal AD 355–420* (68 per cent probability) for the burial. The second ring from this burial was much older, highlighting problems in dating that may be caused by the presence of heirlooms.

The radiocarbon dates correspond well with previous suggestions for the chronology of the southern cemetery, which put forward a likely third or fourth century date for its main period of use (Cooper 1996; Derrick 2009). The additional information does, however, highlight a slightly more complex picture, showing an earlier period of burial, possibly before the formal cemetery was established, and extending the formal cemeteries' chronology probably into the fifth century.

Similar dates have been put forward for the other excavated cemetery areas surrounding the town. The Clarence Street cemetery may have been established by the mid-third century AD, but excavators thought a fourth century date was more likely (Gardener 2005). The burials at York Road and Oxford Street (Gossip 1998, 1999a and 1999b), and at Haymarket Towers (Higgins and Cooper 1997; Cooper 1998), are also presumed to date to the third or fourth century based on available stratigraphic and artefactual evidence. Inhumations at Great Holme Street remain undated (Lucas 1976, 1978), but one was associated with a colour-coated beaker, perhaps also suggesting a third or fourth century date. A small group of

fourth-century burials, found during excavations at the Austin Friars, may also be associated with the Great Holme Street cemetery (*TLAHS* 1976, 57). On the opposite side of the River Soar, eight burials located immediately adjacent to the town wall were also thought to be late Roman (Cooper 2004, 144).

Radiocarbon dating of skeletons at the Western Road cemetery indicated a long-lived period of use beginning in the late first century, and going through to the late fourth or even early fifth century, with a main period of use in the third/fourth centuries similar to the other cemeteries (Morris 2015, 130–1).

Burial organisation

In common with many other Late Roman cemeteries, the Newarke Street graves were ordered in rows and many of the graves respected the presence of earlier burials. This may imply that the location of the graves was indicated in some way, or simply that the mounds of soil covering the burials were still visible when later graves were dug. No conclusive evidence for the deliberate marking of graves has been recovered from Leicester, but the limited intercutting between graves suggests that their location was made obvious in some way. At cemeteries in Colchester, for example, relatively ephemeral evidence for grave markers has included single and multiple post-hole settings and rings of stake holes, indicative of light fences, surrounding graves (Pearce 2015, 148). More locally, the burial of a child at Oxford Street was enclosed by a series of narrow gullies and post-holes (Gossip 1999b, 26). The relationship of these structural features to the grave is unclear, but they may have formed the footings of a small enclosure around the burial. At Great Holme Street, a small group of burials was possibly bounded by a curving gully, which may have been intended to define the graves and protect them from later disturbance (Lucas 1976, 58).

Superficially, the majority of the burials showed similar characteristics, suggesting that they formed part of the wider area of organised, formally laid out cemetery landscape (Fig. 22). Once excavated, however, it became clear that there were conspicuous differences in burial traditions from one side of the boundary ditch to the other, suggesting that it marked the distinction between separate rites.

The well-ordered graves on the eastern side of the boundary can be seen as forming the westernmost row of WNW–ESE orientated, extended supine burials contained within the large organised cemetery recorded in adjacent excavations (Cooper 1996; Derrick 2009). They all have consistent characteristics, which they share with the wider cemetery population, indicating either a common belief system or tradition of burial. Interestingly, there is space between the burials and the edge of the boundary for another row that was never used. This may indicate that the cemetery went out of use before this area was utilised, or perhaps more likely that the 'gap' represents the location of an earthen bank adjacent to the ditch which helped to accentuate the boundary. Excavations at Clarence Street, within the organised cemetery on the eastern side of the walled town, revealed 91 burials, all of which followed a similar pattern, consisting of graves arranged in regular rows on a west–east orientation, with the bodies in extended supine positions (Gardner 2005).

The burials on the western side of the boundary (with one exception) were arranged in a similar way to those on the eastern side, forming rough rows of

Fig. 22. Plan of the excavated evidence for the southern Roman cemetery.

graves on a shared alignment. However, excavation proved that these burials had been treated in a variety of ways, and had varying characteristics in contrast to the uniform tradition indicated by the eastern group.

Two of the skeletons, whilst aligned in the same direction, lay with their heads to the east rather than the west. Three more lay on their left side and another was buried in a prone, extended position. Whilst this may have been accidental during burial, other factors suggest different attitudes in this part of the cemetery. This is illustrated well by the most unusual burial in the western group, which consisted of a decapitated child whose grave was arranged on a N–S alignment, a combination of traits which make this a unique burial within the wider cemetery evidence from Leicester.

Mixed grave orientations have been recorded on cemetery sites at Haymarket Towers and Free Lane, on the eastern side of the walled town (Lucas 1992, Higgins and Cooper 1997, Cooper 1998) and more recently on Western Road, to the west (Morris 2011, 2013 and 2015; Huxley and Morris 2016). At Haymarket Towers graves were laid out on two distinct axes, NNW–SSE and WSW–ESE, and showed a trend for N–S burials to the south and E–W ones to the north. The E–W burials

were positioned to either side of linear boundaries, showing a similar alignment, and may have been located within earlier plots (Cooper 1998, 8).

The burials at Western Road showed a wide range of orientations and positions, suggesting a general lack of organisation in comparison to those at Clarence Street or Newarke Street. However, despite the apparent lack of order, there was a low incidence of intercutting, and those that did interact created T- or L-shaped pairs at right angles to one another. Some of the pairs comprised an adult and a child, while others shared burial traditions. This close proximity of certain graves, in a cemetery that did not appear overcrowded, appears to indicate deliberate positioning in relation to earlier interments. The close placement of these paired graves, and evidence for shared traditions, perhaps relates to familial connections, and suggests a degree of organisation in the development of this cemetery (Morris 2015, 153).

The cemetery population

The osteological analysis of the skeletal remains from Newarke Street has provided a glimpse into the lives of the people buried there. Although many of the 14 skeletons were incomplete or in a fragmentary condition, it has been possible to reconstruct a surprising amount concerning the lives of these people and the use of the cemetery.

The relatively small group of skeletons ranged in age from one year to mature adulthood. The cemetery population consisted primarily of adults, aged between 26 and 46+ years, with both men and women represented. There was a slightly higher percentage of men in the group, although the sample was too small for this to be statistically significant. In general the age ranges showed that a higher proportion of males reached older adulthood, compared to females. Only four children were present, all of whom were juveniles. The youngest was one to three years old, and the oldest nine to 12 years old. No evidence for infants or neonates was found. Children, particularly infants and neonates, are usually under-represented in the archaeological record despite the fact that mortality must have been high (Lewis 2007), and children under two years are not often found buried in Roman cemeteries prior to the fourth century AD (Watts 1989). It is possible that further child burials within the cemetery were concentrated within an area not discovered during the excavations. It is not clear how much of the cemetery itself has been excavated, and partial excavation may account for some of the biases in age and sex observed.

Stature could be estimated for ten (63 per cent) of the analysed adult skeletons, with fragmentation or the incomplete nature of the remains prohibiting the estimation of stature for six of the adults. The females ranged in height from 158cm to 160cm, with a mean stature of 159cm. This was consistent with the female average living height from the 1993 excavations at Newarke Street (Wakely and Carter 1996) of 159cm, but was lower than the average height of the females excavated during 2002 at Newarke Street (Jacklin and Chapman 2009) of 165cm (although this was only based on two individuals). The mean female stature from this excavation directly corresponds with the Roman female mean (159cm), given by Roberts and Cox (2003).

The living height of the males varied more widely, and was complicated by the fact that one individual (Skeleton 12) exhibited certain morphological traits (nasal guttering and eye orbits), which might suggest they were of mixed African/Caucasian descent. The formula for estimating stature depends upon the individual's ancestry;

as a result the stature of Skeleton 12 was calculated using both formulae. Estimated heights for the males ranged from 161cm to 186cm, with a mean of 171.2cm when Skeleton 12's ancestry is treated as Caucasian, or with a mean of 171.9cm when Skeleton 12's ancestry is treated as African. This was within the male range of heights observed previously at Newarke Street (Jacklin and Chapman 2009) and was above the mean (167cm). The male range from excavations at Newarke Street in 1993 (Wakely and Carter 1996) was between 161 and 176cm, with a mean of 171cm, which was more comparable to those examined in the current study. The males from the present project were slightly taller than the national mean (169cm), given for late Roman sites by Roberts and Cox (2003). It should be noted that Skeleton 14 (mature adult male) greatly affected the overall mean of the population, as he was 6cm taller than the second tallest male and 14cm taller than the third tallest male. Further isotopic and genetic analysis would be necessary to determine the ancestry of SK 12; however, similar suggestions have been made for four adult males and a child from the Western Road cemetery (Morris 2015, 165), perhaps hinting at the diversity of Leicester's Roman population.

A wide range of pathological conditions were observed amongst the Oxford Street population, especially considering the relatively small size of the sample. A small number of minor congenital anomalies were present, affecting two young middle adult males (SK 05 and SK 10) with *spina bifida occulta*, and one young middle adult female (SK 09) with accessory lumbar ribs.

Evidence for childhood stress was observed, with *cribra orbitalia* (porosity of the eye sockets) affecting half of the population and suggesting at a lack of vitamin B_{12}. Further indicators of stress were preserved in the tooth enamel of a number of individuals; such lesions may indicate dietary, environmental or physical stress. New bone formation along the cranial vault margins of a juvenile (SK 07) may have been caused by scurvy (Vitamin C deficiency), which suggests the individual endured a considerable period where an adequate supply of fresh fruits and vegetables or marine fish was unavailable. Such skeletal manifestations infer dietary hardships and suggest that the majority of individuals were experiencing at least periods of inadequate nutrition. One mature adult male (SK 08), however, appeared to have enjoyed dietary excess. Skeletal lesions probably consistent with DISH (Diffuse Idiopathic Skeletal Hyperostosis – a condition characterised by additional bone formation at sites of muscle and ligament attachment) were evident in the individual's spine. The disease is associated with excessive calorie intake, Type II diabetes, obesity and advanced age. The potential access to an abundance of food may intimate that the individual was of a higher social status or ranking than the majority of the population from Oxford Street, though his grave did not contain any grave goods.

Traumatic incidents also affected the lives of three individuals. One mature adult female (SK 11) had a crushed vertebra, possibly as the result of a fall onto her feet or bottom. Such an injury would have caused pain, and probably reduced her mobility for at least a short period after the incident, and stiffness of the back may have been a long-term consequence. A mature adult male (SK 12) had fractured a forearm, probably the result of a traumatic incident which may also have caused damage to his knee and ankle, and involved soft tissue damage to his thigh. Changes observed

in the knee revealed osteoarthritis, suggesting the individual continued to use the joint after the trauma. Another mature adult male had fractured his left ankle and appeared to have associated soft tissue damage.

Infectious disease was common; sinusitis affected over half of the observable population, although it appears that only women and children were affected. Tuberculosis was also observed in the remains of one middle adult female (SK 04). The advanced state of the disease would have meant that the woman would have required care. The degree of spinal destruction that she endured suggests she survived for some time with the spine bent forward at a right angle. The incomplete skeleton of a young middle adult male (SK 05) also revealed possible tuberculoid changes, which could only be tentatively diagnosed. The high prevalence of inflammatory lesions on the inside of the skull could have been caused by an infection such as meningitis; interestingly, the incidence of these lesions in males was twice as high as females. A young middle adult female (SK 09) exhibited lesions which may be attributable to hypertrophic pulmonary arthropathy; principally linked to cancer or infection of the lungs.

Degenerative Joint Disease (DJD) was extremely common, and it is likely that habitual activities contributed to the high prevalence of the condition. Joint disease affected both sexes equally in the hips, although women appeared to be more susceptible to DJD in the shoulder and spine, while men were more commonly affected in the knees and ankles. However, men were more likely to develop spinal osteoarthritis, possibly due to males having greater longevity and thus being more likely to develop the condition. Schmorl's nodes were more prevalent in males, although the distribution of lesions differed between the sexes; possibly inferring that different types of activities caused them.

The general dental health of the individuals from Oxford Street was slightly better than the Roman average, with the exception of a high prevalence rate of dental calculus. Surprisingly, female dental health was better than that of males, particularly with regards to caries. In general, skeletal assemblages reveal more dental cavities with females than males. This may partly be caused by a weakening of the tooth enamel during pregnancy (Malin Holst pers. comm.).

Overall, the high frequency of metabolic disease and infection amongst the Oxford Street population suggests that poor nutrition and illness was common. However, the women were of average height for the period and men only slightly shorter, which could suggest the limited impact on their adult stature.

Considering the relatively small sample size, this group of skeletons displays a considerable quantity of pathological conditions, some of which, such as severe tuberculosis, are rarely observed in other Roman populations.

Grave pits, coffins and stone lining

The majority of the grave pits were of similar character; rectangular in plan, with straight sides, flat bases and dimensions suitable to accommodate the coffin or corpse. Truncation had occurred to varying degrees across the excavated area, but, generally speaking, graves were less well-preserved on the eastern side of the site, where significant disturbance from later buildings had removed all but the lower levels of the pits.

Evidence for coffined burials was associated with at least 12 of the graves, 11 of which contained regularly spaced iron nails around their edge – suggesting the presence of timber coffins. One grave (SK 05) contained no nails, but a narrow gap between the edge of the grave fill and a partial stone lining suggested the presence of a wooden coffin. In this instance alternative methods of coffin construction, such as wooden pegs, may have been used to secure the coffin sides. Similar methods have been observed at the Great Holme Street cemetery (Lucas 1976, 1978) and this cannot be discounted for the burials without iron nails at this site. The grave of SK 08, for example, contained no nails, but did have a partial stone lining and the upper left leg had rolled out of position, suggesting use of a coffin.

Four of the graves contained partial stone lining or packing, notably at points around the head and feet of the individuals. The materials used included slate, granite, re-used ceramic tiles and, in one instance, a fragment of quernstone. Similar lining of graves has been recorded at other Roman cemeteries across the country and appears to have become popular in the fourth century (Philpott 1991, 61–5; Cooper 1996, 23). In Leicester, evidence for the incorporation of stone lining in graves is fairly common, and shows a particular concentration in the southern extramural cemetery. At Elfed Thomas, 22 of the excavated graves contained stone linings, sometimes incomplete (Cooper 1996, 21), and at 21–33 Newarke Street six burials were in stone-lined graves and one was contained in a stone cist (Derrick 2009, 74). Occasional other examples of stone lining or packing have been recorded at Great Holme Street (cited in Derrick 2009, 74) and Western Road (Morris 2015, 161). In contrast, none of the 91 fourth-century graves excavated at Clarence Street contained evidence for stone lining, although three contained stone packing (Gardner 2005, 34). This may suggest that different attitudes informed the burial tradition at this cemetery. The use of stone lining in graves has been interpreted in a variety of ways such as the stones symbolically representing the tomb of Christ (MacDonald 1979, 428), or more prosaically, simply a practical approach to guard against subsequent disturbance from grave digging and to preserve the physical integrity of the body (Cooper 1996, 23).

Grave goods

Many of the burials on the western side of the boundary contained grave goods, which contrasts sharply with the other nearby cemetery evidence to the north and east where associated finds were absent. Finds from the burials included hair pins, a buckle and hobnail footwear. One individual was buried with a coin near their pelvis, perhaps once contained in a purse, while another had been buried wearing two finger rings and a comb beneath her head. One of the rings was stylistically datable to the first or second century, much earlier than the time of burial, indicating that it was already an heirloom when it entered the ground. The decapitated child burial contained two pottery vessels, placed at the feet along with the head. Grave goods are also recorded as accompanying burials found during the construction of Allen House (Dare 1927, 33–57), suggesting this tradition was more widespread than just the current group and may have been a characteristic of this part of the cemetery, or this particular phase of its use.

Such an array of grave goods from a relatively small group of burials highlights the differences with the other surrounding cemeteries. Only three burials from 21–33 Newarke Street were considered unusual in terms of accompanying finds, the majority containing only the deceased (Derrick 2009, 78). One contained a bone hair pin and another a lead object that may have been a talisman, both of which could have been intentionally placed within the burial. The third was a very unusual burial that appeared to represent a curious mix of traditions. This was an extended supine burial with the head to the west, akin to the other burials; however, an animal tooth had been placed in each hand and two horn cores lay near the head. The animal bones may represent symbolic remains of feasting that had taken place as part of the funeral rite. Several finds from within burials at the Elfed Thomas excavation may be classed as grave offerings, although none of these were clear examples and could have been residual (Cooper 1996, 25). These included a second/third-century brooch, fragments of a bone needle and a copper alloy hair pin, and copper alloy nail cleaners. Three Roman coins were also recovered from lower grave fills in a consistent position, close to the skeleton's knees, a pattern that suggests deliberate placement (Cooper *ibid*). At Clarence Street only two possible deliberate inclusions of grave goods were recorded. In both cases these were unidentifiable corroded copper alloy objects (Gardner 2005). None of the burials from these three excavations contained hobnailed footwear.

The range of grave goods with the western group of burials is similar to those associated with other cemetery excavations to the south at York Road/Oxford Street (Gossip 1998, 1999a, 1999b), and the east at Haymarket Towers (Cooper 1998/99) and Free Lane (Lucas 1992). At York Road a third–fourth-century burnished Grey ware jar was found near the head of a grave that lay between boundary ditches on a similar alignment (Gossip 1999a, 12). At Oxford Street a similar vessel had been placed between the lower legs of an older male (50+ years) close to a pair of hobnail shoes (Gossip 1999b, 17). At Haymarket Towers four burials were accompanied by hobnailed footwear, located towards the foot of the grave (Cooper 1998/99, 11). One grave also contained a small, broken pottery vessel of fourth century date, located near the left knee and tibia of the individual (Cooper *ibid*). Close to Haymarket Towers, a group of approximately 12 burials, recorded in 1926–27 on 30–6 Granby Street (Boots the chemists), was associated with complete fourth-century pots and a conical glass vessel (Dare 1927), and a further burial at Free Lane contained hobnailed footwear (Lucas 1992, 186) – all indicating similar burial traditions. Hobnailed footwear and a bone hair pin were associated with a small group of burials at Great Holme Street, to the west (Lucas 1976, 57).

Grave goods were also a frequent feature of the burials at Western Road, but these consisted of a much richer range of artefacts to those described above; 21 of the 58 graves recorded in this cemetery contained assemblages of grave goods (Morris 2015, 162). Of these, 14 burials contained hobnailed shoes, whilst pottery vessels were common and included beakers, jars and flagons. A range of personal items, including rings, necklaces, bangles and hair pins, was also recovered, occurring in various groupings and arrangements within the graves.

The provision of grave goods within burials is considered to represent pagan beliefs and associated burial traditions (Merrifield 1987, Watts 1991). Pottery

vessels within such graves are generally thought to have contained food or drink to provide sustenance to the dead (Philpott 1991, 112), while hobnailed footwear may have been placed with, or worn by, the dead so they were adequately equipped for their journey to the underworld (Wardle 2000, 29).

In ten Roman cemeteries studied by Quensel-von-Kalben (2015, 218–19), eight contained individuals with hobnails. Of these, the prevalence of individuals with hobnails varied from 1 per cent to 33 per cent. The highest percentages were found in urban cemeteries that dated to the fourth century (*ibid*). The importance of this type of offering to the relatives of the deceased is illustrated by the discovery of a probable hobnail shoemakers at one of Cirencester's Roman cemeteries, suggesting that shoes may have been made especially for use in burial rites (Salway 1981, 705–6).

Customs and beliefs

The remains of the individuals buried at Newarke Street, and the way in which they were treated in death, provide evidence for the religious and superstitious beliefs of Leicester's late Roman population. Inferring religious beliefs from funerary remains can be problematic, however; other factors might influence burial characteristics such as status and community or family tradition (Cooke 1998, 247), and the evidence recovered may be more informative of the actions of the living rather than the dead (Parker Pearson 1999).

The burial practices observed during the excavation appear to represent a considerable variety of beliefs, presenting more of a contrast to the burial evidence previously recovered from Newarke Street. Although generally appearing very similar, there are clear differences in burial rite, such as in the posture of the body, its orientation in burial and the provision of grave goods, indicating that the community observed a wide range of beliefs and superstitions that were, perhaps, illustrated in the way they were laid to rest.

The burials on the eastern side of the boundary share a common burial practice of supine, extended burials, without grave goods, laid within west–east oriented graves. These characteristics are common amongst late Roman urban cemeteries across the country (Philpott 1991), and appear to reflect attitudes towards preserving the body after death (Cooke 1998, 247). It has been suggested that this particular burial rite represents a predominantly Christian tradition (Watts 1991, 51; Cooke 1998, 239; Petts 2003), although it may equally be a result of a prevailing fashion that had developed by the late fourth century (Gardner 2005, 76; Petts 2016, 660).

The eastern burials are clearly part of the wider 'organised' or 'managed' cemetery recorded at Elfed Thomas and Newarke Street, which share a common tradition of interment. Using criteria suggested by Watts (1991), Cooper suggested that these characteristics may be attributed to a Christian identity (Cooper 1996, 25–7). The meaning behind the enigmatic monogram on the jet ring accompanying SK 04 remains open to debate, but archaeological evidence for Christianity in Leicester, and further afield, is generally sparse. Whilst the shared characteristics perhaps indicate a common attitude towards a certain type of burial, other non-religious factors appear to have helped define the cemetery's organisation. The common orientation of the burials, for example, appears in this case to have

been dictated by the organisation of the surrounding topography, and principally influenced by the line of the *Tripontium* road as it entered Leicester. This is not an unusual situation, and the organisation and development of other urban Roman cemeteries was closely tied to elements of the built landscape such as roads, boundaries and ditches, their influence reflected in the orientation of burials located nearby (Pearce 2015, 143).

Burials on the western side of the boundary reflect an interesting mix of traditions. The burials were generally organised into rows with only slight intercutting, suggesting that their organisation was also influenced by the surrounding landscape. There were other similarities; most appeared to have been buried in wooden coffins, some faced east and others contained evidence for partial stone lining. However, other aspects of their character presented contrasting information, including a range of burial traits (prone and decapitated burial, grave goods, west-facing burials and N–S orientation) that appear to follow pagan traditions (Cooke 1998, 250).

It seems likely that the western burial group represent an extension of the 'boundary' or 'backland' tradition, represented by the two earlier burials located alongside the boundary ditch. The continued influence of this tradition, and a connection between these two cemetery phases, is illustrated by the slightly later prone burial of SK 15 within the backfilled boundary. The contrast between the eastern and western groups, and the fact that no further burials overlay the ditch, suggests that some form of division was maintained after it was backfilled. It may have been redefined by a hedge, or perhaps the earthwork that remained was sufficient.

It is also possible that as the boundary became infilled the western burial ground merged with the larger cemetery area, but retained its individuality, perhaps as the resting place for a particular family. It is likely that both pagan and early Christian burial rites incorporated a degree of pragmatism, and there may have been considerable potential for overlap between the two (Cooke 1998, 253; Petts 2016).

The range of grave goods included with most of the western burials may be associated with adornment of the body, either as part of the burial rite or representative of everyday items (footwear, hair pins, rings, the buckle, the bone comb), or accompanying items for the journey to the underworld (also possibly footwear, the coin as 'Charon's fee' and the pottery vessels with SK 02). The location of the hair pins and bone comb, at the back of the head, suggest they were worn at the time of burial rather than being deposited. In contrast, the buckle with SK 10 appears to have been placed on the edge of the grave rather than worn by the individual. Many of the items associated with the burials were potentially personal possessions, and therefore represent intimate connections with the individuals and their lives. The inclusion of heirlooms with two burials may also represent longer-term family connections that, in conjunction with the location beside the plot boundary, may be associated with ideas around ancestry and connectedness to a particular place (Pearce 1998, 158).

Recent detailed work on the organisation of large 'managed' cemeteries has revealed internal differences in attitudes towards burial and the organisation of graves (Crerar 2014, 45). At Poundbury, for example, the cemetery appears to have

been segregated according to different burial practices, while at Trentholme Drive, York, there was evidence for recurring intercutting of graves, and little sense that their alignment or orientation was regularly managed (*ibid* 45). Excavation of a Roman cemetery at Ashton, Northamptonshire identified two contemporary burial areas that apparently catered for Christian and non-Christian beliefs (Watts 1991; Casa Hatton 1999; Taylor 2002), a situation that was echoed at Roman Ilchester in Somerset (Leach 1982, 1994). More locally it is clear from other cemetery excavations in different parts of Leicester that mixed approaches to burial were observed in the later Roman period (Lucas 1976, 1978, 1992; Cooper 1998, 2004; Gossip 1998, 1999a, 1999b; Morris 2015). Clearly the communities using these cemeteries held particular views on social structure and how this was reflected in burial (Crerar 2013, 45). As the Leicester evidence is beginning to show, however, the ways in which these divisions were expressed varied considerably, sometimes in the same burial space, implying contrasting concepts of the relationship between social identity and burial.

Decapitated burials appear fairly frequently in Roman cemeteries, although it seems to have been a more common characteristic of rural contexts (Clarke 1979; Philpott 1991), although they also occurred in urban contexts. A study of Roman burial traditions in 2003 reported 58 known decapitated individuals from across the country (Roberts and Cox 2003, 153). Since then a further 46 examples have been excavated from a single cemetery in York (Caffell and Holst 2012, 152). The majority of decapitated individuals in Roman cemeteries were adults of both sexes and all ages, although a small number of decapitated children have also been found (Merrifield 1987, 72). No examples of decapitated burials were recorded in the adjacent cemetery areas (Cooper 1996; Derrick 2009) or at Clarence Street (Gardner 2005), and this seems to have been an uncommon tradition in Leicester. The burial of a decapitated child at Austin Friars echoes that of SK 02, although, in contrast, no grave goods were associated (Mellor and Pearce 1976, 57). Another example of decapitation was recorded at Western Road, where a mature adult was found with their head placed below the knees (Morris 2015, 158). A combination of injuries suggested that decapitation of this individual may have been the result of a violent assault, but in death the person had been treated in the same way as other similar burials. At Oxford Street the severed head of a mature male was found in the grave (but outside the coffin) of a female of similar age (Gossip 1999b, 17). Explanations for decapitation in Roman burial have ranged from criminal execution to religious or superstitious motives, perhaps to mitigate against the dead person returning to haunt the living (Philpott 1991).

Prone burials are also a more common phenomenon of rural or small town cemeteries, and seem to be particularly common in the fourth century, although earlier examples exist (Philpott 1991). This tradition may have been used to signify an individual's 'outcast' status, and these burials were often located at the periphery of an ordered cemetery. This interpretation is difficult to apply to SK 10, however, who to all intents and purposes had been treated no differently from the other interments, save for the fact that he had been placed in his grave face down. If this burial position was not the result of an unfortunate accident during interment, similar fears of haunting by the deceased may have been the cause.

Medieval

Clear evidence for medieval occupation, dating between the twelfth and sixteenth centuries, was recovered from all the excavated areas, reflecting a range of activities in the backyard areas of properties fronting onto medieval Southgate Street (now Oxford Street), and possibly Hangman's Lane (now Newarke Street – Fig. 23).

Much of the activity was concentrated in Trench 1, where pits were generally organised into linear rows projecting back from the medieval Southgate Street (now Oxford Street), where they would have been located behind properties fronting onto the street. This was illustrated well by a sequence of 3–4 intercutting pits in Trench 1 that formed a short E–W alignment indicative of the plot orientation. No evidence was recovered for buildings associated with this activity, but it is likely that any surviving remains of this nature exist to the west of the excavations, towards the street frontage. The evidence fits with similar medieval activity on the western side of Oxford Street (Morris 2010), and accords with the documented presence of burgesses and peasant tenants living outside the South Gate of Leicester since *c.*1200 (Courtney 1998).

Cess pits and refuse pits were represented, with concentrations of domestic waste, including pottery, animal bones and ridge tiles predominant in the finds groups. A number contained environmental remains indicative of domestic level crop processing and kitchen waste.

Evidence for medieval domestic craftworking consisted of a long-lived grain-drying kiln in use between the twelfth and thirteenth/fourteenth centuries (Fig. 24).

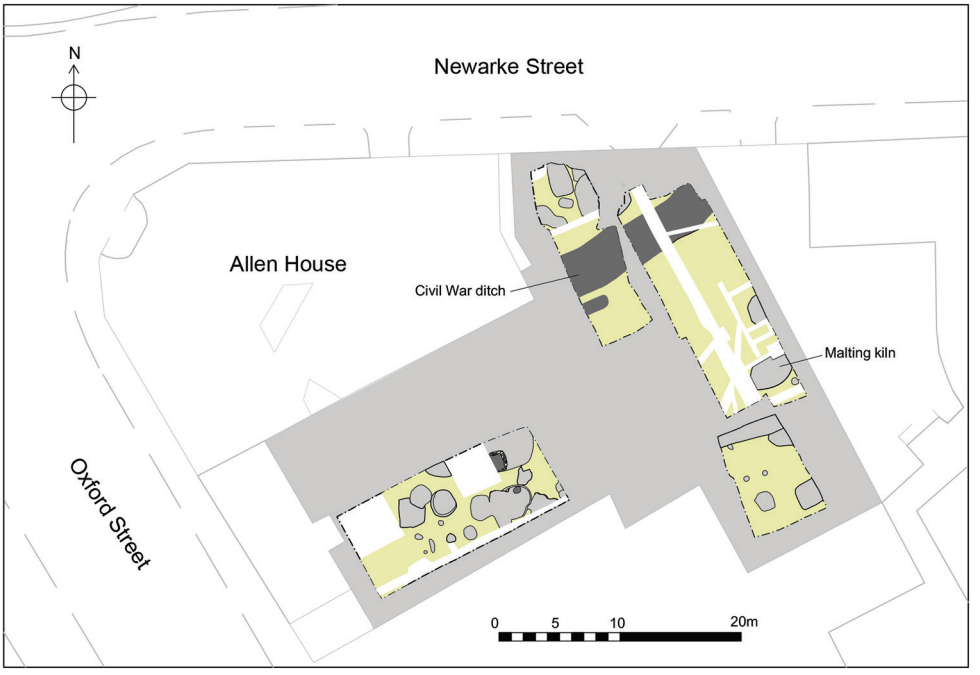

Fig. 23. The medieval (grey) and post-medieval remains revealed during the excavations.

Fig. 24. The corn-drier under excavation, showing the stone lining of its base.

Corn-driers are fairly common discoveries in Leicester; another similar feature was found nearby on the western side of Southgates Street, although the drying floor of this structure had not survived (Morris 2010). Other recently excavated examples have been recorded during excavations at Vaughan Way (Gnanaratnam 2009, 35) and Freeschool Lane (Coward and Speed 2009, 113). In all cases the main purpose of the structure appears to have been the drying of grain.

A group of later medieval pits, dating to the fifteenth/sixteenth century, was revealed in Trench 3, which may have been associated with properties fronting onto Hangman's Lane. This group included a pit with a laid stone base, and associated burning that may have had a small-scale industrial or craft use. Iron slag from two of the pits provided secondary evidence for smelting and smithing taking place nearby, suggesting the presence of a blacksmith operating in the vicinity.

The medieval features add to similarly dated evidence from a number of excavations in the south suburb for domestic and craft activity on either side of Southgate Street (Gossip 1999a, 1999b; Finn 2004; Morris 2010). Much of this evidence reflects backyard activity, although associated structural remains have been revealed at the junction of Oxford Street and York Road (Gossip 1998, 1999a, 19–20). Limited medieval remains from excavations to the north and east of the present site (Derrick 2009 and Cooper 1996 respectively) appear to indicate a decline in activity moving away from Southgate Street, perhaps indicating a lack of settlement away from the main thoroughfares, or limited occupation along Hangman's Lane.

Post-medieval

Evidence for activity during the seventeenth and eighteenth centuries was found on the eastern half of the project area, in Trenches 3 and 4. A large ditch traversed the two trenches on a similar alignment to Newarke Street and was also represented in the Elfed Thomas excavations (Cooper 1996). This ditch probably formed part of the town's Civil War defences, lengths of which have also been found on other excavations in the area (e.g. Finn 2002, 2004). Over the course of the Civil War, two sieges of Leicester (one Royalist and one Parliamentarian) took place in 1645 (Courtney and Courtney 1992). Excavated evidence from the town's south suburb has gradually pieced together archaeological evidence for the two documented phases of large-scale defensive earthworks that were erected at this time, following clearance of buildings and plots to make way for them. Most recently a *c.*37m length of Civil War ditch was uncovered during excavations at De Montfort University, running along what would have been the western street frontage of Southgate Street (Morris 2010, 94–5). The ditch on the present excavations probably relates to this phase of the defences, which, although not closely dated, are thought to represent the second-phase earthworks (Neil Finn pers. comm.).

The majority of the Civil War ditch was infilled with a thick layer of mixed clay, presumably reflecting rapid backfilling after the defences were no longer needed, most likely using materials from an associated bank. Following the backfilling of the ditch, a building was constructed along the frontage of Hangman's Lane. The western gable end of this structure was revealed during the excavations and it was clear that it had made use of recycled materials, possibly accumulated during the pre-Civil War clearance of the south suburb. Re-used bricks and curved sandstone blocks, possibly originating from a tower construction or newel staircase, formed the footings of the building, which also incorporated a subterranean floor – possibly a shallow cellar. It is impossible to know the source of the building materials, but the quality of the stonework suggests they came from a building of some status.

It is also difficult to discuss the function of the Newarke Street building based on such minimal evidence, but it does appear to have related to the reoccupation of the south suburb following the Civil War. A building in a similar location is depicted on the 1741 Roberts map of the town, but it is unclear if it is an accurate representation of the one revealed in the excavation.

CONCLUSION

The excavations described in this paper have added significant information to the current understanding of the earliest growth and development of Leicester's southern suburb. Importantly, the results of the project have built upon the findings from a growing number of excavated sites which, between them, have shown the great potential for archaeological survival in the area. Although only a relatively small excavation, its position adjacent to two earlier projects has allowed for examination of a coherent 'block' within the southern suburb, allowing for close comparison of results and a consistent approach to the development of its landscape history.

The earliest Roman remains reflect low-level occupation or agricultural activity within a gridded network of plots. These were delimited by a series of gullies, but the general area of activity appears to have been bounded by two roads: the *Tripontium* road to the west and a secondary road to the south, which may have marked the southern edge of the pre-enclosed town. The closely linked alignment of the plots and the early street grid suggests that the original town plan may have extended beyond the area later enclosed by the defences. Once the defences were in place the excluded southern insulae became part of the town's southern suburb. The prevailing trend in alignment seems to have been maintained as the southern suburb developed, an example of this being the introduction of the major boundary ditch in the second century. The predominant alignment of roads and boundaries eventually helped dictate the orientation of burials within the cemetery.

The alignment shared by the main features in the landscape of the early south suburbs can still be seen fossilised in many of the roads in the Newarke Street area, which highlights the influence played by the main road and the town defences. The alignment of Newarke Street contradicts this general trend, indicating it was a later, perhaps medieval, insertion, rather than a fossilised Roman road as has previously been suggested (Cooper 1996, 30). This also calls into question the alignment of early Roman ditches recorded at 21–33 Newarke Street that appeared to reflect the orientation of the road (Derrick 2009, 67–9). These ditches were poorly preserved, however, and whilst the existence of plots on a different alignment remains a possibility, it is equally likely that the orientation of the ditches was misinterpreted.

The landscape boundary may have formed part of a larger planned town before the defences were established. Once they were established, the new limits of Leicester may have caused reorganisation in the new suburban areas, especially those that had previously been located on the edge of the town. It has been suggested that the newly defined town limits caused depopulation of the suburbs (Finn 1993; Cooper and Buckley 2004; Derrick 2009) however, the persistent use of this major boundary might suggest alternative explanations. Evidence for second/third-century occupation of the south suburbs has been found on a number of occasions in recent years (Finn 2004; Higgins 2010; Thomas 2010; Baker 2016). This has largely been located some distance from the town defences, focusing on the Grange Lane area, but it might be expected that similar activity occurred closer to the south gate at this time. The suggestion is that the boundary originally demarcated the back limit of plots projecting away from the *Tripontium* road. Whilst it is possible that these

plots were agricultural, the range of artefacts that accumulated in the ditch (pottery, kitchen waste, building rubble and hearth residues) indicates that domestic activities were still taking place nearby, suggesting that occupation areas had been reorganised rather than deserted. Such domestic occupation may still have been relatively low-key in comparison to intra-mural activities, and was most likely focused on the road frontage, an area out of reach of archaeological excavation to date. The presence of backplot/backyard burials against the boundary provides further evidence for a nearby living population, which is also suggested elsewhere by the presence of similar burials to the north and south of the present site.

Eventually the area to the east of the boundary became a formal burial ground, and perhaps most importantly the recent excavations have shed new light on the development and organisation of this cemetery. Based on the available evidence from this excavation, modelling of the radiocarbon dates demonstrates that the south–north burials are chronologically earlier than the west–east burials. The change of burial tradition to a west–east orientation probably represents the establishment of the formal southern cemetery, which appears to have taken place during the late third–early fourth century. Radiocarbon dating has also shown that burials continued to be placed in the cemetery until the late fourth–fifth century. This supports previous suggestions regarding the dating of the cemetery activity, but importantly indicates a slightly longer chronology than has previously been thought.

The boundary ditch became filled in during the third century, but must still have been an important feature. It may have been redefined or its earthwork may still have been respected, but its position clearly formed the division between two very different groups of burials. Despite the differences in burial rite, many of the graves followed a similar orientation and spatial arrangement, suggesting that they were all part of a wider organised burial ground. The organisation and location of the eastern burials indicates that they were part of the formally organised southern cemetery, but it is currently unclear if the western burials were also included or if they represent a separate burial ground altogether. If the former suggestion is true it provides evidence that provision was made within the cemeteries for expressions of different beliefs. The differences in the western burials may also be seen as an extension of the backyard burial tradition established in the third century. If this is the case it may reflect an interesting juxtaposition of essentially 'rural' attitudes to burial with urban ones, and raises interesting questions about how the suburban population of the town identified themselves.

The western burial group also provides rare evidence from Leicester for Roman grave goods. Along with those from Western Road, the assemblage from this site represents one of the more consistent local assemblages of such finds. Not only do they provide welcome dating evidence, they offer insights into personal identities, beliefs, and potentially social roles or status, that are more difficult to define from the majority of burials from this cemetery.

The project has also contributed to growing evidence of occupation in the medieval south suburb, adding to results of neighbouring and nearby projects. Evidence for later activity has added information on the defensive earthworks established as part of the town's Civil War defences, revealing a previously unrecognised section of

ditch. Additional information has also been identified for occupation of the south suburb in the immediate post-Civil War period.

This small but informative project has once again highlighted the range and level of archaeological information that can be recovered from built-up urban areas. The project adds important information to the gradually emerging history of Leicester's south suburb, which has been pieced together by a single organisation carrying out periodic excavations following a consistent programme of research.

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Should any readers want to follow up on the detail of any of the specialist sections of this paper, the full grey literature reports can be accessed through the OASIS Library of Unpublished Fieldwork Reports: http://archaeologydataservice.ac.uk/archives/view/greylit/ using the OASIS reference numbers universi1-244656 (for Phase 1) and universi1-285109 (for Phase 2).

BIBLIOGRAPHY

Anon., 1877 — 'The discovery of leaden coffins', *Transactions of the Leicestershire Architectural and Archaeological Society* 4, part 3, 246–9.

Arneborg, J., Heinemeier, J., Lynnerup, N., Nielsen, H. L., Rud, N. and Sveinbjörnsdóttir, A. E., 1999 — 'Change of diet of the Greenland Vikings determined from stable carbon isotope analysis and 14C dating of their bones', *Radiocarbon* 41(2).

Baker, S., 2016	*An Archaeological Excavation at 55, Grange Lane, Leicester*. Unpublished ULAS Report No. 2016-074.
Bidwell, P., 2015	'The Towns of The Midlands and The North', in M. Fulford and N. Holbrook (eds), 117–37.
Bronk Ramsey, C., 1995	'Radiocarbon Calibration and Analysis of Stratigraphy: The OxCal Program', *Radiocarbon* 37, 425–30.
Bronk Ramsey, C., 1998	'Probability and dating', *Radiocarbon* 40, 461–74.
Bronk Ramsey, C., 2001	'Development of the radiocarbon calibration program OxCal', *Radiocarbon* 43(2A), 355–63.
Bronk Ramsey, C., 2009	'Bayesian analysis of radiocarbon dates', *Radiocarbon* 51(1), 337–60.
Buck, C. E., Cavanagh, W. G. and Litton, C. D., 1996	*Bayesian Approach to Interpreting Archaeological Data*. Chichester, New York, Brisbane, Toronto, Tokyo, Singapore: John Wiley & Sons.
Caffell, A. and Holst, M., 2012	*Osteological Analysis, Driffield Terrace, York*. York Osteoarchaeology, No. 0212, Unpublished Osteological Report.
Casa Hatton, R., 1999	*The Cemeteries in Roman Britain: Evidence for management and related social implications, with particular reference to the late Roman period*. Doctoral Thesis submitted to the University of Sheffield, Department of Archaeology and Prehistory.
Chisholm, B. S., Nelson, D. E. and Schwarcz, H. P., 1982	'Stable carbon isotope ratios as a measure of marine versus terrestrial protein in ancient diets', *Science* 216, 1131–2.
Clarke, G., 1979	*Pre-Roman and Roman Winchester, Part II: The Roman Cemetery at Lankhills*. Oxford: OUP.
Clarke, S. and Gnanaratnam, A., 2014	*An Archaeological Excavation on land adjacent to the former DMU Law Building, Newarke Street, Leicester*. Unpublished ULAS Report No. 2014-044.
Cooke, N. M., 1998	*The definition and interpretation of late Roman burial sites in the Western Empire*. Doctoral thesis, University of London. http://discovery.ucl.ac.uk/1317907/1/299188.pdf
Cooper, L., 1996	'A Roman Cemetery in Newarke Street, Leicester', *Transactions of the Leicestershire Archaeological and Historical Society* (*TLAHS*) 70, 1–90.
Cooper, L., 1998	*An Archaeological Watching Brief and Archaeological Recording at Haymarket Towers, Leicester*. Unpublished ULAS Report No. 98-146.
Cooper, L., 2004	'Bath Lane, former Harding's Dye Works', *TLAHS* 78, 1445.
Cooper, N. J. and Buckley, R., 2004	'Recent, and not so recent, work in Roman Leicester (*Ratae Corieltauvorum*)', in P. Bowman and P. Liddle (eds), *Leicestershire Landscapes*. Leicestershire Museums Archaeological Fieldwork Group Monograph No. 1, 51–62.
Courtney, P. and Courtney, Y., 1992	'A siege examined: the Civil War archaeology of Leicester', *Post-Medieval Archaeology* 26:1, 47–90.
Courtney, P., 1998	'Saxon and Medieval Leicester, the Making of an Urban Landscape', *TLAHS* 72, 110–45.
Coward, J. and Speed, G., 2009	*Urban Life in Leicester: An Archaeological Excavation at Freeschool Lane, Vol. 1 the Site Sequence*. Unpublished ULAS Report No. 2009-140.

Crerar, B., 2013 — *Contextualising Deviancy: A Regional Approach to Decapitated inhumation in Late Roman Britain*. Unpublished PhD thesis, University of Cambridge. https://www.repository.cam.ac.uk/handle/1810/253608

Dare, M. P., 1927 — 'The Cemeteries of Roman Leicester', *TLAHS* 15, part I, 33–57.

DeNiro, M. J., 1985 — 'Post-mortem preservation and alteration of in vivo bone collagen isotope ratios in relation to paleodietary reconstruction', *Nature* 317, 806–9.

Derrick, M., 2009 — 'The Excavation of a Roman Cemetery at 21–23 Newarke Street, Leicester', *TLAHS* 83, 63–87.

Dunbar, E., Cook, G. T., Naysmith, P., Tripney, B. G. and Xu, S., 2016 — 'AMS ^{14}C dating at the Scottish Universities Environmental Research Centre (SUERC) Radiocarbon Dating Laboratory', *Radiocarbon* 58(1), 9–23.

Esmonde Cleary, S., 2001 — 'Putting the dead in their place: burial location in Roman Britain', in J. Pearce, M. Millet and M. Struck (eds), *Burial Society and Context in the Roman World*. Oxford: Oxbow Books, 127–42.

Finn, N., 1993 — 'An Archaeological Evaluation at 71–95 Sanvey Gate, Leicester', *TLAHS* 67, 93–4.

Finn, N., 2002a — *Mill Lane, Leicester: Evaluation and limited excavation of an area to the south of the historic town*. Unpublished ULAS Report No. 2002-026.

Finn, N., 2002b — 'Mill Lane', *TLAHS* 76, 94–7.

Finn, N., 2004 — *The Origins of a Leicester Suburb. Roman, Anglo Saxon, medieval and post-medieval occupation on Bonners Lane*. Oxford: British Archaeological Reports (British Series) 372.

Fulford, M. and Holbrook, N., 2015 — *The Towns of Roman Britain: The Contribution of Commercial Archaeology Since 1990*. Britannia Monograph Series No. 27. London: Society for the Promotion of Roman Studies.

Gardner, R., 2005 — 'A Roman Cemetery in Clarence Street, Leicester', *TLAHS* 79, 27–87.

Gnanaratnam, T., 2009 — *The Excavation of St. Peter's Church and Graveyard, Vaughan Way, Leicester 2004–2006: Vol. 1, The Stratigraphic Sequence*. Unpublished ULAS Report No. 2009-156.

Gossip, J. 1998 — 'York Road/Oxford Street', *TLAHS* 72, 159–60.

Gossip, J., 1999a — *Excavations at York Road, Leicester*. Unpublished ULAS Report No. 1999-111.

Gossip, J., 1999b — *Excavations at Republic Car Park, Oxford Street, Leicester*. Unpublished ULAS Report No. 1999-112.

Hamilton, D., forthcoming — 'Radiocarbon dating of human bone from Skeletons 3–5', in M. Morris, *The Greyfriars Project: The archaeological search for the last known resting place of King Richard III, Grey Friars, Leicester*.

Harkness, D. D., 1983 — 'The extent of the natural ^{14}C deficiency in the coastal environment of the United Kingdom', *Journal of the European Study Group on Physical, Chemical and Mathematical Techniques applied to Archaeology PACT 8*, IV.9, 351–64.

Higgins, T., 2000 — *An Archaeological Watching Brief of Ye Olde Bowling Green Public House, Oxford Street, Leicester*. Unpublished ULAS Report.

Higgins, T., 2010 — *An Archaeological Excavation at 61, Oxford Street/Grange Lane, Leicester*. Unpublished ULAS Report No. 2010-201.

Higgins, T. and Cooper, L., 1997 — 'Leicester, Haymarket', *TLAHS* 71, 93.

Huxley, R. and Morris, M., 2016 — 'Leicester, 52, Western Road', *TLAHS* 90, 289–90.

Jacklin, H. and Chapman, S., 2009 — 'The Human Remains', in M. Derrick (ed.), *TLAHS* 83, 80–91.

Leach, P., 1982 — *Ilchester: Excavations 1974–5*. Bristol: Western Archaeological Trust.

Leach, P., 1994 — *Ilchester Volume 2: Archaeology, Excavations and Fieldwork to 1984*. Sheffield Excavation Reports, 2. Sheffield: John Collis Publications.

Lewis, M. E., 2007 — *The Bioarchaeology of Children: Perspectives from Biological and Forensic Anthropology*. Cambridge: CUP.

Lucas, J., 1976 — 'Great Holme Street', *TLAHS* 50, for 1974–75, 57–8.

Lucas, J., 1978 — 'Excavations at Great Holme Street, Leicester', *TLAHS* 52, for 1976–77, 86–7.

Lucas, J., 1992 — 'An Archaeological Evaluation in Free Lane, Leicester', *TLAHS* 66, 186.

MacDonald, J. L., 1979 — 'Religion', in G. Clarke (ed.), *The Roman Cemetery at Lankhills, Winchester Studies 3*, *Pre-Roman and Roman Winchester, Part II*. Oxford: Clarendon, 404–33.

Margary, I. D., 1957 — *Roman Roads in Britain I*. London: Phoenix House Ltd.

Masters, P. M., 1987 — 'Preferential preservation of non-collagenous protein during bone diagenesis: implications for chronometric and stable isotope measurements', *Geochimica et Cosmochimica Acta* 51, 3209–14.

Mellor, J. E. and Pearce, T., 1976 — 'Austin Friars', *TLAHS* 50, for 1974–75, 57.

Merrifield, R., 1987 — *The Archaeology of Ritual and Magic*. London: New Amsterdam Books.

Mook, W. G., 1986 — '*Business meeting:* recommendations/resolutions adopted by the Twelfth International Radiocarbon Conference', *Radiocarbon* 28, 799.

Morris, M., 2010 — *Life in the Suburbs: The Archaeological Excavation of Iron Age to Post-medieval occupation beneath the PACE and Hugh Aston Buildings, De Montfort University, Leicester (2006–2008)*. Unpublished ULAS Report No. 2010-134.

Morris, M., 2011 — 'Leicester, 40–46, Western Road', *TLAHS* 85, 208–10.

Morris, M., 2013 — 'Leicester, 40–46, Western Road', *TLAHS* 87, 240–2.

Morris, M., 2015 — *Buried Beside the River: Excavation of a Roman Cemetery at 40–46 Western Road, Leicester*. Unpublished ULAS Report No. 2015-061.

Morris, M. and Thomas, J., 2016 — 'Leicester, Southgates', *TLAHS* 90, 287–9.

Parker, D. and Jarvis, W., 2007 — *An Archaeological Evaluation at 16–26 Oxford Street, Leicester*. Unpublished ULAS Report 2007-118.

Parker Pearson, M., 1999 — *The Archaeology of Death and Burial*. Stroud: Tempus.

Pearce, J., 1999 'The Dispersed Dead: preliminary observations on burial and settlement space in rural Roman Britain', in P. Baker (ed.), *Proceedings of the 7th Theoretical Roman Archaeology Group Conference*. Oxford: Oxbow, 151–62.

Pearce, J., 2015 'Urban Exits: Commercial Archaeology and the Study of Death Rituals and the Dead in the Towns of Roman Britain', in M. Fulford and N. Holbrook (eds), 138–66.

Petts, D., 2003 *Christianity in Roman Britain*. Stroud: Tempus.

Petts, D., 2016 'Christianity in Roman Britain', in M. Millett, L. Revell and A. Moore (eds), *The Oxford Handbook of Roman Britain*. Oxford: OUP, 660–80.

Philpott, R., 1991 *Burial Practices in Roman Britain: A Survey of Grave Treatment and Furnishing, A.D. 43–410*. Oxford: British Archaeological Reports (British Series) 219.

Quensel-von-Kalben, L., 2015 'Putting the late Roman burial practice in Britain in context', in J. Pearce, M. Millett and M. Struck (eds), *Burial, Society and Context in the Roman World*. Oxford: Oxbow Books, 216–30.

Reimer, P. J., Bard, E., Bayliss, A., Beck, J. W., Blackwell, P. G., Bronk Ramsey, C., Buck, C., Cheng, H., Lawrence Edwards, R., Friedrich, M., Grootes, P. M., Guilderson, T. P., Haflidason, H., Hajdas, I., Hatte, C., Heaton, T. J., Hoffmann, D. L., Hogg, A. G., Hughen, K. A., Kaiser, K. F., Kromer, B., Manning, S. W., Niu, M., Reimer, R. W., Richards, D. A., Scott, E. M., Southon, J. R., Staff, R. A., Turney, C. S. M. and van der Plicht, J. 'IntCal13 and Marine13 Radiocarbon Age Calibration Curves 0–50,000 Years cal BP', *Radiocarbon* 55(4), 1111–50.

Roberts, C. A. and Cox, M. 2003 *Health and Disease in Britain*. Gloucester: Sutton Publishing.

Salway, P. 1981 *Roman Britain*. New York: Oxford Paperbacks.

Schoeninger, M. J., Deniro, M. J. and Tauber, H., 1983 'Stable nitrogen isotope ratios of bone collagen reflect marine and terrestrial components of prehistoric diets', *Science* 216, 1381–3.

Scott, E. M. (ed.), 2003 'The Third International Radiocarbon Intercomparison (TIRI) and the Fourth International Radiocarbon Intercomparison (FIRI) 1990–2002: results, analysis, and conclusions', *Radiocarbon* 45, 135–408.

Smith, R. F., 1987 *Roadside Settlements in Lowland Roman Britain*. Oxford: British Archaeological Reports, British Series 157.

Stuiver, M. and Kra, R. S. (eds), 1986 'Calibration issue, Proceedings of the 12th International 14C conference', *Radiocarbon* 28(2B), 805–1030.

Stuiver, M. and Polach, H. A., 1977 'Discussion: Reporting of 14C Data', *Radiocarbon* 19, 355–63.

Stuiver, M. and Reimer, P. J., 1986 'Programs Calib and Display', *Radiocarbon* 28, 1022–30.

Stuiver, M. and Reimer, P. J., 1993 'Extended 14C data base and revised CALIB 3.0 14C age calibration program', *Radiocarbon* 35, 215–30.

Taylor, J., 2002 *Northamptonshire Extensive Urban Survey: Ashton*. Unpublished Northamptonshire County Council Report.

Thomas, J., 2010 *An Archaeological Excavation on land at 52, Grange Lane, Castle Ward, Leicester*. Unpublished ULAS Report No. 2010-226.

Thomas, J., 2014 *An Archaeological Excavation at 16–26 Oxford Street, 28 Newarke Street and Allen House, Castle Ward, Leicester*. Unpublished ULAS report 2014-199.

Thomas, J., 2016 *An Archaeological Excavation at 28, Newarke Street, Castle Ward, Leicester*. Unpublished ULAS Report 2016-159.

Tuross, N., Fogel, M. L. and Hare, P. E., 1988 'Variability in the preservation of the isotopic composition of collagen from fossil bone', *Geochimica Cosmochimica Acta* 52, 929–35.

Wakely, J. and Carter, R., 1996 'Skeletal Analysis', in L. Cooper (ed.), *TLAHS* 70, 33–51.

Wardle, A., 2000 'Funerary rites, burial practice and belief', in A. Mackinder, *A Romano-British Cemetery on Watling Street*. London: MOLA Archaeology Studies Series 4, 27–30.

Watts, D. J., 1989 'Infant burials and Romano-British Christianity', *Archaeological Journal* 146, 372–83.

Watts, D. J., 1991 *Christians and Pagans in Roman Britain*. New York: Routledge.