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Quarrying, structured deposition and landscape appropriation in Ewell

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with contributions by
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Recent excavations in Ewell revealed a palimpsest of archaeological remains that date from the Mesolithic to the Middle Saxon period. The first archaeologically identifiable evidence of activity within the confines of the site consists of scattered struck flint of Mesolithic and Neolithic date with more substantial activity occurring in the Late Bronze Age to Early Iron Age as evidenced by settlement activities associated with a well-organised field system. During the early Roman period, Ewell became the site of a large quarrying industry. That activity, and the landscape in which it took place, were of undoubted significance to the ancient inhabitants of the area, as demonstrated by the presence of a wealth of structured deposits in quarries and ditches that included a large quantity of human remains. The Romano-British people that were responsible for these depositions may have viewed the exercise as a practical undertaking integral to the quarrying process. Knowledge of the importance of this landscape and the earlier features within it appears to have survived into the post-Roman period when the top of one of the quarries was apparently used as a receptacle for a 'deviant' burial of Middle Saxon date. The results of this excavation therefore add to current understanding of the development of Ewell and its environs from the Late Bronze Age onwards and contribute to bodies of knowledge on several wider topics, including the nature of Late Bronze Age to Early Iron Age pastoralism and settlement on the North Downs, late prehistoric flint tool production, Roman quarrying in south-east Britain, mortuary rites in this region during the Late Iron Age and Roman periods, the potential importance of landscape context and the concept of liminality within prehistoric and Romano-British cosmologies and the appropriation of the landscape by a new culture during the Saxon period.

Introduction

This article details the results of two archaeological excavations undertaken in 2015 by Pre-Construct Archaeology on ground formerly occupied by the Nescot College Animal Husbandry Centre, Reigate Road, Epsom KT17 1QN (TQ 2219 6207; fig 1). Archaeological remains uncovered ranged in date from the Mesolithic to the Middle Saxon period. The following narrative first presents the terminology and methodology used throughout this paper and the geological and archaeological background to the project. This is followed by the stratigraphic sequence, arranged chronologically, and specialist contributions. These strands of evidence are then drawn together and presented in a wider temporal and spatial context in the *General discussion* (below). The data presented contribute to several thematic topics and ongoing debates in British archaeology at regional and national level, which are addressed throughout the discussion. These are the development of pastoralism and early settlement patterns across the North Downs; late prehistoric flint tool production and a discussion of the evidence for surface middening; Roman stone extraction, supply and use in south-east Britain; the link between liminal places and structured deposition in the prehistoric and Roman periods; mortuary rites in Late Iron Age and Roman Britain and the appropriation of certain landscapes and earlier monuments by the Saxons. The article concludes with a brief chronological summary of the findings and their contributions to these themes.

It is intended that the completed archive, comprising written, drawn and photographic records and artefacts, will be deposited at Bourne Hall Museum, Ewell.

TERMINOLOGY

The data presented derive from two separate excavations carried out in advance of a residential development: the land to the south and east was developed by Hill Partnerships (site code SRRE15, 'Site A'), while the plot to the north-west was, at the time of the excavation, the property of the Goodman Group Development Ltd (site code SCHS15, 'Site B'; figs 1 and 2). Three areas of excavation were opened within the confines of the former, while one area was excavated within the latter (fig 2). When necessary, specific contexts are referred to in brackets, the excavations to which they refer being differentiated using the prefixes 'A' (SRRE15) and 'B' (SCHS15). Small finds numbers are prefixed with the letters 'SF' and 'A' (SRRE15) or 'B' (SCHS15).

The stratigraphic narrative is presented by archaeological period. Divisions between periods are defined by major land-use changes (eg the replacement of a field system by quarrying activity); these are further divided into sub-phases where necessary (eg Period 2, Phase 2, abbreviated herein to Period 2.2) so that more subtle changes can be discussed (eg alterations within a field system). A simple diagram showing the relative chronological and spatial positions of the various land uses, periods and their sub-phases is presented as a navigational aid (fig 3: *see Endnote*).

As demonstrated throughout, the site was a focus for acts that involved structured deposition. Artefacts and ecofacts that are described as structured deposits here are not necessarily individually remarkable, but are defined as such on account of their nature and the context of their discovery. Specifically, they form part of a collection of artefacts or ecofacts that may have possessed symbolic or economic value (or both) that appeared to have been deliberately and systematically deposited, often in association with each other, in particular kinds of features (in this case quarries and ditch termini), thus more probably representing something other than general rubbish disposal. They include, but are not limited to, collections of deliberately placed articulated or semi-articulated animal skeletons, human remains, large animal bone deposits (perhaps indicative of feasting), deliberately broken pottery and metalwork (Hamerow 2006, 3; Blair 2011, 728).

'Romano-British' is used as a descriptive term throughout. It is, however, often applied uncritically and without definition in archaeological literature to describe a wide range of cultures that existed within the British Isles during the Roman period. While Roman authors often describe 'native' Britons and their various cultures collectively, significant regional variations as well as similarities in social organisation and material culture existed. From the perspective of an ancient inhabitant of Britain, such a wide cultural unit may therefore not have existed (Crease 2015, 60). Within the context of this article, the term 'Romano-British' is thus used to describe people, activities, features or artefacts having a link to pre-Roman cultural traditions while acknowledging that they do not form part of a homogenous, pan-British cultural unit. When describing more general trends that are identifiable across swathes of Britain and the near Continent, the term 'Romano-Celtic' is used.

GEOLOGY, TOPOGRAPHY AND ARCHAEOLOGICAL BACKGROUND

The site lies on the northern dip-slope of the North Downs, *c* 530m to the south of the centre of the village of Ewell at the junction of two physiographic zones: pasture land, situated towards the top of the Downs to the south, and the plains of the valley to the north (Poulton 2004, 57; fig 4). These varied resources were valuable to past populations; however, another crucial factor that influenced prehistoric and historic land use in Ewell was its proximity to a spring line caused by the presence of a thin band of porous geology: late Palaeocene Thanet Sands, which outcrop between Cretaceous Upper Chalk to the south, and less permeable Woolwich and Reading beds and Eocene London Clay to the north (Abdy & Bierton 1997, 124; fig 1). The Hogsmill river rises from a spring at Ewell before flowing north for *c* 9.5km to the river Thames at Kingston (fig 1).

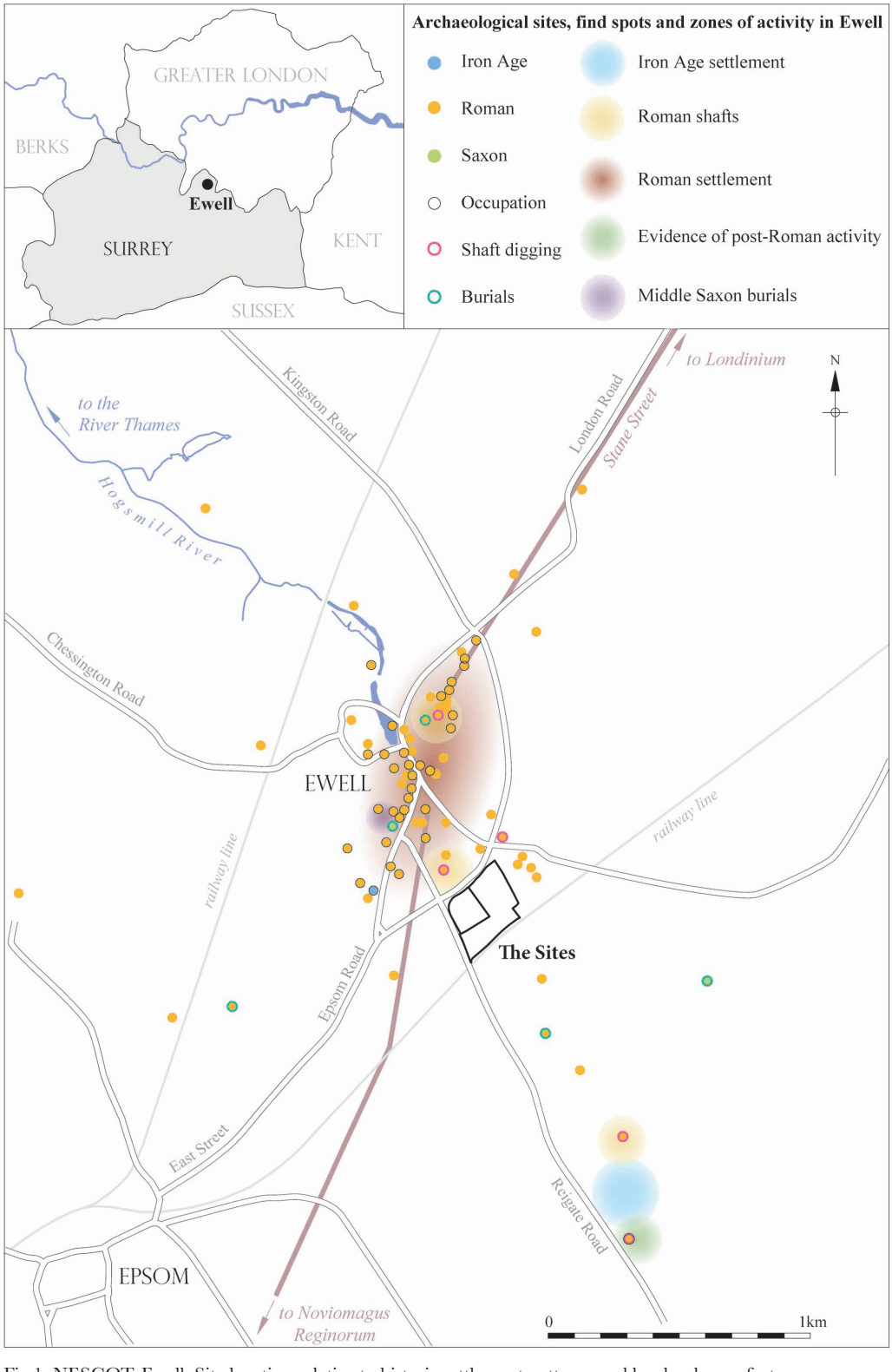

Fig 1 NESCOT, Ewell. Site location relative to historic settlement patterns and key landscape features.

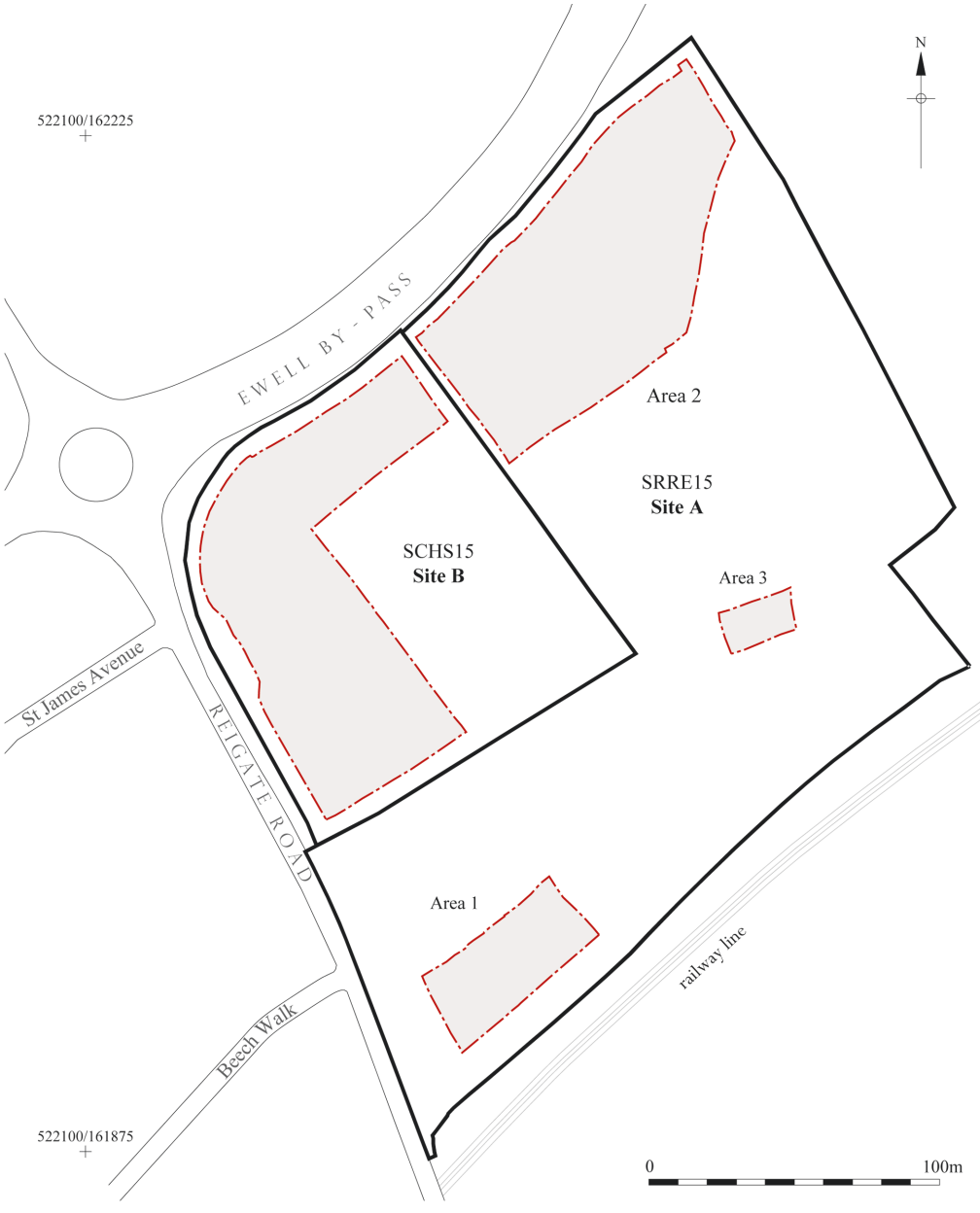

Fig 2 NESCOT, Ewell. Trench locations.

The presence of sweet water undoubtedly attracted ancient people to this area for millennia yet surviving evidence of Palaeolithic activity in the vicinity is limited, currently consisting of nothing more than two small handaxes and several flint flakes (Wymer 1987, 26). Mesolithic findspots are comparatively common, twenty having been identified around the source of the Hogsmill (Wymer 1977, 273–4; Jacobi 2014). These remains indicate fairly intense activity around the springs throughout the Mesolithic and are perhaps best interpreted as the result of periodic visits by nomadic bands of hunter-gatherers. An apparent lack of evidence for

permanent or semi-permanent settlement continues into the Neolithic, yet occasional visits remain demonstrable through the discovery of flint tools (Orton 1997, 94).

As the prehistoric period progressed the situation began to change, as demonstrated by the spread of Bronze Age settlement across the North Downs (Needham 1987, 128–9). This appears to have declined following the Late Bronze Age to Early Iron Age transition, yet activity continued in the vicinity of Ewell as demonstrated by the discovery of pottery of Bronze Age and Early to Middle Iron Age date as well as the presence of Late Iron Age features in the vicinity of The Looe (Cotton 2001, 13; fig 1). The distribution of these finds suggests that the area was settled during that period, the focus of occupation being the high ground to the south of the site (fig 1).

A roadside settlement in the location of the modern town developed during the early Roman period. This was centred on Stane Street, the road that linked *Londinium* (London) to the north and *Noviomagus Reginorum* (Chichester) to the south (Margary 1955, 59; fig 1). Sections of the road have been discovered in the village between the High Street and Mongers Lane, at the northern end of what is now Castle Parade, and at St Mary's churchyard, as well as at Church Street and Glyn Close (Lowther 1935, 32, 39; Hall 2008, 242–3). The section of road revealed at St Mary's remained functional during the 1st and 2nd centuries only, after which it was probably re-routed (Hall 2008, 242). Nearby excavations at Hatch Furlong also revealed the remains of a second road, which appeared to run from the downs to the south-east to the source of the Hogsmill to the north-west, most probably following the approximate course of the north-west section of the present Cheam Road and an extant bridle path (Cotton & Sheldon 2010, 2–3).

Roman buildings have been found either side of Stane Street, together with pits, wells and other features (Pemberton 1973a, 86; 1973b, 6–9; Orton 1997, 95–6, 120; Stansbie & Score 2004, 195–9, 213–14; Haslam & Fairman 2011, 1). The precise function of this settlement remains ambiguous, although Bird has described it as less developed than Staines, perhaps representing little more than a village (Bird 1987, 169). This interpretation contradicts earlier assertions that it was established as a *mutatio* (posting or staging station) south-west of *Londinium* (Pemberton 1973a, 86).

It has also been suggested that Ewell may have functioned as a religious or cult centre associated with the Hogsmill spring; a suggestion based on the discovery of a number of deep shafts cut into the natural chalk that contained remains indicative of practices involving structured deposition (Bird 2004a, 67; 2004b, 83–8). Ten late 1st century AD shafts were found during the mid-19th century in the vicinity of Mongers Lane to the immediate north of the site; another example was found at Seymour's Nursery to the north-east, while at least six shafts were discovered to the south at the site of Priest Hill Farm and The Looe (Abdy & Bierton 1997, 131; Cotton 2001, 31; fig 1). More recently, three examples were found at Hatch Furlong immediately north of the site, situated next to a fourth shaft that was excavated in the 1970s (Cotton & Sheldon 2007, 2–3; 2008, 5–6). In 2014, in the far west corner of the site itself, a large, deep shaft-like quarry was discovered during preliminary investigations by Oxford Archaeology (site code RDD14), which contained a tightly crouched burial close to the base (Black & Allen 2014, 13). This evidence shows that shaft digging and quarrying was concentrated towards the southern and western fringes of the settlement; however, a solitary shaft was also discovered in the centre of the occupied area at Church Street (interpreted as a rubbish pit, albeit one that was over 3m deep; Abdy & Bierton 1997, 135). Evidence demonstrating the presence of a small Roman farmstead was also discovered on the site of The Looe, the presence of which indicates continued settlement in that location from at least the Late Iron Age into the 4th century AD (Cotton 2001, 3; fig 1). Together, this suggests that the present site lay within an area in which shaft digging and quarrying took place located between the main roadside settlement to the north-west and the farmstead to the south-east (fig 1). The presence of a religious building at Ewell has also been hypothesised in the vicinity of the spring, although no direct evidence for this has been found as yet (Bird 2004b, 42).

It is unclear whether there was unbroken occupation in the vicinity of Ewell between the late Roman and early Saxon periods, but the discovery of diagnostic pottery at Priest Hill Farm to the south suggests some form of 5th century presence in the area (Haslam & Fairman 2011, 1; fig 1). Activity had certainly resumed in a more archaeologically identifiable way by the Saxon period, when a 6th century Saxon cemetery (comprising five inhumations) developed immediately to the west of the former Roman settlement, while two further Saxon burials have been found to the east of the site (Poulton 1987, 215; Lowther 1935, 17; 1963, 294–6; fig 1). The first documentary reference to Ewell occurs in the foundation charter for Chertsey Abbey, dated AD 675, thus demonstrating that it had indeed been re-established before the late 7th century.

The archaeological sequence

PERIOD 1: NATURAL TOPOGRAPHY AND PLEISTOCENE TO EARLY HOLOCENE NATURAL FEATURES

Owing to its situation on the dip-slope of the North Downs, the site exhibited a pronounced slope, falling from a high of 49.50m OD in the north to a low of 42.40m OD in the south. Within the site this topography was complicated by the presence of a shallow, dry valley, which extended across the excavation area from the south-east to the north-west (fig 4). This was marked by a 0.90m fall from 43.83m OD along the eastern edge of the site to a low of 42.93m OD towards the centre of the valley. Along the western edge, the fall was more severe: from a high of 47.97m OD to a low of 41.89m OD.

Cretaceous chalk, overlain across the western third of the site by Thanet Sands, was observed at the base of the sequence. Cryoturbation (freeze–thaw action during Pleistocene cold stages) had resulted in the formation of a number of fissures in the chalk that had subsequently been filled by head deposits. In the north-east corner the chalk was exclusively sealed by such deposits. Together, these natural layers created a horizon that mirrored the present topography, falling from a high of 47.95m OD in the south-west corner to lows of 43.99m OD and 41.40m OD in the north-east and north-west corners respectively.

A large sub-circular feature with near-vertical edges was observed in the north-west corner of the excavation (ie Site B) that was 9.76m wide from east to west, 8.32m wide from north to south and over 5.6m deep (Solution Feature 1). It contained various fills of silts and sands, all of which were archaeologically sterile (fig 5). For this reason, a decision was made to machine excavate the feature until archaeological horizons were reached; however, none were encountered before the excavation became unsafe. The morphology of the feature pointed towards it being a 'sinkhole' that had formed by natural processes. Such solution features have an increased tendency to form where acidic Thanet Sands overlie alkaline chalk, as is the case here (Farrant & Cooper 2014). A lack of artefacts within the feature suggests that it was largely infilled either during the Pleistocene or early Holocene period, prior to the first identifiable phase of human activity on the site.

PERIOD 2: LATE BRONZE TO EARLY IRON AGE

The settlement activity that characterises the Late Bronze Age across the North Downs is shown here by an increase in the recovery of finds from this period (Surrey Historic Environment Record (SHER) 4793; 4791; 2567; 2546; 4763; 5866; Orton 1997, 94). Two Late Bronze Age gullies were previously recorded (SHER 4787), which suggested that the site and its environs were more intensively exploited than has so far been recorded in the surrounding area. The discovery of Late Bronze to Early Iron Age features along the western side of the site where the Thanet Sand outcrops adds weight to that view (fig 6). The geology of the area gives rise to freshwater springs that almost certainly attracted prehistoric settlers here and elsewhere within the Surrey region (Ellaby 1987, 57).

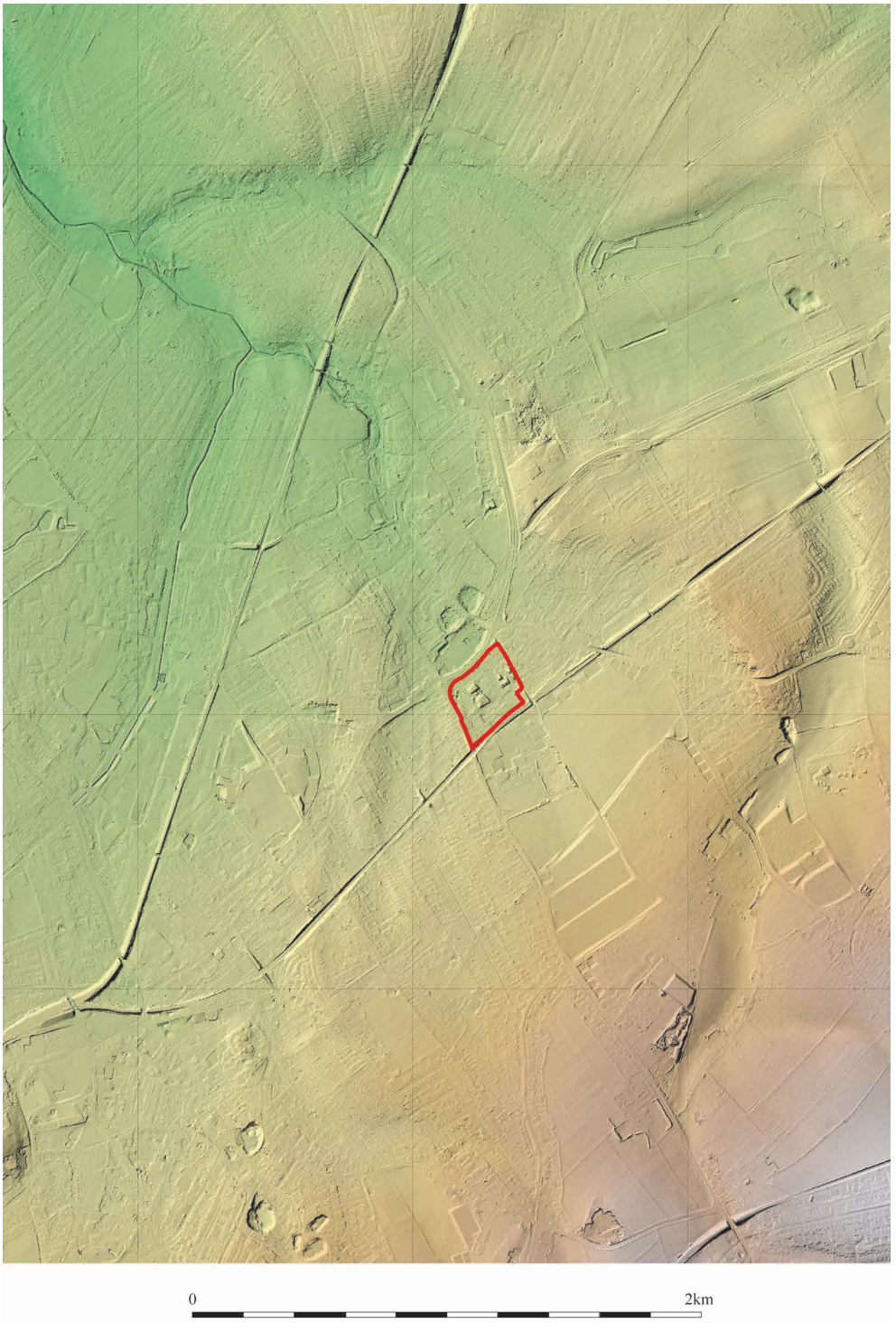

Fig 4 NESCOT, Ewell. LiDAR image illustrating the topography in the vicinity of Sites A and B; higher ground (orange-brown), lower ground (green). Source: Defra Data Services Platform. Contains public sector information licensed under the Open Government Licence v3.0.

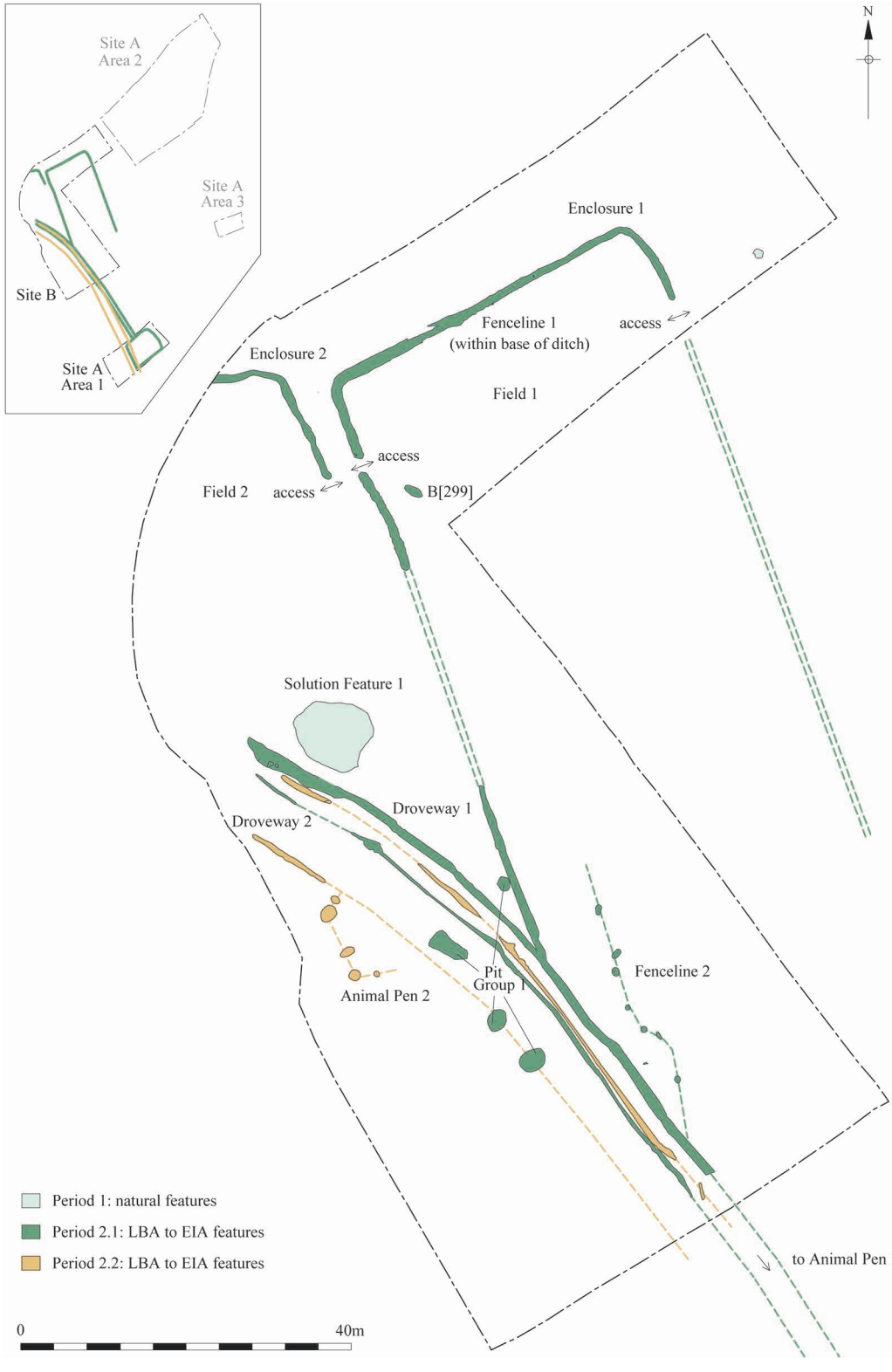

Fig 5 NESCOT, Ewell. Natural features (Period 1), Late Bronze to Iron Age features (Periods 2.1 and 2.2) and pre-Roman features (Period 3) in the north-west of the site.

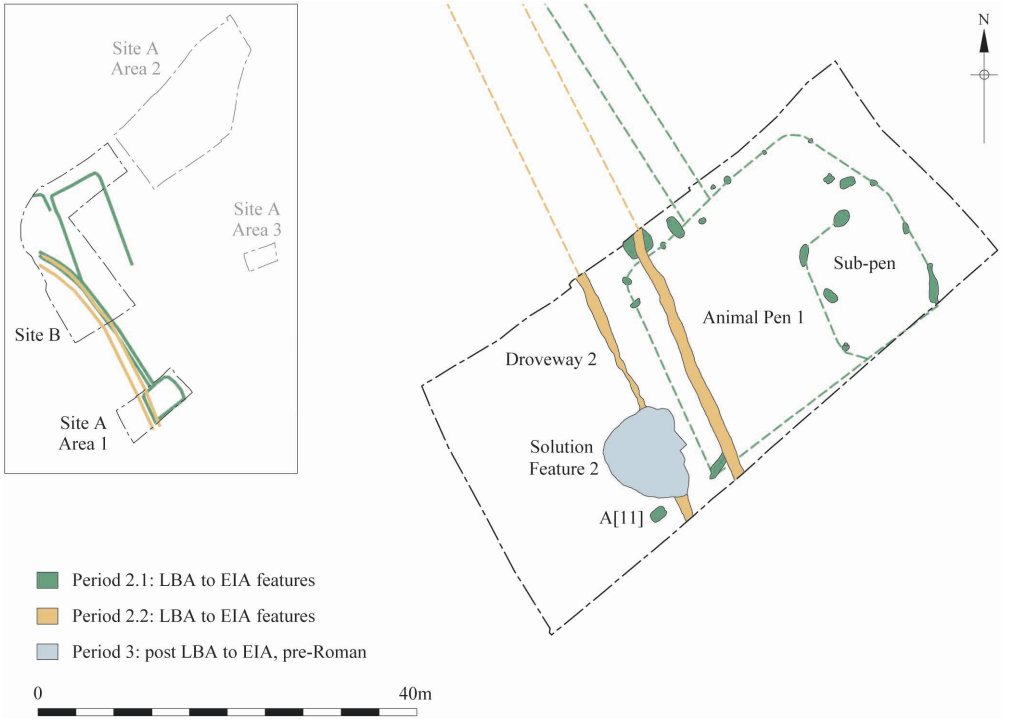

Fig 6 NESCOT, Ewell. Late Bronze to Iron Age (Periods 2.1 and 2.2) and pre-Roman features (Period 3) in the south of the site.

Period 2.1

One of the principal Late Bronze to Early Iron Age features revealed was a 3.2m-wide curving droveway, orientated north-west/south-east across Site B, which was over 77m long (Droveway 1, fig 5). It was defined by two ditches, the easternmost (downslope) of which was up to 2.02m wide and 0.54m deep. Running parallel and to the west of this was a similarly-sized ditch, which formed the other side of the droveway. Both contained single fills of silty sand that together yielded 52 pieces of prehistoric worked flint that included 29 diagnostic flakes and two cores of Bronze to Iron Age date, and a single sherd of Late Bronze to Early Iron Age pottery.

Also identified within Site B were three surviving sections of ditch which, together, delineated a sub-rectangular boundary, the long-axis of which was orientated north-north-west/south-south-east (Enclosure 1; fig 5). This bounded a field that was over 96.9m long and up to 40.80m wide, in which animals were presumably put to pasture (Field 1; fig 5). The ditches were between 1.12m and 1.1m in width, surviving to a maximum depth of 0.29m. Much of the western side of the enclosure had suffered horizontal truncation, although its probable extent is extrapolated in figure 5. Probable postholes were observed in the base of slots dug through the northern ditch of Enclosure 1, which suggests that a fence may once have helped to define the perimeter of the enclosure (Fenceline 1; fig 5).

Pottery retrieved from the backfill of the Enclosure 1 ditches consisted of two sherds of Late Bronze to Iron Age date and a single sherd of Roman pottery. The latter is presumed to be intrusive as 25 pieces of prehistoric worked flint were also recovered, including eighteen flint flakes that were broadly dated to the Bronze or Iron Age periods. This, in combination with the clear spatial association of Enclosure 1 (which only contained Late Bronze to Early Iron Age dating evidence) with Droveway 1, suggests that the Enclosure 1 ditches were

probably infilled during the Late Bronze to Early Iron Age. Ditches belonging to this field system were also truncated by well-dated 1st century Roman features, which again implies that they probably pre-date the Roman period.

At the southern end of the enclosure the ditch merged with the eastern boundary of Droveway 1. The identical nature of the fills of the droveway ditch and the enclosure suggest that they were infilled together, which by extension indicates that they were extant at the same time.

Located in the south-west section of Field 1, close to the boundary with Droveway 1 (again within Site B), was a 24m-long fenceline that comprised up to eight postholes or post pits that were irregularly arranged on an approximate north-north-west/south-south-east alignment (Fenceline 2; fig 5). The fact that four of these features were offset from the main run by up to 0.5m implies that this boundary could have been rebuilt on a slightly different alignment on at least one occasion. If a temporary or permanent wooden bridge crossed Droveway 1, this fenceline could have been used to facilitate the herding of animals from Field 1 into Droveway 1.

Situated 4m to the west of Enclosure 1, again in Site B, was a further ditch that was up to 1.1m wide and 0.25m deep, which almost certainly represents the remains of a second enclosure that defined another field (Enclosure 2, fig 5). The visible sections of this landscape feature showed that it was over 17.16m long (probably extending southwards as far as Droveway 1) and more than 7.34m wide. Both it and Enclosure 1 were on the same orientation, while the locations of ditch termini suggested that three entrances to the enclosures (two relating to Enclosure 1, one associated with Enclosure 2) were situated opposite each other, presumably to facilitate the easy movement of people and animals between the fields (fig 5). Despite a lack of dating evidence from Enclosure 2, the spatial relationships of the ditches suggest that, along with the other landscape features described thus far, they formed part of a unified field system of Late Bronze to Early Iron Age date.

In Site A, to the immediate south of Droveway 1, was a series of twelve postholes or post pits and two shallow linear scars, perhaps indicative of the former presence of a hedgerow, that together defined a space that was 24m long and over 21.5m wide. The replacement of at least one posthole with another indicates continued maintenance, while notable gaps along the southern and western limits of the feature either represent entry points or more likely are the result of horizontal truncation. The postholes or post pits were shallow, measuring between 0.2m and 0.53m in depth. The only finds recovered were a flint blade broadly dated to the Mesolithic to Early Bronze Age and a flint flake of Bronze to Iron Age date. This structure could represent an animal pen or paddock accessed from Droveway 1 that was defined by a combination of a hedgerow and fencing (Animal Pen 1; fig 6). Pit A[11] lay further to the west and its function remains unclear, although it is possible that it also formed part of the pen (fig 6).

Within the south-east corner of the pen, a series of five small post pits formed a sub-pen that was 9.37m wide and 10.62m long (fig 6). The post pits were generally infilled with sterile sandy silt, although one contained a small amount of Mesolithic to Early Bronze Age flint debitage and a residual Mesolithic to Early Neolithic core.

A collection of four large oval to circular pits were distributed either side of Droveway 1 in Site B (fig 5). Three were situated to the immediate west of the droveway, while a fourth was unearthed immediately to the east. The pits were between 4.80m and 2.32m in diameter and 1.12m and 0.45m in depth. Generally, they were archaeologically sterile with the only find being a single sherd of Late Bronze to Early Iron Age pottery. A solitary pit with a similar appearance to those within this pit group was situated to the east of Enclosure 1 within Field 1 (B[299]; fig 5).

The function of these pits is obscure, but several possible interpretations can be discounted. They are unlikely to have been utilised as waterholes of the type identified at Perry Oaks (Lewis *et al* 2006, 133) since they were not deep enough to reach the water table and, with no evident lining, the underlying chalk would have been too porous to

retain liquid for a prolonged period. Given the probable pastoral nature of this site during the Late Bronze to Early Iron Age, a capacity for grain storage or crop processing also seems unlikely, an assertion that is supported by a lack of cereal plant macro-remains in the backfill sequences. Four-post structures generally interpreted as granaries are also sometimes found in association with grain storage pits on other sites, for example Reading Business Park, but were absent here (Brossler 2001, 137). The purpose or purposes of these pits therefore remain unknown.

Period 2.2

At a later time during this period, Droveway 1 was infilled and replaced by Droveway 2 (fig 5), although evidence relating to the Roman period (discussed below) suggests that Droveway 1 may have remained visible in the landscape as a shallow earthwork. With a length in excess of 162.24m, Droveway 2 extended further to the south than its predecessor, running through Sites A and B. It was formed by two parallel, curving ditches *c* 6m apart, identically aligned with those of Droveway 1. The easternmost of these ran through Animal Pen 1, which had presumably fallen out of use by this time (fig 6). The eastern and western ditches of the droveway were similarly sized, their best preserved (southern) sections being up to 1.48m wide and up to 0.62m deep, but towards the north they were less well preserved. The eastern ditch had been broken into four shallow fragments, while little remained of the western ditch that was located higher up the dry valley slope. This is probably because the droveway suffered a greater degree of erosion in that location as a result of hillwash into the valley. Both ditches yielded similar finds assemblages that included four sherds of Late Bronze to Early Iron Age pottery and 31 pieces of worked prehistoric flint, including 21 diagnostic Bronze to Iron Age pieces. Also present in the uppermost reaches of the ditches were a prismatic blade and the catch plate of an intrusive mid-1st to early 2nd century copper-alloy brooch that probably represents a Springhead Colchester derivative (Mackreth 2011, 54–7). An intrusive copper-alloy Roman coin (an *antoninianus* of Carausius dated AD 286–293) was also discovered within the upper backfill of Droveway 2, perhaps because this feature also remained visible as a shallow earthwork into the Roman period.

A series of five small pits or post pits were located to the west of Droveway 2 in Site B (fig 5). Four of these were arranged over 9m on a north-west/south-east axis. The final pit was offset 2m to the east at the southern end, effectively creating an 'L' shape. Measuring up to 0.41m in depth, all these pits contained a single fill that lacked diagnostic dating evidence. Their arrangement indicated that they were related, perhaps forming part of a wooden structure or fenceline. One possibility is that they represent a small animal pen that was associated with Droveway 1 or 2 (Animal Pen 2; fig 5).

Period 3: apparent abandonment

An apparent phase of abandonment appears to have characterised the time between the Late Bronze to Early Iron Age and the early Roman period. A large, solitary sub-oval feature, which may be entirely natural, formed in the south-west corner of the site during this period (Solution Feature 2; fig 6). It was over 10m wide from north to south, 8.92m wide from east to west and 9.5m deep, the top being at a height of 47.95m OD. Although sub-oval on the surface, its steeply sloped sides tapered for *c* 2m before forming a central, circular core with a diameter that varied between 5.32m and 5.12m. Finds were non-existent within all but the top fills, so for health and safety reasons a machine was used to excavate to a depth of 43.19m OD. This revealed a 1.22m-wide 'pipe' offset towards the east relative to the centre of the circular core, that contained a distinctive brown, clay-like primary lining that was up to 0.55m wide, the central, secondary fill consisting of friable deposits of mid-red to mid-greyish/brown clayey silty sand. The morphology of this feature was consistent with that of a natural solution feature or 'sinkhole' (Farrant & Cooper 2014, *passim*), an interpretation

that was consistent with the general dearth of archaeological evidence observed within the lower fills (Solution Feature 2: Infill Event 1).

The solution feature appeared to truncate the southern section of Droveway 2, while its upper parts were infilled during the early Roman period (discussed below). Together, this suggests that it formed after the Late Bronze to Early Iron Age droveway had fallen out of use but probably before activity recommenced in the early Roman period.

Period 4: early to mid-Roman (AD 43–250)

One of the earliest and most significant features of this period was a substantial sub-oval shaft (Quarry 1; figs 7 and 8), the top of which was identified at a height of 43.55m OD in Site A. As will be demonstrated, this enormous feature is thought to represent a chalk and flint quarry that dating evidence suggests was infilled during the late 1st century AD. It was 12.82m wide from east to west and 10.85m long from north to south with an overall depth of 4.65m. The near-vertical sides descended for 2.76m to a roughly cut surface or platform (henceforth termed the Upper Shaft) from which a further circular shaft, 4.16 x 4.54m, descended sharply for a further 1.89m to a depth of 38.90m OD (henceforth termed the Lower Shaft). Unlike other probable Roman quarries on this site (discussed below), the base of this was completely flat and smooth. Notably, the north-eastern side of the central cut was both straight and near-vertical, suggesting that a fault line had been followed within the chalk bedrock as the chalk and flint was removed (fig 7). Marks were evident along this edge that may have been created by tools or picks used during the quarrying process (fig 9).

The remarkable contents of the backfill sequence of Quarry 1 (detailed below) provided a clear comparison with assemblages from other Roman features in the Ewell area and beyond that have been interpreted as 'ritual shafts'. Such shafts are morphologically distinct from the Ewell quarries, being relatively narrow and deep. However, as will be shown, the unusual

Fig 7 NESCOT, Ewell. Overview of Quarry 1. Note that the quarry had to be machine-stepped for health and safety reasons, so only the shaft at the bottom represents the true profile of the feature. Facing east.

artefact and ecofact assemblages that were found within Quarry 1 suggest a connection between the manner in which the feature was treated and the ways 'ritual shafts' were infilled. The authors consider that the term 'ritual shaft' should not be used to describe the Ewell quarries, however, not just because of the morphological differences mentioned above

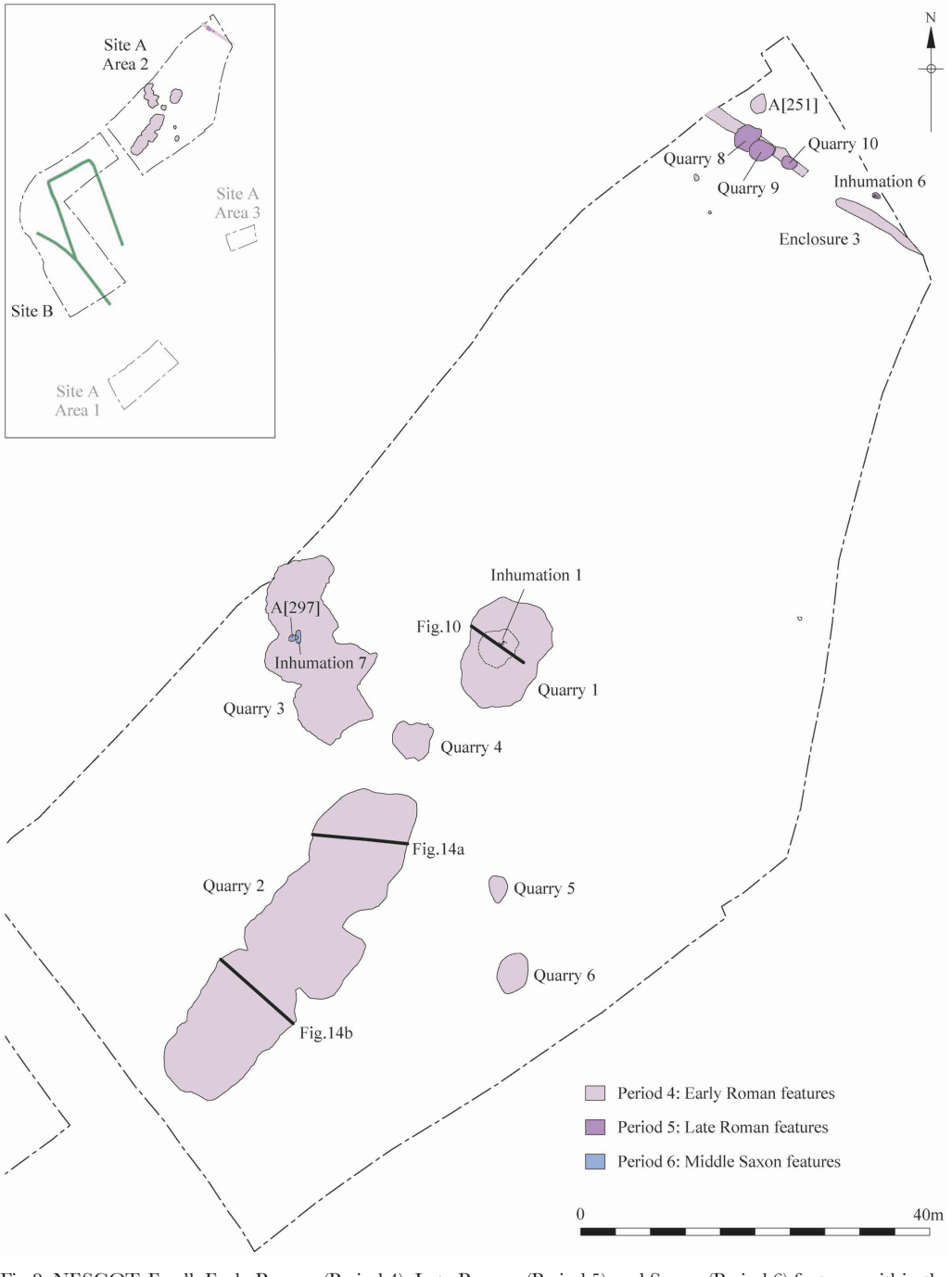

Fig 8 NESCOT, Ewell. Early Roman (Period 4), Late Roman (Period 5) and Saxon (Period 6) features within the north-east corner of the site.

Fig 9 NESCOT, Ewell. Tool marks within Quarry 1.

but also because the term implies a separation between 'practical' aspects of daily life (in this case quarrying) and 'religious' or other 'ritual' acts – a distinction that was not necessarily present in the Romano-British mindset (a fuller justification for this view is outlined in the discussion section). Given that other, broadly contemporary, quarrying took place on this site (discussed below) there can be no doubt that Quarry 1 was excavated to obtain chalk and flint. As such, the term 'quarry' will henceforth be used while acknowledging that a probable connection exists between the feature and the 'ritual shaft' tradition.

As set out in detail below, the fills of the Lower Shaft of Quarry 1 have been divided into two episodes: Infill Event 1 took place first, prior to the deposition of a largely complete human skeleton (Inhumation 1), Infill Event 2 occurring thereafter. Dating evidence suggests that these events took place in quick succession towards the end of the 1st century AD. They may have taken place in stages over weeks, months or even years, although each event (but not both events) could have occurred in a single day. As justified in the ensuing narrative, the occurrence of root-etched bones at depth within Infill Event 1 suggests that a hiatus in backfilling occurred on one or more occasions that was long enough to allow plant growth within the shaft, thus suggesting that a period of time elapsed before Infill Event 2 began.

Infill Event 1 raised the base of Quarry 1 by 0.96m to a height of 39.86m OD, leaving a shaft that was 3.69m deep (fig 10). A large quantity of Romano-British pottery was deposited during this infilling episode, as were 27 sherds of a Middle Iron Age saucepan pot decorated with horizontal burnished furrows, which was antique and probably largely complete at the time of deposition. Also present were five near-complete pots in early Roman Sandy wares, Alice Holt and Fine Micaceous Ware, all of which were represented by sherds from the base and lower halves of the vessels, suggesting deliberate breakage prior to deposition. Metal objects and other small finds included a bone spindle whorl made from a cattle femoral head, a white marble gaming counter and two coins (a Neronian coin dated AD 62–68 and a coin of the Emperor Vespasian dated AD 77–78 suggesting that Infill Event 1 occurred between AD 77 and AD 100).

Disarticulated human bone was found within Infill Event 1 (a minimum number of six individuals), most human body parts being represented. Microscopic scavenger marks (gnawing, tooth punctures, pitting and crushing) were observed on 24 out of a sub-sample of

25 of these bones (see Rigakis 2016 and the human bone report, below). The morphology of the observed marks suggested that a limited amount of post-mortem damage was inflicted on the bones consistent with scavenging by canids (dogs or wolves). At least one scapula appears to have been punctured when it was still 'wet' (ie fleshy), while little weathering was noted for the entire sub-sample. However, no obvious macroscopic damage was incurred while small bones that scavengers would usually remove (hand and foot parts) were well represented (28.24% of the assemblage). These results therefore appear contradictory and further micro-taphonomic research on a larger sample of the material would be useful. Potential explanations do exist, however, such as the suggestion by Rigakis (2016, 45–6) that the amount of time that canids were able to chew on the bones was short. The damage could therefore be the result of an opportunistic attack that was quickly halted or that domestic dogs that were easier to call off than wolves were used to aid the excarnation process under controlled conditions (*ibid*). The available evidence is insufficient to demonstrate this in a conclusive fashion, and there appear to be no contemporary parallels for such a mortuary rite, but a Middle to Late Iron Age example from Gussage All Saints, Dorset has recently become known to the authors (see *General discussion*, p 158). Future micro-taphonomic work on the assemblage and others from comparable features is planned, however (Green in prep), and it will be interesting to see whether the results support or refute this interesting, yet unproven, theory.

Carbon and nitrogen isotope analysis was undertaken on a small sub-sample of bone from Quarry 1 (amounting to thirteen bone groups). This has been used to suggest, based on changes in diet through individuals' lifetimes, that the disarticulated bone derived from local people who largely subsisted on a terrestrial diet of C3 (a metabolic pathway in which plants fix carbon via photosynthesis) plant foods and animal protein that might have included some freshwater resources, omnivore protein, or both. Variations in the results indicated that some had greater access to meat than others, although most consumed a lesser amount of meat (*ibid*, 56–7). If this is taken as a sign of status, it would appear that the disarticulated bone interred in Quarry 1 came from a spectrum of society, coming mostly from low- to medium-status individuals (*ibid*, 57).

A remarkable number of dogs were found in Infill Event 1, the remains of which amounted to a minimum of 58 individuals (76.8% of the animal bone assemblage from this infill event). The dogs ranged in age and size from puppies to older animals and from small to large breeds. Dogs that appeared to have led a generally healthy life were found alongside others that displayed a range of pathological conditions. These included healed fractures, indicating that at least some of these animals were cared for when ill, which in turn suggests that in life some or all of them were valued, most probably for something other than their meat. This alone could explain the presence of so many of these (generally) non-food animals alongside disarticulated human remains; however, other possible motivations, that are not mutually exclusive, also warrant exploration here. As set out in more detail (see Deighton, below), dogs appear to have held a special place within certain pre-Roman and Roman belief systems in some parts of Britain and continental Europe where iconographic and burial evidence has suggested that the animal was associated with certain Romano-Celtic deities (eg *Sucellos*). Whether this was the case at Ewell cannot be demonstrated, but their possible role in mortuary rites, involving excarnation in this case, is intriguing. With these concepts in mind, the presence of so many dogs within Quarry 1 becomes more intelligible.

Pigs were the second most common component of the animal bone assemblage from Infill Event 1, a minimum number of nine individuals being present. Only 10% had grown to adulthood, the majority being either juveniles or neonates (ie suckling pigs). At least five horses were also present, none of which had grown to adulthood, the majority being neonates. At least two crows were recovered, as were the remains of at least three stoats. Archaeological evidence suggests that certain Romano-Celtic communities considered both horses and crows, like dogs, to possess symbolic attributes within their belief systems (see Deighton, below). In addition, at least ten ovicaprids and three cattle were found, including

a partial adult cattle skeleton, the pathology of which suggested that in life the animal had been used for traction. Possible pit-fall victims included at least one amphibian, three voles and a mouse. Also present were a mole, a black rat and a brown rat; however, these burrowing animals could have entered the feature at a later point and could therefore be intrusive. This must have been the case for the brown rat, which was not seen in Britain until *c*1720 (Lovegrove 2007, 145).

Little obvious evidence of deliberate dismemberment was evident on the animal bones, being limited to one knife mark, while burning and calcining (perhaps indicative of cooking) were noted on three bones (all ovicaprid or cattle; see Deighton, below; Rigakis 2016, 37–40). The evidence is therefore more suggestive of slaughter with little dismemberment prior to burial, the animals perhaps having been deposited whole or in large joints before rotting down and co-mingling (see Deighton, below). By extension there is minimal direct evidence for feasting or food waste within this assemblage, perhaps with the exception of the suckling pigs, which would not necessarily need to be dismembered prior to consumption and therefore provide possible evidence for feasting.

Three gnaw marks were also evident to the naked eye on three animal bones from this infill event, thus demonstrating that scavengers were able to access the remains, at least for a short time. Root etching was also a common feature within the animal bone assemblage. Intriguingly, this normally only occurs if bones are buried in a shallow context (White *et al* 2012), so its presence here is curious given these faunal remains appear to have been buried at depth. Perhaps a gap of a few months or years existed between this infilling and subsequent events that was enough to allow this partially infilled quarry to be colonised by plants. This would also explain the presence of the amphibian, the three voles and the mouse, which may have fallen into the feature while it was open.

In the centre of the quarry, above Infill Event 1 at a height of 40.19m OD, were the articulated remains of a human skeleton (Inhumation 1). In total, 70% of the remains of this middle-aged to older probable female were present. Spinal joint disease was noted, which could indicate a lifestyle that involved strenuous activity but, in this instance, is more probably age-related, while the presence of dental caries suggests poor oral hygiene. This individual also possessed the highest nitrogen 15 values of all the bone that was put forward for isotope analysis, a finding that suggests a meat-rich diet and perhaps a relatively high social rank compared with the other individuals in Quarry 1 (Rigakis 2016, 57; see below). Interestingly, a change in diet appeared to have occurred for this individual during life, with a higher amount of freshwater resources or omnivore protein being consumed during childhood relative to adulthood (*ibid*). This could reflect changes in status during life or could be a marker of mobility (eg if this individual moved to the Ewell area from a place where such resources were more plentiful).

The individual lay face down in an awkward, extended, prone position with the head towards the north, the right arm extending towards the east (fig 11). The left arm was positioned underneath the body, again pointing eastwards. Owing to the fill beneath sloping downwards from the centre of the quarry towards the side, slumping resulted in the left femur shifting over to the right side of the body (the east side of the shaft). Much of the lower legs and the lower right arm were missing, either because these elements had become detached before slipping down the mound of spoil on which the body lay or because they had been lost before the body entered the quarry. Either way, a lack of tool marks diminishes the probability of this being a fresh, rapidly buried corpse that was partially dismembered. Alternatively, it may have been curated (cared for) in an above- or below-ground context thus being in a state of partial decomposition by the time of final deposition, or was perhaps, left exposed either in the quarry or elsewhere for a period of time before burial. The survival of small bones of the hands, feet and kneecaps that would normally be carried away by scavengers in combination with limited macroscopic evidence for scavenger activity suggests the former, whereas the latter is perhaps evidenced by microscopic taphonomic analysis of a sub-sample of two bones (a femur and a rib), which exhibit scavenger-induced pitting,

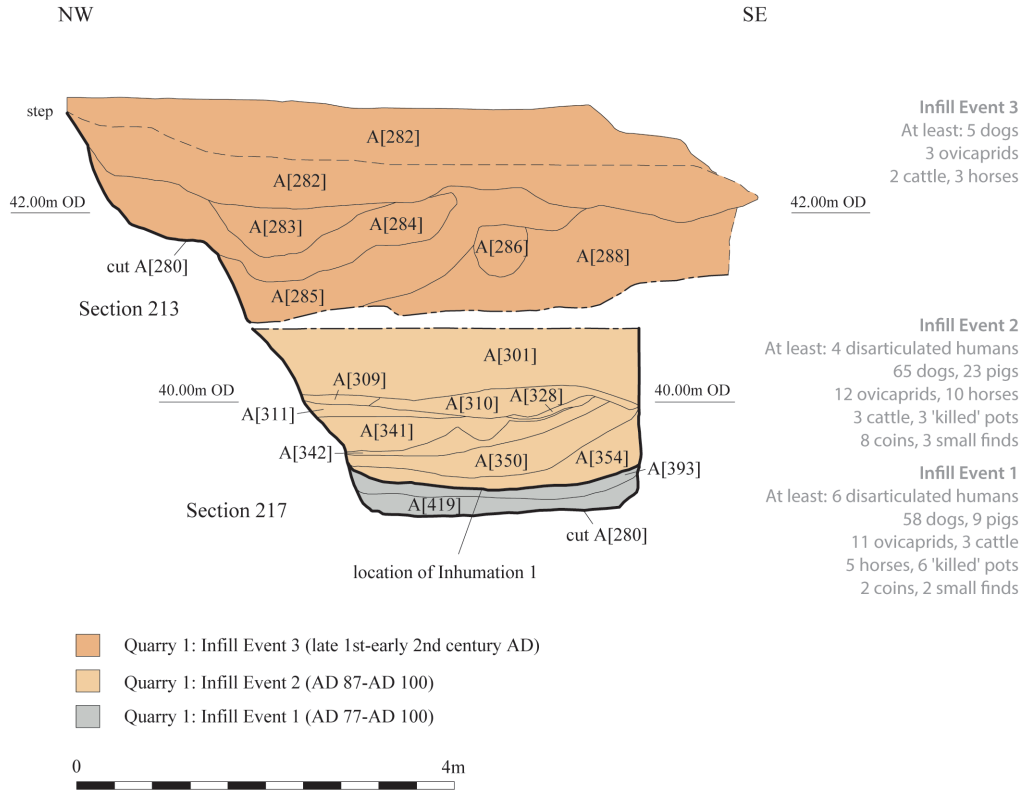

Fig 10 NESCOT, Ewell. South-west facing section through Quarry 1.

splitting and scratching (Rigakis 2016, appendix d, see below). Taken together, this provides probable evidence for curation, perhaps coupled with a limited degree of exposure to scavengers either within or outside the quarry prior to final burial. That said, the micro-taphonomic results would benefit from augmentation through more extensive analysis of the skeleton in the future.

Curation of the body prior to final burial could have been achieved using a temporary grave or a suitably safe place above ground. A box, wrapping or some other form of protective covering could also have been used. Indeed, the unusual presentation of this body could be the result of tipping it from a box or the rapid removal of a covering, which could have caused it to roll and land awkwardly in the unusual position in which it was found (fig 11).

The south-eastern edge of the quarry was undercut, an undertaking that created a narrow shelf at 39.88m OD that was *c*1m long. A semi-complete Verulamium Region White Ware flagon rested on the shelf, and directly beneath the vessel were two copper-alloy coins of Domitian: an *as* (AD 85) and a *dupondius* (AD 87). These artefacts were no doubt placed on the shelf before the ground was raised around them.

Infill Event 2 must have begun soon after Inhumation 1 was placed in the quarry. Artefactual evidence (coins and pottery) suggest that it took place after AD 87 and probably before AD 100. This and earlier infilling episodes raised the base of the quarry by a further 0.91m to a height of 41.10m OD, thus creating a 2.45m-deep shaft, just under half the original depth, (fig 10). This infill event consisted of nine separate fills containing large quantities of pottery, disarticulated bone, a near-complete necked jar in Early Roman sandy blackware (ERSB) and a complete but shattered sandy grey ware figure-7 rim jar. A further six coins were also retrieved (two Neronian and three Flavian), the earliest of which was minted in AD 62–68,

Fig 11 NESCOT, Ewell. Inhumation 1. Facing west.

the latest in AD 87. A blade with a handle, a U-shaped iron fitting terminating in a loop at one end and a T-bar at the other (a possible latch fitting) and a copper-alloy Colchester derivative mid-1st–early 2nd century brooch were also present (Mackreth 2011, 54–5; Stead & Rigby 1986, 112, no 74). The blade was a mid-1st century iron arched example (a small cleaver) with a through tang and bone handle (for a Colchester example see Crummy 1983, 111, no 2949, fig 113 and for one from Baldock see Stead & Rigby 1986, 153, no 525, fig 66). The cleaver was positioned directly above Inhumation 1, a location that suggests a possible relationship between this object and the underlying human skeleton. Also noteworthy is the fact that a wide array of disarticulated and semi-articulated human body parts were again present (a minimum number of four individuals), the taphonomy and chemical make-up of which mirrored that of the human bone from Infill Event 1 (of the seven bones selected for detailed taphonomic analysis, all exhibited marks suggestive of low-level damage, most probably by canids; Rigakis 2016, appendix d; see below). An assemblage of animal bone was also recovered that possessed a similar range of species, intra-species age ranges, relative abundances and taphonomies as Infill Event 1. Domestic animals included a minimum of 65 dogs, 23 pigs, eight horses, three cows, twelve ovicaprids and one chicken, while wild animals included at least one thrush, one large passerine and one mole (the latter may have burrowed into the feature at a later date). A toad, another amphibian, a mouse and five voles were also recovered, which could again have accidently fallen into the quarry while it was open. As was the case for the animal bone from Infill Event 1, only limited evidence of butchery and possible food preparation was found, consisting of five burnt bones, six calcined bones, one chopped bone and one knife mark, thus suggesting that the bulk of the animal bone assemblage from Infill Event 2 was not food waste.

The next episode of infilling consisted of eight separate fills that were very different in character to those that came before, since they resembled redeposited natural clayey silt (Quarry 1: Infill Event 3), seven of which were extensive enough to be recorded in section (fig 10). Whether they were dumped into the quarry immediately after Infill Event 2 or at

a later date remains uncertain; however, the lack of a weathering cone at the top of the feature suggests that the quarry did not remain partially open over a very long period (ie many years). This is supported by a scatter of pottery sherds found throughout this infilling event that suggest it took place shortly after Infill Event 2 (between the late 1st century and the early 2nd century AD). Ceramic building material retrieved from the uppermost fill suggested a later Roman formation date of AD 240–300, although a final infilling episode did occur during the Late Roman period (perhaps after a period of subsidence and settling) so these few fragments may represent intrusive material. No human bone was present, while the nature of the animal bone also differed dramatically from the assemblages that were recovered from Infill Events 1 and 2. The assemblage was far smaller, amounting to a minimum number of four dogs, three ovicaprids, three adult horses and two cows with no neonates and only two juvenile animals being present. Infill Event 3 no doubt originally closed this quarry in its entirety. However, over time subsequent post-depositional movement and settling resulted in the formation of a shallow depression that was 0.26m deep.

A second probable quarry pit was uncovered in the north-west corner of the excavation in Site A, which was by far the largest of the pits discovered during this project (Quarry 2; figs 8 and 12). This enormous feature, which is thought to represent another quarry, was 42m long from east to west, 16.92m wide from north to south and was up to 3.5m deep, having been cut from a height of 42.02m OD. In plan, it possessed a roughly linear outline, the appearance of which suggested that it was dug in at least three stages, described below from west to east. Except for the western section (described subsequently), this feature may originally have possessed near-vertical sides, although its contents suggest that it suffered considerable erosion after it fell out of use, hence the steeply sloped, cracked and irregular appearance of the sides. The entire feature possessed an irregular, undulating base.

The western sub-section of the quarry was sub-oval in plan, measuring 17.5m long from east to west, 11.92m wide from north to south with a maximum depth of 2.65m. Cut directly into the natural chalk and sloping downwards from the top of the western edge (from a level of 41.26m OD) to the base of the feature (38.61m OD) was a ramp (fig 13). This 8.24m-long slope occupied the entire width of this section of the quarry. Although it sloped in a consistent fashion, it was somewhat ridged with an almost zigzag, step-like appearance. With a gradient of 25%, it would have provided a manageable way for workers and the raw materials that they were mining to traverse a drop of 2.11m. Although it was impossible to determine from the stratigraphy which part of the quarry was mined first, this section probably represents the earliest part of the feature given that a means of access and egress would have been needed from the outset, which in turn suggests that the quarry was worked from west to east. The central segment of the quarry was sub-square in plan, being 8.96m wide, 13.64m long and 3.44m deep, while the easternmost section was sub-oval with a width of 15.70m from east to west, a length of 12.20m from north to south and a depth of 3.19m.

An archaeologically sterile primary fill of mid-grey/brown sandy silt, up to 0.55m thick, had accumulated in the central section of the quarry, above which a 0.20m-thick layer, rich in animal bone and pottery dated to AD 120–300, was found (Quarry 2: Infill Event 1). The animal bone recovered included at least nine dogs and the partially articulated skeleton of a horse, which suggests that structured deposition occurred within this feature after mining ceased.

The overlying fills, as well as those recorded in the eastern and western sections of the quarry, were completely different in character, consisting of redeposited, fragmented chalk interleaved with dark red/brown sandy silts (Quarry 2: Infill Event 2). In contrast to the deliberately deposited, artefact-rich, mounded fills that characterised Quarry 1, these deposits thinned towards the centre of the feature and were largely archaeologically sterile (fig 14). Together this suggests that the bulk of this infilling event occurred as a result of the natural slippage and slumping of the surrounding natural deposits into the sides and base of the quarry while it was partially open. Little dating evidence was recovered, although some pottery sherds (dated to AD 120–300) were found in the western end of the feature.

Fig 12 NESCOT, Ewell. Aerial view of Quarry 2 under excavation, facing south-west.

Despite extensive metal detecting, few metal finds were discovered. However, one important object, a Late Iron Age Flat Linear Class I potin coin, was retrieved from the upper reaches of the early Roman backfill sequence in the western end of the quarry. Although residual, its presence suggests probable Late Iron Age to very early Roman activity in the vicinity. Unlike Quarry 1, this feature does not appear to have been fully infilled during this period, remaining open into late Roman times in a reduced form that was up to 2.07m deep at the northern end (fig 14). This may explain why an intrusive contemporary copy of a copper-alloy *nummus* of Constantius II (AD 353–354) was found in the upper layers of Infill Event 2.

To the north of Quarry 2 in Site A, a further substantial feature was recorded that was not as large or as deep as that to the south, being 20.06m long, 14.66m wide and up to 1.64m deep, the top being at a level of 42.87m OD (Quarry 3; fig 8). As with Quarry 2, it appeared to be the result of three distinct quarrying episodes that created three sub-rectangular, intercutting sub-sections with near-vertical sides and undulating bases. All sections of the quarry must have been open at the same time since they had been backfilled with a single, homogenous fill. This suggests they formed part of the same industrial exercise and were almost certainly near-contemporary. Unlike Quarry 2, this feature did not possess a ramp, so a ladder, rope, temporary mound or similar means must have been used to scale the sides.

Only one fill, a firm-to-soft deposit of mid-red/brown silty clay, was recorded in Quarry 3. A human ulna and a small quantity of cattle and horse bone were recovered from it, together with eight sherds of pottery dated to AD 150–250 and a further two dated to AD 240–400. The latter were recovered from the upper reaches of the backfill sequence and may be intrusive, perhaps deriving from a later deposit of hillwash that sealed this quarry. It therefore seems probable that this feature fell out of use and was infilled during the early to mid-Roman period, most probably between the mid-2nd and mid-3rd centuries AD.

A further three pits were found in association with Quarries 1–3 in Area A, which were between 2.98m and 4.88m long, 2.30m and 4.55m wide and 0.78m to 1.05m deep. They are

Fig 13 NESCOT, Ewell. Quarry 2 with the ramp in the background. Facing west.

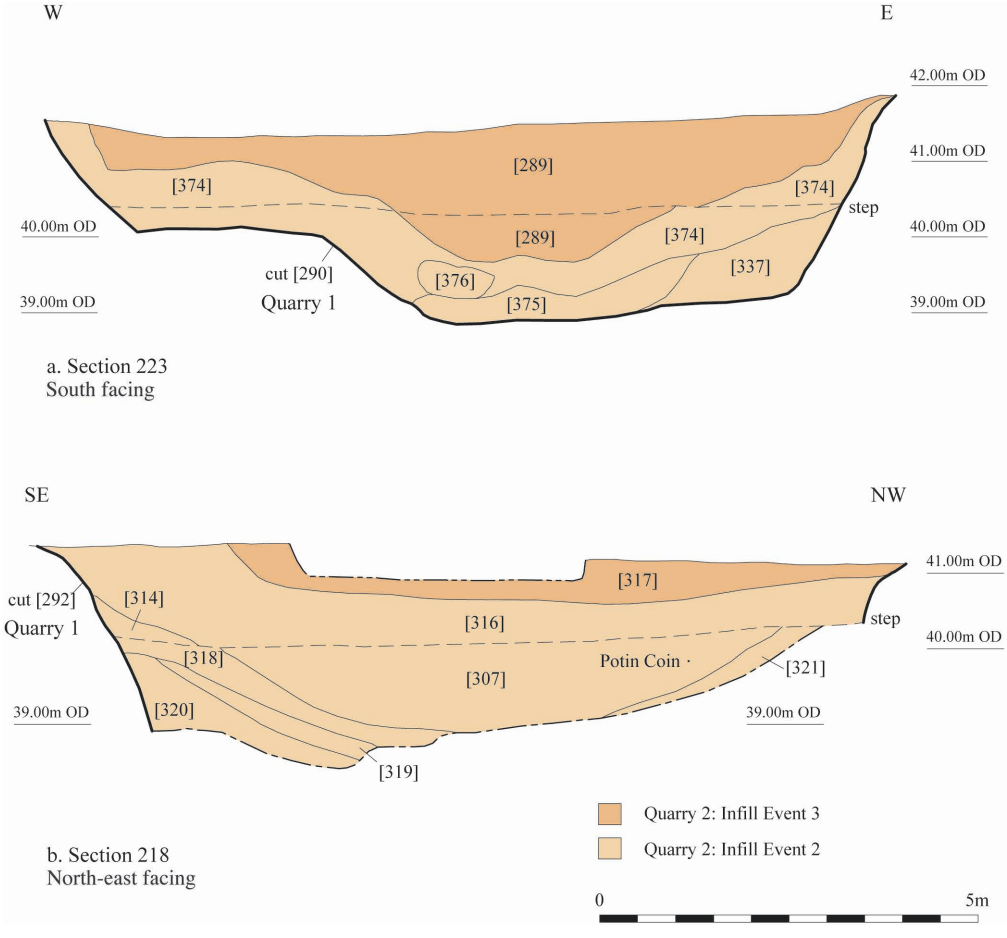

Fig 14 NESCOT, Ewell. North-east and south-facing sections through Quarry 2.

also thought to represent episodes of quarrying, albeit on a more modest scale (Quarries 4–6; fig 8). Quarry 4 possessed partially stepped edges, presumably to facilitate access, while the other two exhibited steep sides and flat bases. Quarry 5 was archaeologically sterile, whereas Quarry 4 contained sheep bone and nine sherds of pottery dated to AD 50–150, while Quarry 6 contained a small quantity of pottery dated to AD 120–300, together suggesting that these quarries fell out of use and were infilled during the early to mid-Roman period.

In the north-west corner (Site B), an ovoid pit, B[169], was uncovered, which was 1.62m long, 0.74m wide x 0.54m deep, the top having been uncovered at a height of 41.77m OD (fig 15). It had steeply sloping sides and a concave base and was filled with a compact deposit of sandy clay that contained a single sherd of Roman pottery dated to AD 120–150. The function of this pit remains uncertain, but it may represent smaller-scale chalk or flint extraction.

The northern side of the pit was truncated by a larger ovoid feature, 5.34m long, 3.46m wide and up to 2.52m deep, which almost certainly represents another quarry (Quarry 7; fig 15). It had near-vertical sides and a base that was generally flat, although the north-west corner was considerably deeper with a more rounded profile. The fill of the feature again resembled redeposited natural chalk, clay, and sandy silt and contained a single sherd of Roman pottery dated to AD 175–225.

Fig 15 NESCOT, Ewell. Early Roman (Period 4) features in Site B.

Cutting into the north-eastern side of Quarry 7 was a large sub-circular feature with near-vertical sides and a concave base, pit B[181]. Measuring 2.04m long x 1.74m wide, B[181] was up to 1.17m deep and as such may represent a third episode of mining in the vicinity of Quarry 7. The backfill again consisted of redeposited natural chalk, clay and sandy silt, the only archaeological material being a single sherd of residual Late Bronze to Early Iron Age pottery.

At a similar time to the above quarrying activity, the natural solution feature in the south-west corner (Site A) became a focus of attention (Solution Feature 2; fig 6). At an earlier point, natural silting had reduced it from a depth of 9.5m to 2.14m, remaining a prominent feature in the early Roman landscape prior to deliberate infilling during that period. The resulting fills (Solution Feature 2: Infill Event 2) were friable, soft or coarse deposits of silty sand, sandy clay or clayey silt that varied in colour from grey/brown to reddish-brown. Artefacts and ecofacts recovered included sheep bone, the remains of a partially articulated horse, a crow, a copper-alloy *as* of Antoninus Pius dated to AD 154–155, a silver *antoninianus* of Victorinus dated to AD 269–271, which may be intrusive, and a Roman iron finger-ring. Also found was an assemblage of pottery, the nature of which suggested that this infilling event probably occurred after AD 160. In view of the way the larger quarries were treated during this period, together with the fact that this solution feature superficially resembled them, the partially articulated horse and perhaps the ring and coin provide more potential evidence for the continuation of structured deposition on this site.

In the far north-east corner of Site A, two associated north-west/south-east ditches were revealed (Enclosure 3: fig 8). They were between 1.28m and 1.5m wide x 0.23m and 0.47m deep and together they probably formed part of an enclosure, most of which lies beyond the site boundary. As illustrated, an entrance to the enclosure was present between the two ditch termini, although the western terminus had been partially truncated by a later quarry (fig 8). Both had a single fill of friable silty sand that contained eleven pottery sherds dated to AD 70–200 and a further two dated to AD 250–400 (Enclosure 3: Infill Event 1). The latter may derive from an overlying soil horizon that remained active into the post-medieval period (discussed below). In addition, a near-complete pottery vessel dated to AD 100–300 was found in the far eastern end of the western ditch. The proximity of the vessel to what must have been the eastern terminus of the western enclosure ditch raises the possibility that the pot was deliberately placed within the feature (see *General discussion*, p 159).

The eastern ditch of the Late Bronze to Early Iron Age droveway (Droveway 1) that ran through Sites A and B was partially recut during this period, a finding that suggests this section, if not the whole feature, remained visible as a shallow earthwork into the early Roman period (figs 8 and 15). This later continuation of the former droveway ditch was 8.4m long, continuing beyond the western site boundary, 1.26m wide x 0.73m deep. The terminus truncated the backfill of Quarry 7, an association that may be significant (see *General discussion*, p 159). At some point after the ditch was recut, it was backfilled with sandy silt, an event that was well dated by the presence of 48 sherds of Roman pottery made between AD 120 and 160.

Within the upper reaches of the backfill sequence of the western ditch terminus was a crouched human burial, positioned with the head to the south (Inhumation 2; fig 15). The body lay on its right side, facing towards the east, the legs having been tightly flexed and drawn up, the arms also having been flexed and positioned above the knees to the east of the skull (fig 16). As suggested elsewhere, the tightly flexed nature of this burial could indicate that, like Inhumation 1, it was curated in some way after death since this presentation would have been easier to achieve with a partially decomposed corpse or a bound mummy, for example. However, this observation remains speculative. The body was that of a middle-aged female. Again, joint disease of the spine was noted, either due to her age or because she regularly engaged in strenuous activity. Dental caries, indicative of poor oral health, were also observed.

Directly above this skeleton was another burial (Inhumation 3; fig 17), which lay in a prone position with the pelvis located above the head of Inhumation 2. This skeleton had

Fig 16 NESCOT, Ewell. Inhumation 2, facing south-west.

Fig 17 NESCOT, Ewell. Inhumation 3 with the skull of Inhumation 2 visible below the pelvis, facing east. These burials can be described as 'deviant' by Roman standards.

a comparatively naturalistic pose in burial, vaguely reminiscent of a sleeping person. The way the arms were arranged would have been hard to achieve by dumping the body into the ditch (the right arm flexed up next to the right shoulder, the left arm slightly flexed and bent outwards beneath the body; fig 17). Instead, it must either have been deliberately arranged like this, been buried rapidly while *rigor mortis* had set in or been killed where they were found after sedation, intoxication or poisoning. Human sacrifice was supposedly not permitted in Roman Britain, thus making the latter option less likely. This individual was an adolescent to young adult of indeterminate sex; however, objects of personal adornment found in association suggest a female. Two copper-alloy bracelets of 2nd century or later date were present on the right wrist and were oval in section with separate hook and eye clasps (see Crummy, 1983, 38, no.1601, fig 39 for a similar example, also from Ewell). Two glass beads also almost certainly adorned the body at the time of burial, one of which was an annular dark blue glass bead, the other being a gadrooned 'melon' bead in turquoise glass paste. The two inhumations were sealed by the uppermost sandy silty fill of the reused section of Droveway 1.

A grave for a third burial was cut into the backfill of the eastern terminus of Droveway 1. Within it was a middle-aged adult of unknown sex (Inhumation 4; fig 15). This burial had been heavily truncated and was badly damaged but had evidently been placed in a crouched position with the head at the southern end of the grave. The body lay on its left side, the head facing towards the west with the remnants of the arms flexed up towards the skull. Very little of the legs remained, although these appeared to have been drawn up into the body. Associated with the burial, directly to the north of the skull, was a copper-alloy penannular (type BIV) snake ring of 2nd century or later date (see Johns 1997, 36–7), which this individual was probably wearing when interred.

In addition to the above activity, another quarry was previously identified by Oxford Archaeology in 2014 (Black & Allen 2014, 13–14), which was situated mid-way between the two ditch termini (RDD14 [4616]; fig 15). It was shaft-like, being 7.3m wide and up to 3.2m deep but possessed a highly irregular base that was suggestive of quarrying (*ibid*). The tightly crouched body of a female, aged *c* 26–35 at the time of death, was observed close to the bottom of the feature in a deep, centrally located undulation (*ibid*). A single sherd of Late Bronze Age to Early Iron Age pottery was found immediately below the skeleton, which is presumably residual. The skeleton was sealed by a sequence of silty fills that were archaeologically sterile (*ibid*). This quarry and the inhumation that it contained are therefore poorly dated but, given the pattern of land-use described above, it is reasonable to presume that they date to the early Roman period, perhaps being associated with Inhumations 2, 3 and 4.

To the east of these burials, the very base of another probable grave was identified that contained the heavily truncated and disturbed remains of another individual, which in this case consisted of nothing more than a human hand (Inhumation 5; fig 15). The position of the grave was of interest in that it was located within the extrapolated extent of the boundary ditch of Enclosure 1, although by the time of the excavation erosion had removed all traces of the field system at that location (fig 15). The probable inclusion of a body in this landscape feature does, however, demonstrate that some, or possibly all, of Enclosure 1 survived as an earthwork into the early Roman period before final infilling took place that included the interment of this individual (Enclosure 1: Infill Event 2).

Period 5: Late Roman (AD 250–400)

During the late Roman period, the practice of structured deposition may have resumed in two of the early Roman quarries: Quarry 1, which survived into late Roman times as a shallow depression, and Quarry 2, which also remained partially extant. In Quarry 1, a mid-greyish/brown deposit of silty sand was observed (Quarry 1: Infill Event 4), which contained a single sherd of pottery dated to AD 100–400, a sandstone hone (shaped at

both ends with only one surface used) and three coins: a copper-alloy *as* of Vespasian (AD 69–79), which represents either a curated piece or a residual find, a contemporary copy of a silver *antoninianus* of Claudius Gothicus (AD 270) and a copper-alloy *nummus* of the House of Valentinian (AD 365–378). It is alternatively possible that these artefacts entered the shaft as a result of hillwash.

In Quarry 2, a soft, mid-yellow to reddish-brown deposit of silty sand, between 1.35m and 0.55m thick, was observed (Quarry 2: Infill Event 3). An interesting assemblage of animal bone was recovered from it that included the remains of at least five partial canids, horse, deer and corvid bones, a copper-alloy *dupondius* of Vespasian (AD 77–78), a copper-alloy *as* of Antoninus Pius (AD 154–155), a contemporary copy of a copper-alloy *nummus* of Constantius II (AD 353–360), a 1st century iron stylus of Manning (1985) Type 1A N9, the spring of a mid-1st to early 2nd century Colchester derivative brooch (Mackreth 2011, 54–5) and a 2nd century copper-alloy toilet spoon (*ligula*) with a flattened oval scoop at one end and a point at the other (see Crummy 1983, 60, no1901, fig 64). The *ligula* is bent approximately halfway along its length thus exhibiting the kind of damage that might occur if the item had been grasped at both ends and intentionally bent. Also recovered were the remains of a human infant (65% complete), which carbon/nitrogen isotopic analysis suggested may have been in the later stages of weaning. While the metal finds point more towards an early Roman date, the presence of 294 sherds of pottery dated to AD 250–400 together with the discovery of the 4th century coin strongly suggest that this depositional episode occurred during the late Roman period, perhaps after AD 353.

In the north-east corner of Site A, three large probable quarry pits were dug through the backfill sequence of early Roman Enclosure 3 during the late Roman period (Quarries 8–10; fig 8). These quarries appear to have been deliberately sited on the enclosure ditch (see *General discussion*, p 159). A local parallel can be found at the nearby site of Hatch Furlong, where four deep shafts of late Roman (2nd–3rd century) date were found in a row immediately to the south of a Roman boundary ditch and respecting its alignment, while later Roman quarry pits were also deliberately dug through the ditch (Cotton & Sheldon 2008, 5–6).

Quarry 8 was a large, sub-circular pit, 3.66m long, 2.68m wide x 1.46m deep, that possessed steeply sloping sides and an undulating base, with considerable undercutting of the north-eastern side of the feature. Ten silty sandy fills were observed within it, the lowest of which contained a small quantity of early Roman pottery sherds suggestive of a late 1st–2nd century date of deposition, possibly deriving from the truncation of Enclosure 3. Twenty-three sherds recovered from the upper fills more conclusively dated the infilling of this quarry to the period AD 250–400. Animal bone recovered included cattle and sheep/goat bones as well as burnt material, while the closing fill contained 70% of the bones of a human infant.

After Quarry 8 had been infilled, another pit was dug through its southern edge and that of Enclosure 3. Interpreted as another quarry, this pit was 3m long, 2.6m wide x 1.86m deep (Quarry 9; fig 8). It was circular to irregular in plan, possessed very steep sides, which were undercut in places, and a concave base. After mining ceased, ten sandy silty fills interspersed with lenses of chalk and clay were deposited in the quarry, which ranged in thickness from 0.12m to 1.65m. Pottery in these fills suggested that backfilling occurred between AD 250 and 300, a date range that was refined by the presence of a silver *antoninianus* of Tetricus I (AD 271–274) in the final fill. Animal bone included cattle, ovicaprid bones, a badger bone, a partial cat skeleton and the remains of several canids. A bone hairpin or needle fragment was present, as was a shaped, red deer antler tine, presumably a pick, with a transverse mounting hole for attaching a haft.

A third large pit appears to have formed part of this broadly contemporary quarrying episode, which again truncated Enclosure 3 (Quarry 10; fig 8). This circular feature was 1.8m in diameter and 1.24m deep. Its sides generally sloped sharply towards the flat base, although the northern and southern edges were undercut. After mining had finished, the feature was infilled with five separate deposits of silty sand with inclusions of chalk and clay. The primary fill also contained occasional green lenses of what appeared to be cess-like

material. Far fewer artefacts and ecofacts were recovered from Quarry 10 than the other two Period 5 quarry pits, although the animal bone included the near-complete carcass of a dog. Pottery sherds broadly dated the backfilling of this quarry to AD 100–400 but, given the similar nature and location of Quarries 8–10, it seems likely that it belongs to the late Roman period.

The contents of the backfill sequences of these later Roman quarries resemble those of the four shafts that were excavated to the immediate north at Hatch Furlong, the deepest of which yielded whole or partially complete carcasses of twelve dogs, a piglet and a number of birds, while the other three yielded complete or partially complete carcasses of cattle, horse, deer and piglets as well as pips and stones from edible fruit (Cotton & Sheldon 2007, 2–3; 2008, 5–6). Although these features have previously been described as 'shafts' rather than 'quarries', they were found in association with other, shallower features that *were* interpreted as quarries (Cotton & Sheldon 2007, 2–3). Furthermore, it was speculated that the chalk rubble that was extracted from the Hatch Furlong shafts during their construction was also used for 'building or other purposes', thus furthering the link between these shafts and the quarries that were found on this site (Cotton & Sheldon 2008, 5–6).

The northernmost slot excavated through Enclosure 3 contained an upper fill of soft, dark yellowish-brown sandy clay, no more than 0.24m thick, that contained 30 sherds of pottery dated to AD 250–400 (Enclosure 3: Infill Event 2). As previously speculated, the presence of this fill suggests that Enclosure 3, or some sections of it, remained extant as a shallow earthwork into the late Roman period before this fill was deposited. This would also have allowed Quarries 8–10 to be positioned on this early Roman ditch during the late Roman period.

The heavily disturbed remains of an adult human of unknown sex were discovered to the south of these quarry pits, to the immediate north-east of Enclosure 3 (Inhumation 6; fig 8). The body was high in the sequence in a shallow grave that had only just impacted on the underlying natural horizons. The grave was aligned north-west/south-east and ran roughly parallel with Enclosure 3. The lower legs and feet of the associated inhumation survived. Although they amounted to just 15% of the skeleton, they were sufficient to demonstrate that this individual had been interred in a supine position. It is probable that erosion by hillwash impacted on these remains. The presence of 75 nails around the feet indicated that the individual was wearing hobnailed shoes when buried. The presence of pottery dated to AD 200–75 was retrieved from the backfill sequence, which included a small fragment of Moselkeramik, an imported Roman ware. A medieval or post-medieval copper buckle was also recovered from the grave fill, but this is almost certainly intrusive.

Period 6: Middle Saxon

In the north-east corner of Area A, a grave aligned north–south appeared to have been deliberately inserted into the side of Quarry 3 (Inhumation 7; fig 8). The grave was 1.57m long, 0.66m wide x 0.53m deep. The skeleton lay in a supine position within the grave and had been arranged so that the head lay at the southern end, the skull being slightly propped up against the edge of the cut and both hands resting over the pelvis with the arms flexed at the elbow. Both legs were slightly bent towards the east side of the grave with the left leg tucked slightly beneath the right owing to the grave being very slightly too small for the individual within it (fig 18). The burial was probably that of a young to middle-aged adult male. Found with him was an Evison (1987) Type 4 iron knife, positioned at the right hip, and a silver *sceat* (Series B) coin dated to AD 675–710. Comparative isotopic analysis of his bones and teeth suggested that he ate a meat-rich diet throughout life, perhaps indicative of high social standing from childhood to adulthood (Rigakis 2016, 60; see below).

The association between the Roman quarry and the Saxon burial may be coincidental. Alternatively, the presence of this Middle Saxon individual in the top of Quarry 3 could demonstrate that this feature remained visible as a shallow earthwork into the Middle Saxon period and that some memory of its significance had persisted.

Fig 18 NESCOT, Ewell. Middle Saxon burial (Inhumation 7) situated within a grave that was cut into the top of Quarry 3. Facing south.

The only other feature present within the site that could be Middle Saxon in date was the partial skeleton of a calf, discovered within a poorly defined small depression cut into the uppermost fill of Quarry 3 (A[297]; fig 8). It was situated to the immediate west of Inhumation 7, suggesting a possible link.

Period 7: Late Saxon to modern

A humus-rich layer of soft to friable mid-brownish/grey sandy silt was identified across the entire area of excavation (Soil Horizon 1). This 0.5m-thick layer is thought to represent a soil horizon that artefactual evidence suggests formed between at least the Late Saxon and late post-medieval periods (probably earlier). Owing to the pronounced slope of the site, some hill wash probably contributed to the formation and development of this horizon.

In the north-west corner of the site, a large and important assemblage of Late Bronze to Early Iron Age flint was recovered by sieving this deposit. This appears to have been worked

into it from below by biological action (see also the flint report, below). Also present was a selection of Roman metal artefacts that included three late 3rd century coins, eighteen 4th century coins, seven indeterminate late Roman coins and four copper-alloy Colchester derivative Harlow-type brooches, one with fine notched decoration along the bow (Crummy 1983, 12, no 52, fig 6, calls them a Type 92 two-piece Colchester B type). Another of the brooches was an unusual type not precisely paralleled elsewhere, although similar examples have been found (see Mackreth 2011, 56, nos 9592 from Walsingham, Norfolk, 1416 from Harlow, Essex, and also Bayley & Butcher 2004, 82, no 160, no 86 and no 184). The spring from a fifth Colchester derivative brooch was also present, as were two copper-alloy studs (see Crummy 1983, 116, no 3173, fig 120; see also Mackreth 2011, 50ff for extensive discussion of this type). In addition to the brooches and studs, a 1st or 2nd century copper-alloy end-looped pestle was discovered (eg Jackson 1985, 183, no 46), as was a cast copper-alloy fitting or handle with incised decoration that had a round knop at one end, the other end being broken. An unusual find was a flat, cast openwork copper-alloy harness or belt fitting, the design of which consists of a circle enclosing a four-leafed rosette. Attached are two (presumably) similar pelta-shaped elements, open into three sections on the plate end, connected with an elongated bifurcated shaft (fig 33). The decorative elements, especially the 'wheel' and curved connectors from the pelta to the outside of the wheel, are reminiscent of Late Iron Age decorative motifs. A parallel for this item cannot be found, and the fact that it is a residual find does not allow more precise dating.

Specialist reports

THE HUMAN BONE, by James Young Langthorne (figs 19–21: see *Endnote*)

Introduction

The archaeological investigations resulted in the recovery of several articulated skeletons and a large amount of disarticulated human bone that ranged in date from the early Roman to the Middle Saxon periods. These included five articulated or semi-articulated skeletons of early Roman date, one late Roman inhumation, two infants of late Roman date and a Middle Saxon burial. A large amount of disarticulated human bone was also recovered from the fills of Quarry 1, with smaller amounts from other quarry pits and Soil Horizon 1 (Haslam 2016a).

The principal aim of the osteological analysis was to provide a description of the demography and pathology of the articulated individuals, together with a discussion of the data resulting both from the analysis of the articulated skeletons and the assessment of the disarticulated human bone.

Methodology

The articulated skeletons were fully analysed to provide a complete inventory of every bone, an estimation of completeness, preservation, age and sex of the individual and recording of metric and non-metric traits and pathology. The analysis of each skeleton required recording the presence or absence of each element. Long bones were subdivided into five components: proximal joint surface, proximal third of the shaft, middle third of the shaft, distal third of the shaft, and distal joint surface. For juvenile skeletons, the skull, vertebrae and a number of other elements were subdivided into their components prior to fusion. Certain elements of adult individuals, specifically the sternum, scapula, clavicle, ilium, ischium, pubis, sacrum, coccyx and patella, were categorised as to the percentage of the constituent part that was present: <25%, 25–50%, 50–75% or >75%. Dentition was detailed using the Zsigmondy system (Hillson 1996) with specific notations made using Brothwell's recording standards and terminology (Brothwell 1981).

Condition and completeness of skeletal remains has a direct impact on the quantity and quality of information that can be recovered from them. Consequently, the condition of the bone was documented following the stages of surface preservation proposed by McKinley (2004). These are Grade 0 (very good: surface morphology clearly visible with fresh appearance to the bone and no modifications); Grade 1 (good: slight erosion and patchy surface); Grade 2 (good–moderate: more extensive surface erosion than grade 1 with deeper surface penetration); Grade 3 (moderate: most of bone surface affected by some degree of erosion; general morphology maintained but details of parts of surface masked by erosive action); Grade 4 (moderate–poor: all of bone surface affected by erosive action; general profile maintained, and depth of modification not uniform across whole surface); Grade 5 (poor: heavy erosion across whole surface, completely masking normal surface morphology, with some modification of profile), and Grade 5+ (very poor: as Grade 5 but with extensive penetrating erosion resulting in modification of profile). Completeness of a skeleton was calculated based on the percentage of the entire skeleton extant.

The age of an individual was assessed using a range of complementary variables comprising the stages of epiphyseal fusion (Buikstra & Ubelaker 1994, chapter 4), dental eruption (Ubelaker 1989, chapter 5 or Hillson 1996, chapter 5) and, additionally for adults, dental attrition (Brothwell 1981), changes within the pubic symphysis (Brooks & Suchey 1990) and the auricular surface (Lovejoy *et al* 1985). This survey allowed the individual to be placed into one of the following age ranges (based on categories outlined in Buikstra & Ubelaker 1994): neonate (birth); infant (birth–one year); juvenile (1–11 years); adolescent (12–20 years); young adult (20–34 years); middle adult (35–49 years); old adult (50+ years); unspecified adult (20+ years). The unspecified adult category is applied to adults lacking the attributes necessary for further age refinement.

Sexually dimorphic traits in the pelvis and skull are used to ascertain the sex of adult individuals, based on the work of Acsádi & Nemeskéri (1970), Buikstra & Mielke (1985), Milner (1992) and Phenice (1969). Albeit that more emphasis was placed on the characteristics of the pelvis than the skull as the former is considered more reliable considering that the variations here are founded in functional differences between the genders (Mays 2010, 40). Individuals were placed into one of six categories: male (a positively identified male adult individual); female (a positively identified female adult individual); male? (an individual compared favourably to the male sex but not proven conclusively); female? (an individual compared favourably to the female sex but not proven conclusively); indeterminate (the survey of the individual has proved inconclusive); unknown (the individual lacks the necessary elements needed to determine sex).

Cranial and post-cranial measurements were recorded using the guidelines established in Buikstra & Ubelaker (1994, chapter 7). One aspect of biometric survey can allow for the estimation of the living stature of the adult skeletons. The stature of an individual can, where possible, be calculated from appropriate length of the long bones using the regression equations devised by Trotter, Gleser, Gentry Steele & Bramblett (Trotter & Gleser 1958; Trotter 1970; Gentry Steele & Bramblett 1988). No adult individuals of indeterminate sex or displaying severe pathology of the femur can be used within this part of the analysis.

Every adult individual can be examined for 64 specific skeletal non-metric traits and thirteen dental non-metric traits using the criteria defined in Buikstra & Ubelaker (1994, chapter 8), these being the criteria most commonly used as the standard by human bone specialists active in the field. These traits were previously believed to be principally determined by genetic inheritance, and so an examination of the clustering of traits could be used to indicate familial or other cultural groups. Increasingly, however, it has become clear that at least some of these traits are influenced more by modification due to activity undertaken by an individual or by the environmental circumstances in which they lived (Saunders 1989; Tyrrell 2000; Mays 2010).

All pathological alterations of bones were recorded by describing the type and location of the changes to individual bones, their distribution within the skeleton and potential

differential diagnoses. These descriptions are based on the standards defined by Roberts & Connell (2004). Classifications of pathology were based on Roberts & Manchester (1995), Aufderheide & Rodríguez-Martín (1998) and Walker (2012).

The disarticulated bone recovered from each context was assessed to identify each type of bone, the number of fragments of each bone present in each context, the condition of each bone, the presence of any pathological lesions or notable morphological idiosyncrasies and, if possible, the age and/or sex of the individual from which the bone originated. The same criteria for assessing condition, pathology, age and sex in articulated human remains was applied to the disarticulated bone.

After all the disarticulated human bone had been assessed the minimum number of individuals represented in each context was calculated together with (in the case of Quarry 1) the minimum number of individuals in each infill event (McKinley 2004).

The articulated bone

One early Roman (Period 4) articulated skeleton was found in Quarry 1 (Inhumation 1), while three were found in Late Bronze to Early Iron Age ditches (Inhumations 2–5). Skeletal completeness ranged from 3 to 90%, with half the assemblage being equal to or exceeding 70%, the remainder 40% or less (table 1). The early Roman articulated bone assemblage varied in condition between good and poor (table 2).

The extensive variation in the completeness and preservation of the early Roman skeletons was a reflection of their context. For example, Inhumations 2 and 3 were well preserved and almost complete owing to their situation in an undisturbed fill of Droveway 1, whereas the isolated, moderately well preserved, articulated hand and wrist bones of Inhumation 5 were illustrative of its situation within an enclosure ditch that had virtually eroded away. Perhaps most significantly, Inhumation 1, found in a prone, extended disposition within Quarry 1, was 70% complete and in good–moderate condition. This is suggestive of deliberate disposal of a potentially incomplete body rather than being the result of later truncation (see *General discussion*, p 157).

Articulated skeletons attributed to the late Roman period were found in Quarry 8 (Infant 1), the top fills of Quarry 2 (Infant 2) and in a shallow cut associated with a Late Bronze to Early Iron Age enclosure ditch (Inhumation 6). Skeletal completeness ranged from 12 to 75% (table 3). All three skeletons were in a good–moderate state of preservation.

A single articulated skeleton relating to the Middle Saxon period, Inhumation 7, was found within a cut that truncated the top of Quarry 3. The skeleton was 90% complete and in moderate condition, again showing the relatively undisturbed condition of the interment.

Demography, stature and non-metric traits

With the exception of Inhumation 5, which consisted of parts of a single hand and wrist, it was possible to age and, in many cases, sex the individuals (table 4).

Owing to variable preservation of the long bones, it was only possible to calculate the stature of two individuals: Inhumation 2 (an early Roman mid-adult female) stood at a height of 1.57m (within a margin of ± 3.55cm), while Inhumation 7 (the Middle Saxon young to mid-adult probable male) would have stood at 1.70m (with a margin of ± 2.99cm).

To establish the potential for kinship between the early Roman individuals (particularly Inhumations 2 and 3 owing to the former having been buried directly above the latter), a survey of non-metric traits was undertaken on all adult individuals. These results are presented here together with those of the single adults from the late Roman and Saxon periods for the sake of completeness (tables 5 and 6: see *Endnote*). No distinctive pattern of non-metric traits, either skeletal or dental, was present in the data, although a familial association cannot be entirely discounted.

Table 1 Completeness of the early Roman articulated human bone assemblage

Completeness (%)	No of skeletons (N)	Articulated assemblage (%)
76–100	2	40
51–75	1	20
26–50	1	20
0–25	1	20
Total	5	100

Table 2 Condition of the early Roman articulated human bone assemblage

Completeness (%)	No of skeletons (N)	Articulated assemblage (%)
76–100	0	0
51–75	2	66.67
26–50	0	0
0–25	1	33.33
Total	3	100

Table 3 Completeness of the late Roman articulated human bone assemblage

Context no	Period	Age	Sex
Inhumation 3 [96]	Early Roman	Adolescent–young adult?	Indeterminate
Inhumation 2 [129]	Early Roman	Mid-adult	Female
Inhumation 4 [205]	Early Roman	Mid-adult?	Unknown
Inhumation 1 [377]	Early Roman	Mid–old adult	Female?
Inhumation 6 [204]	Late Roman	Adult?	Unknown
Infant 1 [233]	Late Roman	Infant	Unknown
Infant 2 [289]	Late Roman	Infant	Unknown
Inhumation 7 [323]	Saxon	Young–mid-adult	Male?

Table 4 Age and sex of the human bone assemblage by period

Modification	Phase 3	Phase 4: Sinkhole	Phase 4: Quarry 1: Infill Event 1	Phase 4: Quarry 1 Infill Event 2	Phase 4: Quarry 1 Infill Event 3	Phase 4: Quarry pits	Phase 5
Gnawed	0	6	3	4	2	1	27
Burned	0	–	3	5	–	2	0
Calcined	0	–	3	6	–	–	1
Chopped	0	–	–	1	1	2	12
Knife marks	0	–	1	1	1	–	9

Skeletal pathology

Three of the adult articulated skeletons presented some indications of joint disease of the spine: Inhumations 1, 2 and 7. Degeneration of this kind is associated with a range of factors such as wear and tear, age, genetic predisposition and is occasionally the result of other pathological conditions such as rickets or trauma (Aufderheide & Rodríguez-Martín 1998; Walker 2012). Joint disease can result in pain, stiffness, limited movement within the joint and abnormal appearance of the joint (Roberts & Manchester 1995, 99). The specific symptoms presented on the vertebrae of the three skeletons split into two types: Schmorl's nodes and osteophytosis. Schmorl's nodes are indentations found on the superior and inferior surfaces of the vertebral body and are the result of a herniation of the intervertebral disc (Aufderheide & Rodríguez-Martín 1998, 97). Osteophytes are new bone formations around the margins of the joints.

Two early Roman individuals exhibited osteophytes: the probable female mid–old adult (Inhumation 1), identified on the lumbar spine (L3-central part of superior body margin) and the mid-adult female (Inhumation 2), identified on the cervical spine (C2-dens facet). The probable male young to mid-adult of Middle Saxon date (Inhumation 7) exhibited Schmorl's nodes on the inferior body surface of the tenth thoracic vertebra (T10), the superior and inferior body surfaces of the eleventh thoracic vertebra (T11), and the superior aspect of the body of the third lumbar vertebra (L3). Interestingly, this condition is commonly found in individuals over 45 years of age and is much less common in those aged under 30 (Aufderheide & Rodríguez-Martín 1998, 97), possibly indicating that the lifestyle of this relatively young individual involved a notable level of occupation-related strain (Boston *et al* 2008, 54; Cowie *et al* 2008, 48).

Dental pathology

Carious lesions (voids) were the most frequently observed dental pathology in the assemblage. Caries result from demineralisation of the tooth by acid produced as a result of the fermentation of dietary sugars by bacteria in plaque (Roberts & Manchester 1995, 45–6; Aufderheide & Rodríguez-Martín 1998, 403–4). The condition is progressive, enlarging the hole in the tooth, attacking the dentine beneath and ultimately the entire crown of a tooth. Such lesions were present on the teeth of two early Roman individuals: Inhumation 1 (the right 1st incisor and the right 2nd pre-molar of the maxillary teeth and the left 3rd molar of the mandibular teeth) and Inhumation 2 (the right mandibular 1st molar).

Tooth loss during life is commonly caused by the destruction of a tooth by caries or gum disease leading to alteration of the alveolus. The void left then remodels and ultimately becomes filled with new bone (Boston *et al* 2008, 65). Poor oral hygiene was evident in the teeth of Inhumations 1 and 2, not only by the caries described above but also by indications of gum disease on their mandibles and, in the case of Inhumation 1, ante-mortem tooth loss of several teeth including the left maxillary 2nd molar, the left mandibular 2nd pre-molar and the left mandibular 1st molar.

Disarticulated bone (tables 7–9: see *Endnote*)

Quarry 1 contained a large amount of disarticulated human bone in addition to Inhumation 1. Two of four infilling episodes (Infill Events 1 and 2) contained human remains, both of which are early Roman in date (Period 4). This material was considered to be the result of deliberate deposition, as were the disarticulated human bones found within Quarries 2 and 3, whereas the disarticulated foot bone found within the modern subsoil was the product of accidental redeposition.

There was a minimum of six individuals represented by the disarticulated bone recovered from Quarry1: Infill Event 1 (table 7), including at least two adults, a juvenile, an adolescent

and a neonate; also a minimum of four individuals from Infill Event 2, including at least two adults and a juvenile or adolescent. Several examples of almost every element of the skeleton were represented within the multiple fills excavated from the shaft (tables 8 and 9), including hand and foot bones, which are typically the least prevalent elements within a disarticulated assemblage. Additionally, the majority of the bone was at least in a moderate, if not better, condition as can be seen in table 9.

A minimum of a single individual was represented by the disarticulated elements in Quarries 2 and 3 and within the modern subsoil respectively.

Human bone: discussion

A diversity of burial rites relating to uncremated human bone has been observed in the archaeological record of the Iron Age and early Roman periods (Booth & Madgwick 2016). Unburnt human remains are often found in varying degrees of articulation and in a variety of attitudes within functional features such as pits or ditches rather than burial plots, cemeteries or monuments created specifically for the disposal of the dead; typically, pits or ditches containing human remains tend to be situated on the periphery of settlements (Sharples 2010; Booth & Madgwick 2016; Davis 2017). Such patterns can be recognised at Ewell throughout the Roman period, where inhumations of both adults and infants were variously associated with ditches and quarries.

In comparison with other periods, a relatively small quantity of Iron Age human remains have been unearthed in Britain, a trend that may continue into the early Roman period. This gives the appearance of an 'invisible' population, particularly during the Middle Iron Age (Davis 2017). Therefore, it is considered that disposal of the dead could involve one or several steps that led to the loss of skeletal material before a body or parts of a body were interred in their final resting places. Excarnation or immersion in water represent two possible explanations for this loss, as does the curation of bodies or body parts so that they could be used in some way by the living (Sharples 2010; Booth & Madgwick 2016).

Inhumation 1 (a middle-aged to old female found in a prone, extended position within Quarry 1) had been buried together with a large amount of disarticulated bone representing at least six individuals within Infill Event 1 and four individuals within Infill Event 2, including adults, juveniles, adolescents and at least a single neonate. The semi-articulated skeleton and the disarticulated bone did not exhibit post-mortem cut marks indicative of a body having been dissected, thus suggesting that the disarticulated remains had fallen apart naturally or had been dismembered when semi-rotten. Evidence of rodent gnawing or root etching would be expected if excarnation by long-term exposure or temporary burial of the corpse was practised, but this was not observed. Furthermore, it has been noted that decomposition of the hands and feet is often rapid when a body is exposed (Booth & Madgwick 2016), yet Inhumation 1 retained a few articulated elements of these appendages. This could suggest that Inhumation 1 was deposited in the shaft a relatively short time after death, although such an interpretation fails to account for its incomplete state, which is suggestive of post-mortem manipulation. Together this suggests that decomposition was under way prior to burial and that this body was perhaps curated in either an above- or below-ground context for a period of time before its final interment. This may also have happened with the disarticulated remains, given the prevalence of small hand and foot parts in the assemblage (amounting to 28.24% of the assemblage for Infill Event 1 and 22.46% for Infill Event 2), although differences probably existed between the ways in which Inhumation 1 and the disarticulated individuals were treated given the differences in the degree of disarticulation that was observed.

Human infants were found in Quarry 2 and in the top of Enclosure 2. Contemporary sources from the Roman period suggest that young infants were treated differently to older individuals in death and a formal grave was not necessarily required (Watts 1989). This may be the result of high mortality rates together with the opinion that an independent

personality was not possible until teething occurred at *c* 6 months (Ucko 1968–70). The two late Roman infants may therefore have been selected for deposition within Quarries 2 and 8 for such reasons.

Saxon Inhumation 7 was also retrieved from a shallow grave that truncated the upper fills of Quarry 3. The grave cut contained a supine, slightly flexed young/middle-aged adult male with an iron knife at his right hip and a silver *sceat* coin near the head. This burial was similar to the supine, slightly flexed individual found at Steward Street in Tower Hamlets, which was also placed within a grave containing a handful of 8th century *sceattas* that was cut into an earlier pit (Cass & Preston 2009).

As an isolated individual with relatively few grave goods, Inhumation 7, does present a simpler, less furnished burial than the individuals found by Lowther during his 1930–4 investigations at Ewell House and later at a private house known as 'Quelland'. The Ewell House burials, dating from the 6th century, consisted of five burials with finds including spearheads, a shield boss and 'saucer' and 'disc' type brooches (Lowther 1935). The further burial at 'Quelland' comprised the skeleton of 'a youth' with a 'sugar-loaf' type shield boss, a spearhead and the fragments of a small knife (Lowther 1963). Further individual burials have also been found during site clearance for the Church of Latter-Day Saints and in the centre of Ewell at The Grove (Haslam 2016b).

Carbon/nitrogen isotope analysis (based on data provided by M Rigakis with excerpts from Rigakis 2016)

The topics to be addressed through the stable isotope analysis were:

Diet of the individuals
The potential of migration (based on dietary changes in life)
The detection of exceptional values indicative of nutritional stress or differentiating diet

Samples of bone selected from Sites A and B at Ewell for carbon/nitrogen isotope analysis derived from one Roman adult skeleton from Quarry 1 (Period 4), thirteen Roman partially articulated bone groups from Quarry 1 (Period 4) and one articulated Roman infant from Quarry 2 (Period 5). One Saxon (Period 6) articulated skeleton was also analysed (table 10: see *Endnote*). Where possible, samples were taken from ribs, femurs and molars from each individual or bone group, as these bone elements respectively remodel at a cellular level at different rates or, in the case of teeth, only at the point of formation. Ribs therefore provide information on diet during the last few years of life, long bones provide an average across the last few decades of life and teeth inform on diet during childhood.

Samples were prepared for ^{13}C and ^{15}N isotope analysis in the Isotope Laboratory of the University of Bradford, where the analysis was also conducted. Samples were taken in accord with Beaumont *et al* (2013); a full methodology for the preparation of the samples and details of any complications and quality control can be found in Rigakis (2016). Once demineralisation was complete, the samples were run through a mass spectrometer. Calibrated in-house standards (fish gel and Bovine Liver Standard) were used, as well as the international standards IAEA600, N1 and CH3.

Results (figs 19–21 and table 10: see *Endnote*)

With one possible exception (femur [289] from an infant burial in Quarry 2: Infill Event 3), results lay in the acceptable range for satisfactory sample quality, with sufficient collagen and limited deterioration or contamination. The results were corrected using the in-house and international standards, according to Paul *et al* 2007.

The average values for all samples were 10‰ $\delta^{15}N$ and 20.1‰ $\delta^{13}C$. The value range for ^{13}C was 2.8‰, while the range for ^{15}N was larger, at 4.4‰. For bone samples, the values were close, an exception being the infant femur A[289] (fig 19). The average values between

samples from the articulated skeletons and from the disarticulated ones vary only by a little in their ^{13}C values, but show a large range in their ^{15}N values, while the articulated skeletons showing higher values for both ^{13}C and ^{15}N. Between the values from bones and teeth, differences can also be seen, even though they are minor, with an average difference of 0.3‰ for ^{13}C and 0.5‰ for ^{15}N (fig 20).

The articulated skeletons show more variation in their values (fig 21). Inhumation 1, a middle-aged to older probable female, shows around -20.0‰ $\delta^{13}C$, with a small range between tooth and bone values. The ^{15}N values, on the other hand, are very elevated, varying between 11.3 and 12.7‰ $\delta^{15}N$, the highest value coming from the tooth sample. On average, this individual shows the highest ^{15}N values of those sampled. Inhumation 7, a young to middle-aged adult male, shows slightly higher ^{13}C values, with an average of 19.0‰ $\delta^{13}C$, but much lower ^{15}N values, the lowest in the sample, at 8.7‰ $\delta^{15}N$.

Infant [289] shows the greatest value range, with the values ranging by 1.4‰ for ^{13}C and 1.1‰ for ^{15}N, with a high value of 22.0‰ $\delta^{13}C$ from the femur.

Discussion

As a baseline reference, results of similar studies were compared with the data, specifically herbivore, marine and freshwater baselines, as well as mean human values, the details of which are provided in Rigakis 2016.

The overall values of both ^{13}C and ^{15}N indicate a mainly terrestrial diet of C3 plant foods and animal protein during the Roman period. Assuming that the herbivore values for this area lay around 6.3‰ $\delta^{15}N$, the average value of 10‰ $\delta^{15}N$ would show an enrichment of *c* 3.7‰ $\delta^{15}N$, consistent with consumption of animal protein (Chrisholm *et al* 1982; Jay 2008). The slight ^{13}C enrichment also indicates a mainly terrestrial diet (Redfern *et al* 2010; Jørkov *et al* 2010). Given that the ^{15}N values are just slightly elevated, and considering the ^{13}C average of -20.1‰ $\delta^{13}C$, it is possible that freshwater resources and occasionally omnivore protein was also consumed (Privat & O'Connell 2002; Jay 2008). A mainly marine diet can be ruled out (Chrisholm 1982; Privat & O'Connell 2002). The bones show a big range of ^{15}N values, ranging between 8.3 and 12.7‰ $\delta^{15}N$. If the distinction between the values from 'poor', 'intermediate', and 'wealthy' graves, observed at an Anglo-Saxon cemetery at Berinsfield (Privat & O'Connell 2002, Appendix E, table E. 4) are applied in this case (although it is recognised that this is an imperfect comparison, given the temporal difference), this would indicate that individuals of different social status were represented in the disarticulated bone assemblages analysed for Periods 3 and 4 at Ewell. Most of the values overlap with those from 'poor' and 'intermediate' graves.

In comparison, Inhumation 1 from Quarry 1 (Period 3) shows very high ^{15}N values, with normal to slightly elevated ^{13}C values. In the case of the La Tène samples (Le Huray *et al* 2006), individuals with higher ^{15}N values were found in graves containing iron weapons, and it was therefore hypothesised that the higher values could be associated with a differential diet of warriors. In this case, it is therefore possible that this probable female (Inhumation 1) comes from a higher-status background. Elevated ^{15}N values, in combination with relatively normal ^{13}C values, have also been interpreted as a result of migration, thus leaving open the possibility that this person came to Ewell from elsewhere (Jay 2008). It is therefore particularly interesting that the highest ^{15}N value came from the tooth sample. This could indicate a diet richer in freshwater resources, maybe even omnivore protein, during childhood (Privat & O'Connell, 2002; Jay 2008), which does not seem to be the case for the majority of the other samples. This argument could be supported by the fact that even though the ^{15}N values are overall elevated, the tooth values are even more elevated, being 1.2–1.4‰ $\delta^{15}N$ higher than the other values, indicating that a significant difference in diet started in childhood.

Period 4 Infant [289] (from Quarry 3: Infill Event 3) shows slightly elevated ^{15}N values indicative of a breastfed child perhaps at a later weaning stage (supported by the presence of a full-grown root; Bocherens & Drucker 2003; Le Huray *et al* 2006; Reitsema 2015, Jørkov

et al 2010). The exceptionally low ^{13}C value from its femur could be caused by such a change in diet, although it is noteworthy that the rib provided a value 2.4‰ $\delta^{13}C$ higher, thus collagen degradation or contamination of the femur sample remains a possibility.

The lowest ^{15}N values came from Saxon (Period 6) Inhumation 7, deposited in the top of Quarry 3. His values lay in the probable 'wealthy' range. There is no exceptional difference between the values of the bones compared to the value from the tooth sample, which would point to a relatively consistent diet during childhood and adulthood.

Taphonomic analysis of the human bone from Quarry 1 (based on data provided by M Rigakis with excerpts from Rigakis 2016)

Full aims, objectives and methodology for the detailed taphonomic analysis that was undertaken on the bone from Site A can be found in Rigakis (2016). In brief, a sub-sample of 33 bones from early Roman Quarry 1 (Period 4) were examined under a magnifying glass, a light microscope with up to 40x magnification and a scanning electron microscope for evidence of scavenger activity. All observations were recorded on *pro forma* sheets and a full photographic record was made (see Rigakis 2016). Marks caused by carnivorous scavengers were divided into five characteristic groups: marks, punctures, pits, scoring (termed scratches herein) and furrows (in accord with Haynes 1980, Haglund 1997 and Moraitis & Spiliopoulou 2010). The results for bones from Quarry 1 are presented in table 11 (see *Endnote*).

Discussion

Rigakis concludes, on the basis of taphonomic analysis, that the disarticulated individuals deposited in Quarry 1 were excarnated prior to their placement there. Of the 33 bones that were analysed, 32 exhibited clear signs of canine scavenging activity, displaying characteristic punctures and significant bone-end destruction, which is very typical for dogs and wolves.

However, the damage caused is limited, with much bone remaining intact. Additionally, there are no marks from other animals such as rodent gnawing, picking by birds or gnawing by deer. Even 'boredom gnawing' by dogs or wolves could not be detected, indicating a controlled environment for the excarnation. Rigakis therefore suggests the use of domestic dogs for the purpose of excarnation, on the basis that they can be controlled to regulate the process in an area protected from other scavengers. Ongoing analysis (Green forthcoming) may support, moderate or refute this interpretation.

THE ANIMAL BONE, by Karen Deighton (figs 22–24: see *Endnote*)

Introduction

This report concentrates on material from Periods 3, 4 and 5 (Bronze Age to Iron Age and early and late Roman periods) from Sites A and B. The assemblages from later periods were too small to permit detailed discussion.

Methodology

The material was first sorted into identifiable and non-identifiable fragments and bones with fresh breaks were reassembled. Identification was aided by Schmid (1972); Prummel (1987) was consulted for neonates of the major domesticates, Lawrence and Brown (1974) for small mammals and Cohen and Serjeantson (1996) for birds. Sheep/goat distinctions follow Boessneck (1969).

The following were recorded for each specimen (or fragment): context, anatomical element, taxa, proximal fusion, distal fusion, side, burning, butchery, pathology and erosion. Ribs and vertebrae were recorded as horse, pig, dog, sheep-size or cattle-size but not included

in quantification as their multiple numbers introduce bias. Estimation of age from bone fusion follows Silver (1969). Ageing of horse foetal bones is after Prummel (1987). Cattle and pig teeth were aged after Grant (1982) and sheep teeth after Payne (1973). The ageing of horse teeth follows Goody (1983). Recognition and recording of butchery are after Binford (1981). Recording of sexing data for pig canines follows Schmid (1972) and dog skulls are after The and Trouth (1976). Pathology is described after Baker and Brothwell (1980). Measurements were taken after von den Driesch (1976) and supplementary measurements for equus metapodia are those suggested in Eisenmann and Beckouche (1986). The material was recorded on an Access database.

The bone assemblage

Approximately 4700 animal bones were recovered by hand, 4318 of which were identified to taxa or group level. Sieved samples only produced small indeterminate bone fragments. Seven periods of activity have been recognised across the site and bone was present in features dating to Periods 3–7.

Preservation was generally good. Fragmentation was moderate to fairly heavy and varied by context. Root etching was common and possibly obscured some evidence of butchery and gnawing. The frequency of butchery was extremely low and observed on cattle and ovicaprid bones only (table 12). Canid gnawing was occasionally noted, and the occurrence of burning was low and was largely noted on sheep/goat bones (85%); both calcined and blackened bone was present. A small concentration of unidentified burnt fragments was noted within Infill Event 1 in Quarry 3 (context A[327]).

Period 3 Late Bronze/Early Iron Age to pre-Roman

Solution Feature 2 was infilled during Period 3. Ovicaprines were the dominant taxa, forming 34.7% of the assemblage. Rat was present but these scant remains are no doubt intrusive given the burrowing habits of this taxa.

Period 4: Early to mid-Roman (AD 43–250)

Bones recovered from this period of activity came from the later fills of Solution Feature 2 and Quarries 1–4. Bones from this phase constituted 84% of the assemblage.

Quarries 2–4 and Solution Feature 2

Only 150 bone fragments were recovered from the quarry pits with material concentrated in Quarry 2, from which a partial horse skeleton was recovered (a similar deposit exists at Springhead; Grimm 2007). The partial remains of at least nine dogs were also found,

Table 12 Modifications to animal bones by period and feature type

Modification	Phase 3	Phase 4: Sinkhole	Phase 4: Quary 1: Infill Event 1	Phase 4: Quarry 1 Infill Event 2	Phase 4: Quarry 1 Infill Event 3	Phase 4: Quarry pits	Phase 5
Gnawed	0	6	3	4	2	1	27
Burned	0	0	3	5	0	2	0
Calcined	0	0	3	6	0	0	1
Chopped	0	0	0	1	1	2	12
Knife marks	0	0	1	1	1	0	9

the nature of which suggested deposition of partial or whole carcasses within the quarry. There were too few bones from Quarries 3 and 4 to say anything about the nature of their deposition.

A total of 153 bones came from the later fills of Solution Feature 2. The partial skeletons of a large horse and a crow are noteworthy. The horse remains included an articulated spinal column with fused lumber vertebrae possibly caused by the use of the animal for traction. The presence of crow is interesting given the place of certain corvids in Celtic and Roman mythology (discussed below; Serjeantson & Morris 2011). Its carrion-feeding activities should also not be ruled out as the reason for its presence, given the evidence for excarnation that has been observed within the human bone assemblage. Again, the deposition of whole or partial carcasses is suggested.

Quarry 1

The largest proportion of material from this phase (70%) came from Quarry 1. Bone-rich contexts here have been securely dated to the end of the 1st century AD and deposition may have taken place over a relatively short period of time. This portion of the assemblage exhibited the greatest species diversity and contained examples of neonates for all species. A large quantity of disarticulated human remains was intermingled with the animal bone (see Langthorne, above).

Quarry 1: Infill Event 1 (table 13)

The predominance of dogs is noteworthy. Dogs form 76.8% of the assemblage, including at least 58 partial skeletons. Both male and female dogs were present that ranged in age and size (fig 22). The majority of the dogs were adults; however, an elderly dog and puppies were also identified. Eight male dogs have been recorded either by the presence of a baculum or by markings on the basioccipital skull but no definite females observed. Animals without any obvious pathologies were found alongside those with a range of pathologies that included healed fractures, possible congenital pathologies, fairly frequent absent or misaligned teeth and examples of exostosis and infection. Together this suggests that age, health and, in all probability sex, did not influence which dogs were selected for deposition in the shaft. No evidence was found to suggest that the dogs were skinned or butchered.

To the immediate north of the site the remains of dogs have been found in one of the four shafts that were identified at Hatch Furlong. Here, a 3m-deep shaft dated to the 2nd–3rd century yielded the remains of twelve individuals that were found alongside a piglet and bird bones; some of the dogs were articulated when they entered the shaft, while others were charred and appeared to have been burnt (Cotton & Sheldon 2007, 2–3; 2008, 5–6). Further afield, dogs have been found in shafts at Keston in Kent, where a large shaft (3.3m wide x 5.3m deep) contained 22 dogs and three horses (Locker 1999). Another example of the deposition of dogs in a shaft can be found at Springhead, also in Kent, where twenty dogs and a range of other domesticates were discovered in a similarly sized shaft, and also at Staines (Locker 1999; Grimm 2007). Unlike Ewell, Keston showed a predominance of infant and juvenile dogs, together with a pregnant bitch. More generally, dogs feature strongly in a range of other structured deposits, for example those of disused wells and pits in Southwark (Drummond-Murray & Thompson 2004).

A further aspect of interest is the presence and nature of the horse remains. The taxa represented only 4% of the assemblage at Ewell, although the presence of horses is not unusual in shafts of this period elsewhere (eg Keston). At Ewell 94% of the remains are predominantly foetal foals (42–44 weeks' gestation, including the partial equid in Quarry 1: Infill Event 1) while the remaining 6% is juvenile. Deposits containing foetal horse remains are apparently rare. An example is known from Late Iron Age contexts at Stone Castle where

Table 13 Taxa by period (percentages are given in brackets)

Period:	3	4	4	4	4	4	5
Land use:	All features	Solution feature 2	Quarry 1: Infill Event 1	Quarry 1: Infill Event 2	Quarry 1: Infill Event 3	Quarries 2–4	All features
Taxa:							
Cattle	1(0.28)	29(18.9)	18(1.1)	7(0.4)	21(33.8)	54(36)	74(25.2)
MNI	1(2.4)	4(21)	3(2.9)	3(2.4)	2(15)	8(26)	6(17.1)
Cattle-size			4(0.48)	1(0.05)	1(1.6)	6(4)	14(4.7)
MNI			1(0.9)	1(0.8)	1(7)	2(6.6)	1(2.8)
Horse		48(31.3)	62(4)	69(4)	20(32.2)	36(24)	47(16)
MNI		4(21)	5(4.8)	8(6.4)	3(23)	5(10)	3(8.5)
Sheep	23(6.6)		5(0.32)	1(0.05)			
MNI	1(2.4)		3(2.9)	1(0.8)			
Goat	13(3.7)		2(0.12)	1(0.05)			
MNI	1(2.4)		1(0.9)	1(0.8)			
Sheep/goat	85(24.4)	10(6.5)	166(10.9)	66(3.8)	9(14.5)	8(5.2)	43(14.6)
MNI	3(7.3)	2(10.5)	10(9.7)	12(9.6)	3(23)	2(6.6)	4(11.4)
Sheep-size	1(0.28)		6(0.39)	6(0.3)		2(1.3)	5(1.5)
MNI	1(2.4)		1(0.9)	1(0.8)		1(3.3)	1(2.8)
Pig		4(2.6)	58(3.8)	227(13.3)		1(0.66)	10(3)
MNI		2(10.5)	9(8.7)	23(18.4)		1(3.3)	3(8.5)
Dog	41(11.7)	44(28.7)	1168(76.8)	1247(73)	11(17)	42(28)	83(28.3)
MNI	6(14.6)	4(21)	58(56.3)	65(52)	4(30)	10(33)	8(22.8)
Cat							5(1.5)
MNI							1(2.8)
Badger							1(0.3)
MNI							1(2.8)
Red deer							2(0.6)
MNI							2(5.7)
Deer sp.							2(0.6)
MNI							1(2.8)
Rabbit		2(1.3)					
MNI		1(5.3)					
Stoat			4(0.24)				
MNI			3(2.9)				
Mole			1(0.06)	2(0.1)			
MNI			1(0.9)	1(0.8)			
Mouse			3(0.18)	3(0.15)			
MNI			1(0.9)	1(0.8)			
Brown rat	6(1.7)		1(0.06)				

Table 13 *Continued*

Period:	3	4	4	4	4	4	5
Land use:	All features	Solution feature 2	Quarry 1: Infill Event 1	Quarry 1: Infill Event 2	Quarry 1: Infill Event 3	Quarries 2–4	All features
Taxa:							
MNI	6(14.6)		1(0.9)				
Black rat							
Rat sp.	145(41.7)		1(0.06)				
MNI	17(42.4)		1(0.9)				
Bank vole				3(0.15)			
MNI				1(0.8)			
Field vole				7(0.35)			
MNI				4(3.2)			
Vole sp.	1(0.28)		7(0.46)				
MNI	1(2.4)		3(2.9)				
Chicken	15(4.3)			2(0.1)		1(0.66)	3(0.9)
MNI	2(4.8)			1(0.8)		1(3.3)	2(5.7)
Duck	8(2.3)						
MNI	1(2.4)						
Bird	5(1.4)						
MNI	1(2.4)						
Crow		12(7.8)	12(0.78)				
MNI		2(10.5)	2(1.9)				
Small corvid	4(1.1)						1(0.3)
MNI	1(2.4)						1(2.8)
Crow family							1(0.3)
MNI							1(2.8)
Thrush				1(0.05)			
MNI				1(0.8)			
Large Passerine				1(0.05)			
MNI				1(0.8)			
Frog/toad				11(0.64)			
MNI				1(0.8)			
Amphibian			16(1)	1(0.05)			2(0.6)
MNI			1(0.9)	1(0.8)			1(2.8)
Total	348	153	1521	1706	62	150	293
Total MNI	41	19	103	125	13	30	35

a partial foetal horse skeleton was found in a pit (Rielly 2011) and horse remains from a shaft at Ardleigh are recorded as being from an animal of 2 years or less (Spencer 1965, 26).

The presence of crow is also noteworthy. This animal also occurred within a shaft at Jordan Hill in Dorset (Drew 1931). In addition to dog, crow and horse, three stoat skulls and a mandible were noted from Quarry 1: Infill Event 1. This taxa has been found in probable structured deposits elsewhere, for example Springhead (Grimm 2007).

Pigs are the third most abundant taxa at 3.8%, a figure that includes at least seven partial skeletons. The assemblage was dominated by neonates and juveniles: only 3.7% were categorised as adults whereas 52.8% were recorded as juvenile and 43.5% as neonates. It should be noted that, in accord with Grant 1989, the large number of juveniles is consistent with known husbandry practices for the period when animals were slaughtered as they reached their optimum meat weight, whereas the number of neonates is unusual. Perhaps these animals could represent suckling pigs killed for a feast, for example, that perhaps took place as part of the infilling of Quarry 1. A parallel for the presence of neonatal pigs within such a feature can be found in 'Shaft F' deposits at Keston (Locker 1999a).

The remaining assemblage consisted of sheep/goat (8.4%) bones with a single goat horncore and cattle bones (1.8%). Horned varieties of sheep were present. The majority of sheep/goat was categorised as adults with only one very partial neonate noted. Evidence of trauma and severe infection were present on a metatarsal for this taxon. Cattle included at least one partial skeleton. The majority were adults with only four juvenile bones recorded. The taxon provided possible evidence of traction-related stress with several metapodials exhibiting splayed condyles.

At least three mice, two rats and two moles were noted in quarry contexts. The majority of amphibian and vole remains were also from the quarries. These taxa could be viewed as intrusive owing to their burrowing habits or, with the exception of the rats, could have fallen in when the quarry was open.

Only one cut mark (rather than a chop mark), made by a knife, was observed on an ovicaprid occipital bone. Other than this, no butchery evidence was noted, although the condition of the bone undoubtedly needs to be taken into consideration here (see table 12 and preservation above) as root etching could have obscured at least some butchery evidence. Preservation issues alone are unlikely to account for the general dearth of butchery evidence among this reasonably well-preserved assemblage, although it is possible to joint a carcass with a knife without leaving evidence if the work is undertaken skilfully (Grant 1988, 141). That said, the bulk of the animal bone from this shaft was recorded during the fieldwork as articulated or semi-articulated animal bone groups, which again points towards little or no butchery prior to deposition. Consequently, the cumulative evidence more strongly suggests that at least some of the major food taxa remains (cattle, ovicaprid and pig) were deposited as whole carcasses or, at the very least, large joints rather than as disarticulated consumption waste. In other words, it seems more probable that at least some of these animals were deposited within the quarry complete with their flesh and perhaps also their hides, perhaps as offerings, an interpretation that seems viable given the context of their discovery alongside human remains coupled with the aforementioned taphonomy (Magnell 2012, 196). This logic does not necessarily apply to the suckling pigs, which would not need to be dismembered by butchery before consumption and could therefore represent waste from feasting. This apparent lack of butchery evidence is paralleled at both Springhead (Grimm 2007) and Keston (Locker 1999a), thus suggesting that these results fit within a wider pattern.

Quarry 1: Infill Event 2 (table 13)

A similar range of species and relative abundance as Infill Event 1 was noted for Infill Event 2, although a higher proportion of pig is seen at the expense of ovicaprids. A similar age distribution was generally observed for all taxa (including a neonatal horse of 23–25 weeks' gestation; fig 23). Unlike Infill Event 1, neonatal cattle were present although the majority

were juveniles. However, this is based on a particularly small sample (seven bones). Evidence for butchery remains was scarce with only three examples of chopping on ovicaprid bones. Foetal horses were again represented by four partial skeletons (bone groups A[342], A[354], A[310] and A[311]).

Quarry 1: Infill Event 3 (table 13)

In comparison with the assemblages from Infill Events 1 and 2, that from Infill Event 3 is much smaller and the relative abundance of taxa was different with cattle and equids now the most prevalent and pig completely absent. All horses were adult (including an animal of 20–25 years) and no neonates of any taxa were observed (fig 24).

Many quarries and shafts in the vicinity of Ewell have been found to contain the remains of dogs. In addition to the quarries that were investigated during this excavation, another ten were excavated in Ewell during the 19th century (Bird 2004a) together with two more in the mid-20th century before excavation, recording and recovery of animal bone became rigorous (Cotton 2001). That said, Diamond (1847) does record the presence of similar species to the Quarry 1 assemblage, in particular dog, in four quarries. Another shaft excavation was carried out at Hatch Furlong in the late 20th century that was more rigorous in terms of excavation, recording and recovery, although the assemblage was considerably smaller than that from Quarry 1 (only 88 fragments). However, it did produce a similar range of taxa including twelve neonatal dogs. A major difference was that only a small amount of adult horse was recovered and no foetal foals. Additionally, a substantial assemblage of dog bones, including some articulated skeletal elements and some charred dog bones, were recovered from one of four shafts that were excavated at Hatch Furlong to the immediate north of the site (Cotton & Sheldon 2007, 2–3).

Period 5: Late Roman (AD 250–400)

This phase was dominated by dog, followed by cattle, then horse. A solitary badger humerus came from Quarry 9. A partial cat (again the only find of this taxon) and dog skeletons were also seen in the same context. A red deer 3rd molar and a metatarsal came from the eastern section of Quarry 2, together with a human infant, two corvid bones and at least five partial canids. This combination of wild taxa, domestic taxa and human bone suggests that structured deposition was continuing, particularly the association of dog and human infants seen in Quarry 2. It should be noted that a human infant is also present in Quarry 9 within this phase (see also Langthorne, above).

Discussion and conclusions

The assemblage provides important new data on structured deposition in quarries of Roman date (Hill 1996; Fulford 2001). The large animal bone deposits from Quarry 1, nearby Solution Feature 2 and the other quarry pits suggest that they were subject to special treatment during their infilling, considering the abundance of partial skeletons, lack of butchery evidence, the presence of foetal/neonatal specimens and the predominance of canids. The deposits fulfil current criteria for the recognition of structured deposition including evidence of inter-species selectivity towards animals not usually of economic (food) value such as dogs and horses and the presence of partial skeletons (Wait 1985, 141–51; Morris 2011, 5–7).

The dominance of certain animal taxa, particularly dogs, over others in the Ewell quarries could be significant, particularly given that several of the species represented appear to have possessed certain symbolic associations in parts of pre-Roman and Roman Britain. While these potential associations are worthy of discussion, it must be emphasised that knowledge of pre-Roman and Romano-British deities, their supposed attributes and the geographical extent of their veneration is, at best, fragmentary. Most of these pre-Roman deities are

known only from inscriptions that pair them with their Roman 'equivalents', although how similar they were in reality cannot be proven. Consequently, the following associations are highly speculative.

Many dogs were interred in Quarry 1: an animal that is thought to have been associated with the Gallo-Celtic god *Sucellos* or a local variant of that deity (Deyts 1992, 87–9), the veneration of whom is evidenced in at least some parts of Britain by the discovery of the Farley Heath sceptre that featured a dog and a corvid on its binding (Poulton 2007, 50–1). It has been suggested that the dog represents the devouring and transforming aspects of the god (Black 2008). Dogs also appear to have been associated with hunting deities (eg the statue from Canterbury; Merrifield 1986), a statement that is perhaps evidenced by the supposed 'hunting scene' recreated with skeletons of a horse, a deer and a dog at East London Cemetery (Rielly 2000). Furthermore, dogs are connected with healing; for example a healing ritual involving the sacrifice of puppies is described by Oegrossi *et al* (2006, 262–6). This is possibly evidenced in Britain by the fragmented statue of a dog wearing a carved necklace retrieved from a well associated with a temple at Pagan's Hill (Boon 1989). Finally, some scholars have suggested that lapdogs are associated with a mother-goddess-like deity (Merrifield 1986, 105; Green 1992, 26–7). The presence of pots in conjunction with canid and human remains, as seen in Quarry 1, might also be seen as evidence that the deity *Sucellos* or a local variant played a role in the backfilling of the Ewell quarries given that one of his attributes is a cooking pot known as an olla (Deyts 1992, 89–94). This association recurs in a shaft at Springhead (Grimm 2007) and at Elephant and Castle where two dog skeletons were found in a box surrounded by broken pots (Merrifield 1969).

Horses were also well represented in the Ewell quarries and this animal also appears to have held an important place in Celtic mythology. The horse is linked with the goddess *Epona*, who is often depicted riding a horse accompanied by a foal, a bird or a dog (Mackillop 1998, 168). For example, the statue from Bregenz in Austria (Reinach 1895, 113, 309) shows her with a foal, whereas a statute from Britain, possibly Wiltshire, shows her flanked by two small horses or ponies (Johns 1971, 39). Archaeologically, horse remains are associated with a possible Epona statue at Witham, Essex, although this attribution is tentative as the statue in question could alternatively represent Jupiter or a giant (Luff 1999, 222–3). The goddess is especially linked with fertility in her role as the protector of equids and this could be consistent with the presence of a high percentage of foals at Ewell.

Often no distinction is made in the Celtic mythos between crows and ravens (Serjeantson & Morris 2011, 87) so the crow remains that were found in association with dogs in Quarry 1 at Ewell may be paralleled elsewhere by ravens found alongside dogs, for example at Newstead (Curle 1911) and 'Shaft H' at Keston (Locker 1999a). The raven (or crow) is the companion animal of *Nantosuelta*, who was the consort of *Sucellos* (Serjeantson & Morris 2011*)*. Stoats were also found in Quarry 1 and it is possible that they share the same superstitions as weasels. The Romans believed that weasels were poisonous to snakes (Pliny) and possessed demonic or magic powers such as the ability to bring their young back to life (Schuster 2001). How they were viewed in 'Celtic' society remains uncertain.

The possible association of dogs with human remains as seen in Quarry 1 (Infill Event 1: bone groups A[400], A[405] and A[418]) and with infant remains from a shaft recorded during the evaluation (Strid 2014) seems to be significant, and is found at a number of sites. For example, at Folly Lane, St Albans, a 2nd century shaft was found to contain a human skull, young dog bones and the remains of a puppy (Locker 1999b, 334), and two dog burials are associated with infants at Lant street (Rielly 2013, 52, 108). It is possible that the practice of placing dog and human remains in association stems from the belief that the guarding and guiding role of the dog in life extend into the afterlife (Locker 1999b, 334; Reilly 2013, 52, 108).

The dominance of dogs within the quarries (in particular Quarry 1) at Ewell could reflect the status that was seemingly given to this taxon in 'Celtic' belief systems (discussed in more detail below). It has also been suggested that dogs were viewed as special creatures in

antiquity: they can enter into a relationship with humans but are also capable of living as a feral animal, thus existing in a liminal state between the domestic and wild worlds (Merrifield 1987). The symbolic importance of the dog at Ewell in particular is also suggested by the presence of canid gnawing marks on the disarticulated human bone assemblage; although this could be the result of a brief, opportunistic attack by dogs or wolves, it could alternatively be that the dog was used in mortuary rites involving excarnation (see *The archaeological sequence*, above). Such beliefs would not necessarily have jarred with a more classical world-view given that the deity *Cerberus* guarded the Roman underworld.

The structured animal deposits from Ewell appear to form part of a widespread tradition of structured deposition in quarries, pits and shafts that manifests itself across south-east England, Britain and the near Continent. No recent inventory detailing their quantity or distribution exists; however, as early as 1968 more than 50 shafts were known from southern Britain and northern Europe (Ross 1968). These include other sites from Surrey, for example Staines (Locker 1999), although these contemporary assemblages of animal bone are not as large as those that were found at Ewell, thus making this site of particular importance. Structured animal bone deposits are known from shafts in other areas of the UK. Examples are known from Cambridge (Alexander & Pullinger 1999), Baldock in Bedfordshire (Stead & Rigby 1986), Yeovilton in Somerset (Lovell 2006) and Neatham (Millett & Graham 1986) and Garforth in West Yorkshire (Jaques 2000). Elsewhere, similar deposition has been identified in pits and wells, for example at Muntham Court, Sussex (later 1st/2nd century to 4th century), where many dog skeletons were found in a deep well associated with a temple (Burstow & Hollyman 1957). A similar phenomenon also occurred at Uley in Gloucestershire (Woodward & Leach 1993). At Weycocks Hill, Berkshire (late 3rd–late 4th century), dogs are noted in three wells or shafts together with horse, pig, cow and sheep/goat, again associated with a temple (Cotton 1957). At Pagan's Hill, Somerset (Rahtz 1952), ox and sheep bone fragments were recovered from a well, while structured animal deposits have also been noted in pits and wells within Roman towns, for example Silchester (Clark 2012), Dorchester (Maltby 1993), Winchester (Maltby 1986; 2010) and Southwark (Beasley 2006). In summary, such patterns can be recognised in deeply intrusive features associated with both temple complexes and settlements of varying sizes. Once this is taken into consideration, the tradition can be seen as a broad one that was both diverse and widespread.

THE ROMAN POTTERY, by Eniko Hudak (figs 25–27 and 29–30: see *Endnote*)

Introduction

Excavations at the site produced 1637 sherds of Romano-British pottery weighing 20.010kg and representing 17.64 Estimated Vessel Equivalents (EVEs). The assemblages were quantified by Katie Anderson and Eniko Hudak using the scheme and standard measures proposed by Orton *et al* (1993). Fabrics and forms have been recorded using Museum of London codes (Symonds 2000) extended by other typologies and corpora where more precise dating was available.

Overall, there is a range of Romano-British and imported fabrics represented in the assemblages dating to the 1st–4th centuries AD (fig 25). The assemblages mainly consist of small to medium sherds, often much abraded, with some fragmented complete and semi-complete vessels.

As most of the pottery was recovered from Periods 4 (AD 40–250) and 5 (AD 250–400) features situated in the north-east corner of the site (table 14), this report will present the assemblages through quantified data from these contexts. These groups were considered to provide a better understanding of the pottery from the site and to illustrate the changes of ceramic supply in the early and late Roman periods.

Table 14 Distribution of pottery by area and period

Site/Area	Period	EVEs	Sherd count	Weight (g)
SCHS15	Unstratified	1.08	28	336
SCHS15		0.15	112	1286
SRRE15	Unstratified	1.22	31	679
SRRE15/Area 1		0.38	46	497
SRRE15/Area 2	Period 4	7.79	774	9004
SRRE15/Area 2	Period 5	7.02	634	8129
SRRE15/Area 2	Period 7	0	12	79
Total		17.64	1637	20,010

Period 4 (AD 40–250)

The pottery from Period 4 was recovered from a range of features including ditches and quarry pits totalling 774 sherds weighing 9.004kg and representing 7.79 EVEs. The pottery supply is dominated by coarse wares, especially sandy grey wares dated to the mid-1st to early/mid-2nd centuries AD (fig 26). Products of the Alice Holt potteries, vessels in fabrics very similar to the handmade early Roman Sandy wares (ERSA, ERSB, ERMS) as described in Davies *et al* (1994), and other sandy grey wares possibly of local origin account for nearly two-thirds of the assemblage. Other early Roman fabrics such as North Kent Shell Tempered ware, Verulamium Region White ware and unsourced grog-tempered wares are also present. The next ceramic period within this phase is marked by the considerable quantities of Black Burnished Wares (BB1, BB2, BBS), especially BB2, which are dated to after AD 120.

There is a very small quantity of fine wares from a rather restricted range of sources. Fine Micaceous wares are most common, and there is a very small amount of South and Central Gaulish samian in the forms of cups (Dr 27 and Dr 33) accounting for only 1.8% of EVEs.

Amphorae are also scarce in the phase assemblage with only a few fragments of Baetican Dressel 20 olive oil and Gauloise wine amphora fragments. There is only a single body sherd of an Oxfordshire White Colour-Coated mortarium, which is, together with a small amount of other late Roman fragments, intrusive, probably deriving from Soil Horizon 1.

The most common form category in this phase is jars at about 64% of EVEs, followed by bowls at 17.2% (fig 27). Beakers and dishes are each less than 10%, while flagons, amphorae and mortaria are represented by body sherds only. Jars are mainly bead-rim jars (2A), necked jars (2B) and figure-7 rim jars (2D). The most commonly occurring bowl types are the Black Burnished Ware triangular-rim bowls (4H), but there are also several fragments of Belgic style carinated bowls in an unsourced red-slipped fabric (cf Monaghan 1987 type 4G; Rigby 1989a, figure 59 type 2C3), and also a single sherd of a 'Surrey' or 'Atrebatic' bowl in Alice Holt Surrey ware fabric (Lyne & Jefferies 1979, type 5.7; fig 28, no 1). Interestingly, some crucible fragments in an unknown fabric were also present, although no evidence of metalworking activity was found (fig 28, no 4).

Of particular interest are the pottery groups recovered from the fills of the Lower Shaft of Quarry 1 (Infill Events 1 and 2), not only because of the early date of the pottery (mid–late 1st century AD), but also because of the presence of several structured deposits including fragmentary complete or near-complete vessels. The second lowest fill (A[393]), which formed part of Infill Event 1, contained five vessels in early Roman Sandy wares, Alice Holt and Fine Micaceous ware, which were all represented by sherds from the base and lower half of the vessel. Inhumation 1 was associated with a broken ERMS bead-rim jar, and the deposits directly above contained fragments of another bead-rim jar in ERSB and fragments of a red-slipped carinated bowl from Infill Event 2. Placed on a ledge in the lower part of

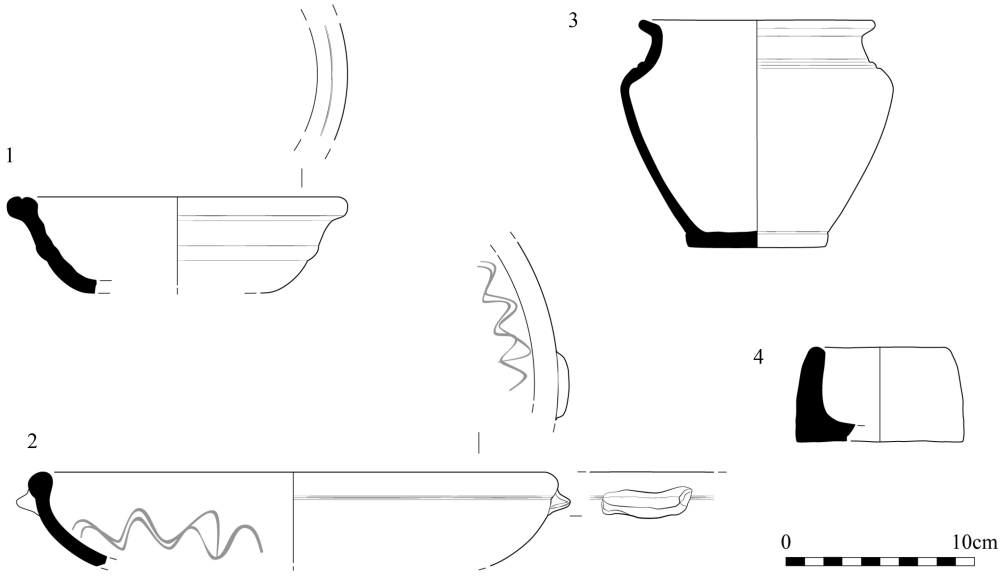

Fig 28 NESCOT, Ewell. Romano-British pottery selected for illustration because of their ceramic significance. 1: A[341] AHSU 4K 'Atrebatic' bowl (Lyne & Jefferies 1979 type 5.7); 2: A[237] OXID lug-handled dish with internal burnished decoration; 3: A[301] ERSB 2D figure-7 rim jar; 4: A[372] XX crucible.

the shaft was a semi-complete Verulamium Region White ware flagon lacking the neck and the rim. Finally, the uppermost fill of Infill Event 2 (A[301]) contained most of a necked jar in ERSB and a complete but shattered sandy grey ware figure-7 rim jar (fig 28, no 3). These vessels appear to have been deliberately 'killed' by shattering and removing the top halves.

Period 5 (AD 250–400)

A total of 634 sherds, 8.129kg, 7.02 EVEs was recovered from Period 5 contexts including Quarries 8–10 and Inhumation 6 (fig 29). Like Period 4, this assemblage is also dominated by coarse wares: Alice Holt Farnham wares and unsourced sandy grey wares account for 74.5% of EVEs. Other typical Late Roman fabrics are also present, including products of the Oxfordshire potteries and Much Hadham Red wares. Black Burnished wares are less prominent with BB1 and BB2 almost equally represented. There is some degree of residuality owing to quarrying activity truncating underlying features.

Fine wares are also scarce. Few fragments of Nene Valley Colour-Coated wares appear, and there is a tiny sherd of Moselkeramik, which was found in association with Inhumation 6. Samian is down to 1.3% of EVEs in forms of Dr27 and Dr33 cups and is mostly residual. There are only five fragments of amphorae (BAET, GAUL), and the mortaria are exclusively Oxfordshire products with only one rim fragment of a Young type WC7 (1977).

Jars are still the dominant form category with 54% of EVEs but hooked-rim jars (2W) are the most commonly occurring form by far (25%). Bowls are more prominent than in Period 4 (33%), with flanged bowls being the most common (4M; fig 30), and there is also an unusual OXID dish with lug handles and interior burnishing from the backfill of Quarry 9 (A[237]; fig 28, no 2). Flagons, beakers, cups and mortaria are each less than 10%, and amphorae are represented by body sherds only.

Roman pottery: discussion

Despite the relatively small size of the phase assemblages (less than 10 EVEs each), there are some clear patterns observed in the pottery supply and use at Ewell. There is continuity from the early to the late Roman period both in the fabrics and forms occurring on the site. The importance of coarse wares is clear, especially the products of the early and late Alice Holt potteries, which increase from 16 to 57% from Period 4–5. The King William IV site in Ewell (Orton 1997) showed very similar trends, where Orton concludes that this could be because the later fabric is easier to recognise, but the premise that this is due to the relative success of the late Alice Holt products compared with the early ones should not be discredited either (cf Lyne & Jefferies 1979; Symonds & Tomber 1991; Davies *et al* 1994).

Although there is a restricted range of fabrics represented in the assemblages, there are a number of regional imports from the potteries of the Lower Nene Valley, Much Hadham, Verulamium Region, London and Oxfordshire as well as an 'exotic' Continental import of a single fragment of Moselkeramik (from the grave fill of Inhumation 6). There is also a possible imitation Gallo-Belgic platter base in micaceous sandy ware with a slight basal kick bearing a maker's mark. The mark consists of a single line of 'V' motifs flanked by two dots or circles (or letter C) and surrounded by circles (fig 31), which was found in Quarry 1. Similar coarseware stamps with repeated 'V' motifs were found in Southwark and London (Rigby 1978; Davies *et al* 1994; Rayner 2011 etc), and a high number of similar dies were recorded at West Stow and Colchester (Rigby 1989b; 1998; 1999), but no exact parallels have been found among the published material. Samian is scarce, and there is only a restricted range of forms present, mainly plain cups and dishes. There is only one decorated fragment of a Dr 30 bowl from an upper fill of Solution Feature 2. Kate Sheehan-Finn noted that the main figure represents Hercules picking apples in the garden of the Hesperides; he holds three apples in his left hand and wears the characteristic pelt of a lion around his shoulders (Déchelette 1907: no 469a). This figure of Hercules appears on a bowl illustrated in *Central Gaulish Potters* (Stanfield & Simpson 1958:

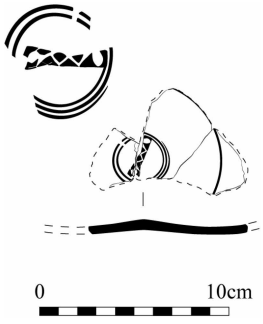

Fig 31 NESCOT, Ewell. A[393] ERMS possible Gallo-Belgic imitation platter base with maker's mark.

Fig 32 NESCOT, Ewell. Rubbing of a decorated samian sherd from a Dr 30 bowl from an upper fill of Solution Feature 2 (A[82]), showing Hercules picking apples in the garden of the Hesperides.

plate 88, 1) and the bowl is attributed to the potter Drusus, although it is acknowledged that the moulds were used by other potters and that Drusus ii had a career that spanned productions at Les Matres de Veyre (AD 100–125) and Lezoux (AD 125–140 Stanfield & Simpson 1958, 1; fig 32).

The ratio of coarse to fine wares seems to be steady, as do the proportions of the main form groups. Jars dominate the assemblage, although bowls do increase somewhat from Period 4–5. It must be borne in mind, however, that the Ewell assemblages are rather small and exact percentage values might be misleading. Individual forms within their groups vary, but essentially they seem to be following the 'trends' of the time: early bead-rim and cordoned jars being common in Period 4 and late hooked-rim jars in Period 5. This also compares very well with the King William IV site together with the proportions of fabrics and changes over time (Orton 1997). The Period 4 assemblage also shows a range of similarities with the Late pre-Roman Iron Age and Roman assemblages from The Looe (Cotton 2001).

The dominance of jars together with the relative lack of fine wares and amphorae suggest a basic rural site type, similar to those of the Iron Age (Evans 2001), although there was no domestic settlement evidence found on the site. It is more likely that there was a subset of the settlement range employed for the limited ceramic uses as required by the quarrying activities and the pottery included in the structured deposits.

The structured deposits of Quarry 1 compare well with those excavated from wells at the Old Sorting Office, Swan Street, Southwark (Beasley 2006), which also contained a number of complete and semi-complete vessels together with a human skeleton manipulated post-mortem and disarticulated dog skeletons. The vessels showed signs of deliberate damage rendering them unusable, either by removing key elements (handles, rims), piercing holes, shattering, or even dividing them into lower and upper halves and depositing only half of a vessel, which can also be observed at Ewell. It may be because of the size of the assemblages and the restricted range of pottery present that vessel forms considered as being indicative of 'ritual' activities, such as tazze, triple vases and unguentaria, are not present.

Conclusion

Despite their small size, the Ewell assemblages display a limited but interesting set of Romano-British pottery. The continuity of fabric and form categories support the idea that the function of the site did not change greatly from Period 4 to 5, and there are even Late Iron Age characteristics persisting in the early Roman period. The pottery appears to be a subset of the settlement range reflecting the requirements of an industrial operation as well as the practice of structured deposition.

THE ROMAN SMALL FINDS, by John Shepherd

Summary

The assemblage as a whole is made up of a number of near-complete, mainly personal, items and a number of very small scraps and fragments of copper alloy and iron. The presence of the former might indicate some form of selection process prior to their deposition, but as will be seen it is more likely that their presence here is due to accidental loss (other than items associated with Inhumations 1, 3 and 4) rather than their association with acts involving structured deposition.

In the case of the brooches, it has been suggested elsewhere (Mackreth 2011) that the incidence of brooches on sites where structured deposition has taken place is more likely the result of accidental loss by individuals among potentially large gatherings of people at such places rather than objects left as offerings. By a process of reversed association, if other material from this site gives evidence for a selective process of deposition – especially among the animal and human remains – then the presence of brooches, if not structured deposits

themselves, may be supportive of Mackreth's belief that they are likely to be accidental losses by individuals among large gatherings. Loss by quarry workers labouring on the site could be proffered as an alternative explanation; however, the probability of this is reduced by the fact that the brooches were recovered from fills that were deposited sometime after quarrying ceased within the features in which they were found. These artefacts were therefore more probably accidentally lost or deliberately deposited during backfilling rather than quarrying.

A complete inventory of the small finds can be found in a catalogue, which forms part of the site archive.

Discussion

A broken catch plate from a brooch (SF A1) was found in Late Bronze to Early Iron Age Droveway 2, a feature that remained partially open as an earthwork during the Roman period. A spring from another was found in the third infill event of Quarry 2 (SF A280). A number of obviously Roman objects were also found in later subsoil (Period 8) contexts, almost certainly having been reworked into those deposits in the course of later, post-Roman agricultural activities and hillwash. The identifiable objects are brooches (SF A1, SF B12, SF B25 and SF B33) and one harness or strap fitting (SF B3). While they are not in direct association with any of the features on this site that contain obvious structured deposits, such as the quarry pits, it should be considered that brooches, likely to be favoured personal items, might be selected for use in acts involving structured deposition. As clarified below, the brooches are unlikely to be significant in this respect as indicative of selection, but it is important to note that all the brooches from this site where type can be identified are of standard Colchester Derivative types, but this may be more indicative of the status of individuals attending in whatever capacity. The lack of diversity and the common nature of these personal adornment items do not suggest diversity among those attending in terms of any cultural background or status. However, higher status seems to be excluded.

The lack of diversity among brooch types on this site as a whole is, to an extent, in contrast with the heterogeneity of the functional types in the rest of the finds assemblages: from tools to cosmetic items, personal adornments to belt and other fittings. There is no apparent reason why there should be such a range of functional types to accompany the obviously selective deposition of human and animal material in the features on this site, other than the artefacts associated with the inhumations. These, however, were likely to have already been on the bodies at the time of burial and not necessarily indicative of any practice on the part of those attending this site to partake in acts involving structured deposition. A probable exception to this is the iron arched blade with through tang and bone handle, (SF A275), which appeared to have been deliberately placed immediately above Inhumation 1 in Quarry 1.

As for the presence of brooches on 'religious' sites, Mackreth notes the high incidence of brooches on such sites in the Roman period 'may not mean that there was a regular practice of making votive offerings of them' (Mackreth 2011, 242). Some may have been deliberately deposited, but he is more prosaic about their meaning on so-called 'religious' sites, pointing out that large numbers of brooches 'indicated […] that there were multitudes present' and thus increases the incidence of loss. The same applies to those sites, he maintains, where there is evidence of many examples of the same brooch type depicting specific designs (the horse and rider types, for example) that may have been worn as an expression of identity (eg indicative of adherence to a particular world-view or belief system) and then subject to the loss processes within a multitude of people gathering at the site. The contention then is that the brooches themselves are not evidence of structured deposition, but evidence of large gatherings.

If Mackreth's interpretation is correct, then the presence of brooches on this and other rural sites would suggest that at times there were gatherings in number on sites such as this. Although it can never be proved either way, intentional deposit or accidental loss, in

the case of the three brooches intrusive in the Period 8 subsoil contexts here it is interesting that they are the only personal items that have been 'lost'. Hairpins, for example, are absent.

The flat, openwork belt or harness fitting (SF B3) is interesting in that the decorative features are reminiscent of Late Iron Age cast bronze working. The four-spoked wheel and the curvilinear arms that connect to the exterior of the wheel from the openwork pelta could easily be dated to the Late Iron Age (fig 33). Unfortunately, as with so much material of its kind, many such items are unique and individually cast, there is no direct parallel for this, neither does its context assist in dating it more closely. Although it could be a pre-Roman artefact, its association with so much residual Roman material implies that it is later.

Fig 33 NESCOT, Ewell. Belt or harness fitting (SF B3) with four-spoked wheel and curvilinear arms that connect to the exterior of the wheel from the openwork pelta.

All the identifiable Period 4 objects are associated with Inhumations 3 (SFs B30, B31, B32) and 4 (SF B36) and Quarry 1 (SFs A298, A275, A279, A283), although a few unidentifiable pieces – one of copper alloy and one of iron – come from the first infill event of Quarry 4, an unidentifiable iron fragment comes from the first infill event of Quarry 7 and one small copper-alloy fragment and an iron fragment are from the second infill event of Solution Feature 2.

The finds associated with Inhumation 3 consist of two glass beads (SF B31) and two bracelets (SF B30, SF B32), both found on the right wrist of the deceased (fig 34, nos 1 and 2). Although their sex could not be determined through the remains themselves, the presence of the beads and bracelets does suggest a female. The bracelets themselves are not of particularly high status or high-quality craftsmanship, being of a type that, though recognisable as a group, exhibits a degree of individuality in their construction (Lawrence & Smith 2009 in discussion of an example from Higham Ferrers, identical to no 8, which dated to the late 2nd to mid-3rd century). Other similar examples from Colchester (Crummy 1983, 38) date to the late 3rd or 4th centuries. Unfortunately, the beads (nos 6 and 7) cannot be more closely dated. The annular bead is of a type found in both pre- and post-Roman bead assemblages (although not as common as in the Roman period) and the 'melon' bead is a well-attested type among Roman assemblages. Again, it appears before the Roman period and survives to long after. In Roman dated contexts, they do predominate during the 1st and 2nd centuries, but are also known in later contexts either as survivals or new items (Guido 1978, 100).

A small snake-coiled finger-ring (SF B36) was found in association with Inhumation 4 (fig 35). This matches Johns' type BIV, which she dates to the 1st or 2nd century AD (Johns 1997, 36–7).

The Quarry 1 objects from the first Infill Event are a crude bone spindle whorl and a white marble gaming counter (SFs A298; A500), the brooch (SF A283), unidentifiable iron fitting (SFs A275, A279) and a complete iron blade with its bone handle (SF A275), found immediately above Inhumation 1 (fig 36). The blade, with an arched back, has a parallel from Colchester found in a mid-1st century context (Balkerne Lane, Crummy 1983, 111, no 2949, fig 113). Stead and Rigby (1986, 153, no 525, a blade from Baldock) state that a 'number of generally similar knives are known and that they all date from the early years of the Roman period'.

The finds from Period 5 present a very disparate and heterogeneous group. They include a hone from Quarry 1 (SF A201), a stylus (SF A265), a brooch (SF A280) and a toilet spoon or *ligula* (SF A281; fig 34, no 3) from Quarry 2. Both the brooch and the *ligula* come from the

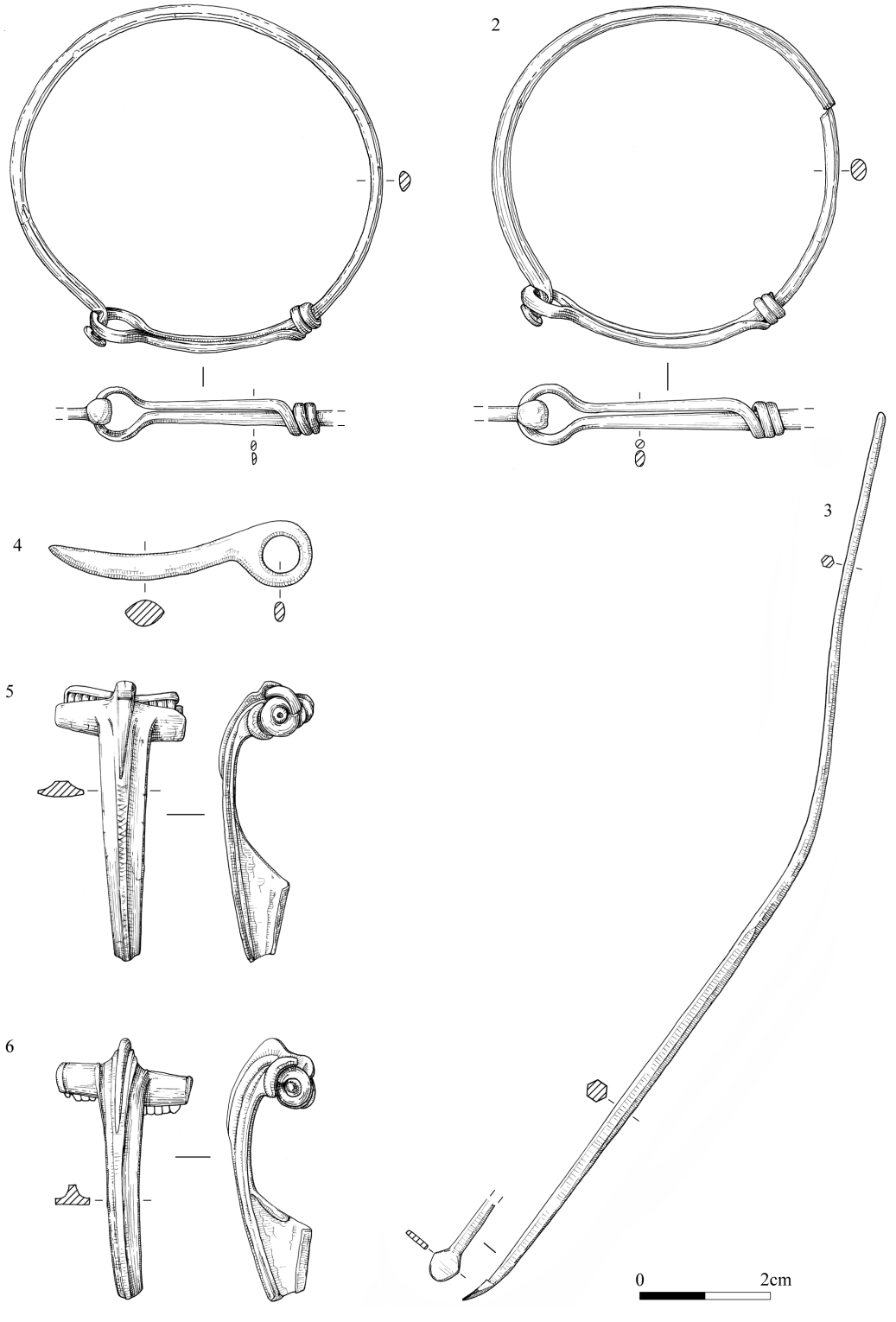

Fig 34 NESCOT, Ewell. Roman small finds from Sites A and B.

Fig 35 NESCOT, Ewell. Roman snake-coiled finger-ring found with Inhumation 4 (SF B36).

context associated with Infant 2, but there is no direct correlation with that interment. A red deer tine that had been drilled for fixing a haft, and so likely to be a pick head (SF A501) and a fragment from a needle or hairpin fragment (SF A226) came from Quarry 9. Also from Quarry 9 are four small iron fragments. A single iron fragment also came from Quarry 8.

As before, the nature of the small finds assemblage from Phase 5 does not reveal a consistent selection process. In fact, their mixed nature, in terms of object type and function, might imply very casual losses. The *ligula* is an interesting inclusion on this site and reference should be made to the cosmetic pestle (SF A258) that was found in subsoil (fig 34, no 4).

The Period 7 objects all come from a soil horizon and, as such, do not have any direct association with any of the features. However, the composition of the assemblage mirrors that of the finds from other phases of activity. Two complete brooches are represented (SFs A224, A253; fig 34, nos 5 and 6), both similar types to those recorded previously on this site.

The cosmetic pestle (SF A258) is another interesting item, the second cosmetic item from the site (see the *ligula* above, SF A281). Although it would be unwise to place too much emphasis on the presence of these two items, in terms of function they do reflect the disparate content of the assemblage from the site as a whole. The pestle has a very close parallel from London (Bucklersbury House, Walbrook, 1954, MoL Acc no 20770; Jackson 1985, 183, no 46, fig 6), which comes from a late 1st or 2nd century context. This conforms with Jackson's general comment that the dating evidence 'points to an origin for these sets in the British Late pre-Roman Iron Age, though there is no doubt that the majority were made in the 1st and early 2nd century AD' (Jackson 1985, 176).

Fig 36 NESCOT, Ewell. A complete iron blade with bone handle found immediately above Inhumation 1 (SF A275).

In conclusion, the assemblage from this site shows many features, not least the diversity of functional types in contrast with the lack of diversity of brooch types. It is also important to note absentees among this assemblage. Only a single, very fragmentary, hairpin or needle is present and, apart from the items found with the inhumations and likely to have been on the corpses at the time of their burial, there are no beads or other items of personal adornment. This is in marked contrast to the obvious selective deposition of other material on this site, in particular the human and animal bone. The presence, though, of so many brooches (albeit over a large site) and their homogeneity in terms of type, is worth noting. As Mackreth states, it is not necessary to seek a selection process to account for the loss of these brooches, but

rather it may simply be indicative of large numbers of individuals attending the site, one could surmise, to partake in acts or rites involving structured deposition. His implication is that they are attending in large numbers, and probably on many occasions, the numerous brooches then representing the accumulation of many casual losses.

That the brooch types here lack diversity on occupation sites is noteworthy. The brooches are not indicative in their own right of anything in particular, they are all relatively plain, although not the plainest of brooches in the Romano-British repertoire. The Colchester derivative, and its sub-types – the Harlow and Springhead – are exceedingly common and widespread, in terms of regional distribution, in the South East. The existence of this type here, therefore, is not surprising but, in the absence of any complementary data from the occupation sites of the people wearing these brooches, it is likely that they were all of one social group. The lack of high-status and exotic types suggests therefore that they did not include people with means to acquire such elaborate types. But this interpretation must be made with caution. This is just a group of similar brooches from one site, however exceptional the archaeological remains from the features on this site may be.

IRON AGE AND ROMAN COINS, by Murray Andrews (figs 37 and 38: see *Endnote*)

A total of 55 Iron Age and Roman coins were recovered during excavations at the site. These are listed in a catalogue, which forms part of the site archive. All the coins are 'single finds' deposited individually, although a significant proportion were disturbed or redeposited in the post-Roman period; roughly half the coins derive from phased contexts of later prehistoric to Roman date, with the remainder occurring as residual finds in later hill wash, subsoil and topsoil deposits.

The earliest coin is a Late Iron Age copper-alloy Flat Linear Class I potin (SF A263). Although residual in a Roman context (Quarry 2: Infill Event 2), distributional evidence indicates that the coin is an entirely plausible loss of the Middle–Late Iron Age (Holman 2016, 28), and may therefore evidence otherwise ephemeral activity at the site in the pre-Roman period.

The Roman coin series commences in the mid-1st century with three copper-alloy *asses* of Nero (SFs A284, A285, A287), all issued by the *Lugdunum* mint during the AD 60s. These are followed in the Flavian period by seven *asses* (SFs B35, A200, A271, A273–4, B286, A290) and three *dupondii* (SFs A261, A272, A277) of Vespasian and Domitian; these include one *as* of Vespasian's IVDAEA CAPTA issue (SF A290), struck to commemorate the capture of Judaea and destruction of the Second Temple during the First Jewish Revolt (recovered from Quarry 1: Infill Event 1). There is then a break in the sequence, which resumes in the Antonine period with two *asses* of Antoninus Pius's BRITANNIA issue of 154–155 (SFs A5, A278), the reverses of which depict a female personification of the province seated on rocks with a round shield and sceptre. The presence of these coins at Ewell accords well with the overall pattern of Pius's BRITANNIA coinage, specimens of which are encountered with disproportionate frequency in British hoards and single finds. It seems likely that these coins were either deliberately shipped to, or possibly minted in, the province as part of a conscious political strategy, intended to construct a sense of provincial identity and unity in a region where its recent history was marked by violent unrest (Todd 1966, 149–50; Rowan 2013, 226–8).

There are no late 2nd or early 3rd century coins from the site. The series resumes in the mid–late 3rd century with *antoniniani* of the Central, Gallic and Britannic Empires, with official coins (SFs A3, B19, A213, A227) and contemporary copies (SFs B13, A206, A221) represented in roughly equal proportions. Fourth century *nummi* are predictably numerous and form a more or less continuous sequence from the 320s to the 370s incorporating both official coins and contemporary copies. Ten of these coins (SFs A207, A222, A230–1, A234, A237, A239, A254, A269, A276) have observable mint-marks, which exhibit a skew towards core western mints – *Arelate, Londinium, Lugdunum* and *Treveri* – commonly observed

in British hoard and site finds. Seven further coins are indeterminate late Roman issues of the mid-3rd–4th centuries (SFs B17, B20, A251) and 4th century (SFs A238, A241, A259, A267). These include a heavily worn 4th century *nummus* (SF A267), found in the topsoil, that had been pierced with a small, round hole, almost certainly intended to be suspended and worn as a pendant. This coin is of special interest in view of the presence of a 6th century inhumation on the site, as pierced Roman coins are commonly encountered in Saxon mortuary assemblages (White 1988), and it is quite likely that the coin represents a reused object displaced from a disturbed Saxon grave.

From a broader provincial perspective, the coins from Ewell exhibit an unusual chronological pattern (fig 37). First century coins, particularly those of Nero and the Flavian emperors, are disproportionately common at Ewell when compared with the province as a whole, whereas the late 3rd century and early and late 4th century coins are represented in far fewer numbers than might be anticipated given the background pattern of provincial supply. The peculiarly early profile of the coin finds from this site is confirmed through comparison with the 140 excavated site assemblages catalogued by Richard Reece (1991). By far the closest parallels are found in the excavated coins from the civitas capital at Chichester, the colonia at Gloucester and the small town at Sea Mills, Bristol (Reece 1991, sites 14, 49, and 59; cf Lockyear 2000, 420), three sites where coins are numerous in the 1st century, scarce in the 2nd–mid-3rd centuries, particularly common in the mid-4th century, and rare in the late 4th century (fig 38). The close resemblance between the coins from the site and these early urban settlements is of interest given the evidence for an early roadside settlement at Ewell in the Flavian and Antonine periods (Pemberton 1973b, 6–9).

Given the evidence for structured deposition of human and animal remains on the site, it is equally interesting to observe the lack of any clear parallels between the chronological profile of the Ewell coins and the profiles of coins from other British temple and 'ritual' sites (cf Reece 1991, sites 130–140). Moreover, it is notable that none of the Ewell coins bear traces of mutilation – for example, bending, cutmarks and portioning (Kiernan 2001) commonly observed on structured deposits of coins from Romano-British 'ritual' sites. It seems unlikely, therefore, that the Ewell coins represent acts of structured deposition; instead, they are consistent with a background of accidental losses accumulated on a site located close to an early settlement on a major road connecting the civitas capital at Chichester to the provincial capital at London.

THE MIDDLE-SAXON SMALL FINDS, by Märit Gaimster with coin identification by Murray Andrews

Two objects were recovered from the Saxon burial (Period 6; Inhumation 7), both of which can be classified as grave goods. A complete iron knife blade was found beside the right hip of the body, while a silver coin was situated in the head area. The coin is a Series B *sceat*; with a broad date range of *c* AD 685–700, it provides a *terminus post quem* for the burial, dating it to the Middle Saxon period (fig 39).

The knife (SF A268) is tang-hafted, and the blade has a curved back and a straight cutting edge (fig 40). The form can be identified as Evison Type 4, a classification based on the finds from the Anglo-Saxon cemetery at Dover Buckland in Kent (Evison 1987, 113–16). Alternative ways of classifying knives have since been advanced taking into account the unreliability of definitions based on the cutting edge, which may have been modified by use and sharpening (cf Ottaway 1992, 558–72). Altogether, however, knives with curved backs appear to be the most frequent form in the early medieval period (Blakelock & McDonnell 2007, 54). While nothing remains of the organic handle it is likely to have been made of horn, which seems to have been the preferred material for knife handles in the early Saxon period (Cameron 2000, 50, 53). The position of the knife in the grave, situated on the right hip of the body, suggests it was worn at the belt as part of the clothing.

Fig 39 NESCOT, Ewell. The Series B *sceat* found in association with Inhumation 7 (SF A270). Maximum width of the coin is 12mm.

The silver *sceat* (SF A270) reflects the well-attested presence of coins in burials from the earlier Saxon period. Predominantly from female burials, during this time their mode of deposition reflects a change from a function as pendants on necklaces and chest decorations to the deposition of unadulterated coins (Scull & Naylor 2016; cf Gaimster 2001, 149–51). The change is visible in the later 7th century in burials with Primary Series *sceattas*, like the one from Ewell, where the coins are placed in purses, bags or boxes. Various positions in the burial are recorded, including the waist, presumably in a bag hung from the belt or girdle, the feet and the head area. The latter mode of deposition is reflected in two burials where the coins appear to have been part of box assemblages. In Grave 29 at Boss Hall in Ipswich a Series B *sceat* found near the head was associated with a wooden box containing a cloisonné disc brooch, a silver toilet set and a necklace of beads and gold and silver pendants, including a looped 7th century Merovingian gold coin (Scull 2009, 16–18 and figs 2.6 and 2.20–21; Archibald 2009, 101). Similarly, at the head of a female burial at Harford Farm in Caistor St Edmund, Norfolk, there appears to have been a box with jewellery, iron shears and a copper-alloy work box with two associated Series B *sceattas* (Blackburn 2000, 75–6, fig 86 1a–1b). However, there are also more unusual examples where unassociated coins were placed near the head, or even in the mouth of the dead, following in the Roman tradition of Charon's obol (Scull & Naylor 2016, 222). This can be seen in the burial of a female child or juvenile at St Peter's in Broadstairs, Kent, where a Series B *sceat* was recorded by the jaw (*ibid*, 236). In another burial from Broadstairs, at Bradstow School, a male was buried with a 6th century Merovingian coin placed in his mouth (Webster & Cherry 1975, 223).

Fig 40 NESCOT, Ewell. The Middle Saxon iron knife blade found in association with Inhumation 7 (SF A268).

The meaning of these early Saxon silver pennies in a burial context has most recently been discussed by Chris Scull and John Naylor (2016). Here, an overarching argument is that the broad change in treatment of coins, from their use as pendants to unadulterated issues deposited in purses or pouches, reflects a growing monetisation of Saxon society during the 7th century. The burial from Ewell, as indicated by the coin, belongs to the latest phase of the tradition of furnished burials although it lacks the elements of jewellery and personal belongings seen in other female *sceatta* burials at the time. It is possible that the single coin in this very sparsely furnished grave in itself represents a statement of wealth or status. However, the coin may also have had a more symbolic value in the burial context, where its location near the head could signal a similar meaning as coins placed in the mouth (see above). A further symbolic aspect of the coin from Ewell may be drawn from its imagery. The reverse on Series B coins feature a bird surmounting a cross, an explicit Christian motif with roots in Roman and Coptic iconography (Gannon 2003, 107–10). The snake biting its tail that encircles both the obverse and reverse motifs on the coin, is a well-known motif on both Saxon and Scandinavian metalwork; considered an apotropaic image, it is also found in early Christian imagery where it signifies, among other things, Christ's Resurrection (*ibid*, 136–8). This symbolic aspect may also be reflected in the inclusion of a silver foil impressed with the obverse of a Series B *sceat* that was included with two actual coins in a female burial at St Mary's Stadium in Southampton (Scull & Naylor 2016, 226).

Fig 41 NESCOT, Ewell. The Late Saxon strap-end recovered from Soil Horizon 1 (SF A210).

A further Saxon object, in the form of a Late Saxon strap-end of silver (SF A210), was recovered from Soil Horizon 1, a Period 7 (Late Saxon to post-medieval) context (fig 41). Formed by a slightly convex-sided plate with a zoomorphic terminal and a split end for a leather or textile strap, it belongs to a well-known group of strap-ends dating from the 9th century (Thomas 2003, Class A1). Above the circular ears of the animal-head terminal, the plate is cast with four Trewhiddle-style motifs of animals with interlaced bodies. The decoration can be identified as closely similar to a strap-end from St Mildred's Bay in Thanet, Kent (*ibid*, fig 1, no 4), although the Ewell piece shows the four animal-style panels arranged around a central equal-armed cross. It is possible that some of the corrosion present is the remains of original inlay, known in particular from silver examples (*ibid*, fig 1, no 4). At Ewell, a Late Saxon strap-end of similar type has previously been recorded as a metal-detector find (Williams 1996, fig 5, no 34).

THE LITHICS, by Barry Bishop (fig 42: see *Endnote)*

Introduction

All the struck flint and unworked burnt flint has been comprehensively catalogued, and this also provides further metrical and technological information as well as details on the spatial distribution of the flintwork across the site. The catalogue is available as part of the site archive; this report presents a summary account of the flintwork based on that catalogue.

The excavations at Ewell resulted in the recovery of 5256 pieces of struck flint; the high quantities recovered are a consequence of the intensive recovery methods undertaken, which involved controlled surface collection and test pitting, in addition to the usual methods of hand recovery during excavation (table 15).

The greatest quantities of struck flint were recovered from 30 1m^2 test pits that were excavated to investigate a possible buried prehistoric soil identified during the evaluation stage in the north-west of the site (Black & Allen 2014; Site B; fig 42). While an intact relict soil was not confirmed, the application of intensive sieving resulted in the recovery of large quantities of struck flint from a deep soil that had formed over outcrops of loose Thanet Sand (fig 42). Overall, the test pits produced an average of 125 pieces of worked flint per 1m^2 in this area, although two-thirds of this comprised flakes, flake fragments and knapping shatter measuring less than 15mm in dimension (micro-debitage). Substantial quantities of struck flint were also recovered from controlled surface collecting in 32 5m x 5m squares that were directed in the vicinity of the postulated 'buried soil' (Site B) and a further four 5m x 5m squares where later prehistoric features had been identified in the north of the site (Site A). These resulted in the recovery of only one struck piece per m^2 of which only 1.4% of the total comprised micro-debitage, demonstrating the importance of sieving for the recovery of smaller pieces. The remainder of the material was recovered from a series of features, many of which were dated to the later prehistoric period, as well as unstratified deposits.

Table 15 Quantification of struck flint from Ewell

	Flake	Blade	Micro-debitage	Flake core	Blade/narrow flake core	Conchoidal chunk	Tools	Axe-head
Prehistoric features	158	15	30	6	1	8	2	–
Prehistoric features (%)	71.8	6.8	13.6	2.7	0.5	3.6	0.9	–
Later features	209	20	19	9	–	9	–	–
Later features (%)	78.6	7.5	7.1	3.4	–	3.4	–	–
Controlled surface collection	458	42	13	97	5	190	112	–
Controlled surface collection (%)	49.9	4.6	1.4	10.6	0.5	20.7	12.2	–
Unstratified contexts	79	3	6	9	2	10	8	1
Unstratified contexts (%)	66.9	2.5	5.1	7.6	1.7	8.5	6.8	0.8
SCHS Test pits	993	89	2483	31	1	124	14	–
SCHS Test pits	26.6	2.4	66.5	0.8	< 0.1	3.3	0.4	–
Total (no)	1897	169	2551	152	9	341	136	1
Total (%)	36.1	3.2	48.5	2.9	0.2	6.5	2.6	< 0.1

Description

The struck assemblage consists entirely of flint, the majority of which is a mottled translucent black to opaque grey with a weathered chalky cortex almost certainly gathered from outcropping eroded flint seams that were observed in the western side of the site. Around one-quarter of the assemblage was made from 'Bullhead Bed' flint (Shepherd 1972), deposits of which were present at the junction of the Thanet Sands and underlying chalk in the south-west corner of the site.

The earliest evidence for activity comprises a finely-made tranchet axehead found in unstratified deposits in Site A, and a geometric or petit tranchet microlith recovered from the test pits. Both of these can be dated to the Mesolithic period, the microlith being a Later Mesolithic example. There is also a scatter of prismatic blades, blade-like flakes and blade cores across the site, that can be dated to either the Mesolithic or Early Neolithic. Additionally, small numbers of thin flakes that have narrow and carefully edge-trimmed or faceted striking platforms, together with competently worked multiplatformed cores would suggest that flintworking may have continued at the site throughout the Neolithic. Other than the axehead and microlith, only a few other Mesolithic or Neolithic retouched pieces of these periods were identified – these comprising a small number of carefully made scrapers, edge-trimmed blades, narrow flakes, and a fabricator. The high quantities of cortical debitage suggests a focus on the dressing and preparation of raw materials, although the relative paucity of blade cores, which account for less than 6% of the total number of cores, may indicate that these were being produced at the site but removed for use elsewhere.

By far the greatest part of the assemblage, estimated at 80–90% of the total, can by its technological attributes be dated to the later prehistoric period and is most typical of later 2nd and 1st millennium BC industries (Herne 1991; Young & Humphrey 1999; Ballin 2002; Humphrey 2003). This flintwork derives from a deliberate, if very unstructured, approach to obtaining edges on pieces of flint that would be suitable both for immediate use and further modification. The flakes vary considerably in shape and size, but tend to be broad and thick and often have wide, markedly obtuse, striking platforms, with around one-third of the flakes being comparable to Martingell's 'squat' flakes (1990; 2003). Exclusive use of hard hammer percussors is indicated by the frequency of pronounced bulbs of percussion and the presence of visible and sometimes multiple points of percussion. A high proportion of the flakes have cortex covering more than half of the dorsal surfaces and nearly all retain some cortex, indicative of short knapping sequences.

Complete cores attributed to the later prehistoric period form a relatively high 6% of the total assemblage if the micro-debitage is excluded, and a further 13% of the assemblage consists of disintegrated cores and cobbles that had shattered along pre-existing thermal flaws during the early stages of reduction. Just over one-quarter (27%) of the complete cores had fewer than ten flakes removed, although some of these may have been abandoned 'tested' pieces, others may reflect a quickly fulfilled need for a few flakes with suitable working edges. A similar proportion (26%) had single platforms but, again, many of these had fairly short sequences of removals and had been abandoned long before exhaustion. The most common type (37%) has multiple platforms and while these are more extensively reduced than the others, many are opportunistically reduced with flakes apparently removed from whatever direction seemed most appropriate at the time. The remaining cores include those with opposed, keeled or centripetally worked platforms. Even the more extensively reduced cores show little evidence for any pre-shaping, preparation, or for their rejuvenation to aid further reduction. Some of the pieces classified here as cores may have been intended, or at least reused, as tools, such as those with concave sides or with edges suitable for chopping, and a few had certainly been reused as hammerstones or pounders.

Retouched implements form 5% of the assemblage if excluding micro-debitage. Many other later prehistoric flakes also have edge damage consistent with having been used, but as it is difficult to differentiate this from post-depositional damage, these are not included in

Table 16 Classification of retouched flakes and core-tools considered to be later prehistoric in date

Edge modification	Core-tools	Retouched flakes
Denticulated	6	4
Simple edge-retouched	16	28
Notched	8	11
Steep retouch/scraper-like	10	17
Pointed end/piercer	–	2
Heavily battered/Pounder	2	–

the following discussion. Excluding those that are evidently from earlier industries, the later prehistoric retouched implements are difficult to classify according to standard typological schemes, as they tend to be irregularly and often sporadically retouched around any part of their edges, including around the proximal ends and are equally likely to involve inverse as normal retouch. Accordingly, they have been classified according to the morphology of their modified edges (table 16). Another notable feature of the later prehistoric material is the 'retouching' of otherwise unworked cobbles to make 'core-tools'. Both the flakes and the core-tools appear to have had a similar range of uses, although the latter tend to be much sturdier and only the core-tools were used as pounders or hammerstones.

Discussion

The intensive retrieval practices undertaken during the excavation have resulted in the recovery of a large struck flint assemblage that demonstrates long-term activity at the site throughout the prehistoric period. During the earlier periods, the Mesolithic and Neolithic, there is little evidence of any intensive occupation, but the flintwork suggests that the site may have been visited, at least partly, to obtain the abundant lithic raw materials, both of chalk flint and 'Bullhead Bed' flint. By the later prehistoric period, during the later Bronze Age and Early Iron Age, there is clear evidence of settlement and agricultural activity at the site and it was probably during this time that the bulk of the flintwork was produced. The size of the assemblage suggests that flintworking remained an important, if domestically focused, craft industry long after the introduction of metal.

Few contemporary pieces were found within the excavated features of later prehistoric date, but substantial quantities were present within the 'deep soils' where the test-pitting and controlled surface collection was undertaken. This is of interest as, in general, later prehistoric flintworking tends to have been undertaken opportunistically and consequently is usually found scattered in low densities in and around the contemporary settlements and field systems. The large quantities that appear to have been present in the 'deep soils' would therefore present a departure from this pattern. The high quantities may reflect the comprehensive recovery methods or a preferred area of flintworking. However, it is also possible that it reflects 'middening' at the site. While not commonly recorded, such accumulations are increasingly recognised as an important phenomenon of later Bronze Age and Early Iron Age settlements in southern Britain (eg Herne 1991; Needham 1993; Brück 2007; Waddington 2009).

General discussion

LATE BRONZE TO EARLY IRON AGE PASTORALISM AND SETTLEMENT PATTERNS ACROSS THE NORTH DOWNS: THE WIDER SOCIAL AND LANDSCAPE CONTEXT

Within the Surrey region, the majority of Bronze Age discoveries are late in date and the field system revealed on the study site therefore fits within that regional settlement pattern. A scatter of contemporary finds pertaining to the period, including a pin, flint and residual pottery, have been found in Ewell (SHER 4793; 4791; 2567; 2546; 4763; 5866; Orton 1997, 94), but prior to this investigation only limited numbers of Bronze Age features have so far been identified, thus making these discoveries of particular local interest.

When compared with the Middle Bronze Age, the Late Bronze Age in southern Britain has broadly been associated with both a marked increase in the number of settlement types and an interpreted growth in the scale of community numbers (Brück 2007, 24–6). The notion of an increase in agricultural intensity during the Late Bronze Age appears to be supported by a growth in the number of field systems. Pryor has claimed that the use of fields specifically for animal husbandry most probably arose as a result of the pressures created by this intensification. It is only when the animal population reaches a point at which the existing grazing land is under strain that it is necessary to keep livestock in fields (Pryor 1999, 82). Such field systems are thus associated with evidence for sophisticated and intensive livestock rearing (Yates 2001, 66).

Pastoralism would therefore appear to have been particularly important to the Late Bronze Age economy (*ibid*, 31). Yates has associated such developments with a period of agricultural intensification within the Thames Valley region, exemplified by the development of droveways, watering holes, field systems and community stockyards. All these structures epitomise a managed and controlled landscape, which has again been identified as primarily pastoral in focus, with none of the Late Bronze Age sites along the Thames Valley supporting the idea that this was a major cereal-producing zone (*ibid*, 65–7). It should, however, be noted that this purely pastoral interpretation has recently been challenged, with excavations at Perry Oaks in Heathrow demonstrating that arable agriculture formed an important part of a mixed agricultural system in that area between the Middle and Late Bronze Age (Lewis *et al* 2006, 163). The feature types that were found on this site nevertheless conform with Brück's original interpretation regarding a greater emphasis on pastoralism.

The droveways that were discovered on the site appeared to follow a specific route that linked the high pasture of the North Downs to the south and the lower fertile plains to the north. They may, therefore, have facilitated the seasonal movement of animals, with the low-lying pasture of the flood plain used for grazing cattle in the summer and the upland areas providing summer grazing for sheep (Brück 2007, 32). The identified animal pens and field systems were probably used for over-wintering, stock breeding and culling during the autumn and winter months (Lawson 2000, 270).

Field 1 was particularly large, measuring at least 96.9m long x 40.80m wide. This is comparable with a Bronze Age field system situated *c* 8km away at Beddington Sewage Works, where a field 40m x more than 60m was identified (Howell 2005, fig 9). At Barleycroft Farm near Needingworth in Cambridgeshire, similarly sized fields were also discovered, measuring between 80m and 100m wide. Much like the Ewell field system, the Barleycroft fields were also quite open with substantial gaps between them (Evans & Knight 2001, 85).

Looking at the regional landscape setting of the site, all the main river terraces to the west of London were particularly well settled during the Late Bronze Age (Yates 2001, 67). To the east of Ewell at Queen Mary's Hospital in Carshalton various excavations have revealed a large circular Late Bronze Age enclosed settlement (Adkins & Needham 1985, 11; Killock 2012, 102–8). Finds recovered from the settlement were significant and included evidence for both agricultural and domestic activity. Carshalton may therefore have been a centre of wealth and power that possibly held influence over the fertile gravels of the Wandle valley,

which were covered with field systems, as well as a section of downland (Adkins & Needham 1985, 46–8).

If the interpreted sphere of influence is to be accepted, then Ewell lies just beyond the parameters of Carshalton's control. There are, however, similarities regarding the settlement patterns observed on both sites. Carshalton lies on the North Downs at the head of the river Wandle, one of the tributaries of the river Thames, with the ringwork site located on high land to the south. This vantage point overlooked the parcelled landscape on the flood plain to the north, which was perhaps favoured for livestock management (Yates 2001, 68–72). The topographic location of Ewell is almost identical. It is situated at the head of the Hogsmill, another Thames tributary, on rising land with the droveways and animal corrals revealed on the study site exemplifying a typical Bronze Age pastoral landscape (Pryor 1999, 94). As yet, no significant ringwork or enclosure has been discovered, but The Looe site lies at an elevated spur of *c* 85m OD and this ridge would have provided extensive views across the Thames Valley to the north (Cotton 2001, 5). With the low plain to the north and the rising Hogsmill as well as the high pastureland to the south, the location of Ewell is almost a perfect fit for Late Bronze Age settlement patterns in the Thames Valley (Yates 2001, 78). Yet without the presence of a ringwork this remains highly speculative and it may be that Coombe Warren in Kingston (a potentially high-status settlement situated on high ground between the Hogsmill and Beverley brook) could instead have held sway over both the Hogsmill and Beverley brook valleys (Field & Needham 1996, 128–32). It will therefore be interesting to see if future work in the vicinity sheds further light on the status of The Looe site during the Bronze Age period.

LATE BRONZE TO EARLY IRON AGE FLINT TOOL PRODUCTION AND EVIDENCE FOR SURFACE MIDDENING

In the north-west corner of the site a deep soil horizon (Soil Horizon 1) formed over the underlying loose Thanet Sands that remained biologically active into the late post-medieval period. Artefactual material from all periods had worked their way down through this horizon, in some cases to over 1m deep. Systematic surface collection and test-pitting of Soil Horizon 1 resulted in the recovery of 4575 pieces of struck flint. Although over half of this comprised micro-debitage and a small proportion is clearly of an earlier date (see above) it still represents a remarkably large assemblage for the prehistoric period even after its mode of retrieval (sieving) is accounted for. The knappers made use of both the chalk flint and the 'Bullhead Bed' flint that can be found and all stages in the reduction sequence are present, indicating the flint was obtained, knapped, used and discarded at the site. The sheer scale of flintwork present in the 'deep soils' is noteworthy; it may just reflect the recovery methods and extensive sieving of the deposits, but this is unlikely to fully account for the quantities. Alternatively, these finds may delimit an area set aside for flintworking or possibly that it reflects an area of surface middening, despite little pottery or animal bone being recovered; the survival of these in any case would have been adversely affected by the reworking of the soil and acidic soil conditions in this particular location. While it has been stated that refuse-rich deposits do not necessarily define a site as a midden (Needham & Spence 1997, 87), this area appears to have been chosen for the deliberate deposition of substantial quantities of both worked flint and unworked burnt flint. While not common, such accumulations have been recorded at a number of similarly-dated places across southern Britain, and may have been the sites of gatherings or designed to mark other important locations within the landscape (eg Bradley 1972; Fasham & Ross 1978; Drewett 1982; Smith 1987; Herne 1991; Greatorex 2001; Ballin 2002; Pollard 2002; McLaren 2009; Bishop forthcoming). Closer by, 'an extensive flint industry' of probable Bronze Age date was also found within a deep soil layer at Purberry Shot, *c* 300m to the north-west of the site, and this may also represent similar discard practices (Lowther 1946–7, 12).

THE EWELL QUARRIES AND ROMAN STONE EXTRACTION, SUPPLY AND USE IN SOUTH-EAST BRITAIN

Prior to the Roman conquest of AD 43, south-east Britain had virtually no tradition of large-scale quarrying (Pearson 2006, 7). Yet by the late 1st century AD, chalk extraction was taking place at Ewell and elsewhere on an industrial scale as exemplified by the considerable size of Quarries 1–7. The larger of the Ewell quarries (Quarries 1–7) date to the early Roman period, when approximately 1400m³ of material was extracted (*c* 1680 tonnes of chalk). During the late Roman period, just *c* 26.05m³ was removed from three smaller quarries (Quarries 8–10), suggesting that the industry had dramatically decreased in scale by then. Comparatively little is known about the organisation of quarrying in Britain during the Roman period, while physical evidence of the activity is rarely identified, factors that make the discoveries at Ewell of some importance.

The chalk that was extracted from the Ewell quarries could have been used in several different ways. In Roman Britain, the material was used in the production of lime mortar, concrete and as a building stone (Haslam 2012, 103). Additionally, Pliny the Elder, writing in the last half of the 1st century AD, states that Britons used chalk ('*creta argentaria*') and various other geological materials for marling their fields; the heavy clay soils to the north of the site would certainly have benefited from the use of marl. Pliny states that the stone was extracted from deep mine shafts 'with narrow mouths' before being spread across agricultural land (Roach Smith 1867, 358). This is supported by archaeological evidence from south-east England, a good example of the practice having been identified at Bullock Down in East Sussex, where probable manured and marled fields were found in association with a deep chalk extraction pit (Drewett & Bedwin 1982, 12, 21, 104).

Within Surrey and the London region, quality building stone is scarce. The main locally available resilient material is flint, present as bands within the natural chalk. Consequently, flint often represents the dominant building material in the area and was used in the Roman town walls of Canterbury, *Verulamium* (St Albans) and various structures at Silchester (Blagg 1990, 39; Pearson 2006, 77). Chalk was also used as a building material in the Roman period, but it weathers badly and was therefore mostly used for mortar, foundations and rubble infill (Pearson 2006, 77). An example of the use of chalk as a building stone in *Londinium* is recorded at 99–101 Queen Victoria Street, where a chalk raft foundation was laid over timber piles (Bradley & Butler 2008, 26).

The use of stone appears to have been limited to prestige projects during the early Roman period when Ewell's chalk-quarrying industry was at its peak (Pearson 2006, 14). Pearson notes that villas and settlements would have had their own local sources of stone that would have been exploited as required, while Imperial control or private ownership would not have extended down to such a low and local economic level (*ibid*, 11). It is, therefore, possible that the quarries supplied local building projects, two potential examples of which include the structures that were unearthed within Ewell Parish churchyard that had flint and chalk mortared footings (Pemberton 1973b, 7). These alone are insufficient to account for the vast quantity of stone that was extracted from the Ewell quarries during the early Roman period, so it may be that other stone structures are yet to be discovered in the vicinity of the town. Material from the Ewell quarries may have been used in the construction of Stane Street, sections of which have been identified within the modern village. Although the road surface was made from coarse gravel and sand, the base included a spread of large chalk-derived flints (Lowther 1935, 31). However, dating evidence suggests that the earliest of the Ewell mines fell out of use towards the end of the 1st century AD, whereas the first phase of the construction of the road may well have been as early as *c* AD 50 (Cowan *et al* 2009, 14–15). If the quarries represent municipal works associated with the repair or widening of Stane Street, they may have been dug under direction from the State, since significant mines and quarries on the Continent were placed under the jurisdiction of the Procurator (Pearson 2006, 43).

Alternatively, some of the stone may have been destined for onward shipment, a prime market being the nearby city of *Londinium* and its hinterland. Of the two main roads that connected *Londinium* with southern Britain, Watling Street first reaches chalk deposits to the east of Welling, while Stane Street first reaches them at Ewell. Transport costs were a major issue, and the expenditure incurred over a 24km road journey between Ewell and *Londinium* would have been significant. As Pearson states, the cost of transporting stone by road, even over short distances, often exceeded the cost of extraction, which is why material was usually quarried close to a construction site (Pearson 2006, 71). Stone may therefore have been transported over shorter distances from the Ewell quarries via Stane Street and other local routes such as those posited at Hatch Furlong, Tayles Hill, and from Ewell to Purberry Shot (Stansbie & Score 2004, 213; Hall 2008, 244). Stone may also have been transported by cart to the Hogsmill, from where a shallow-draught, keelless boat would have provided a more cost-effective way of shipping it to *Londinium* and elsewhere.

QUARRYING, 'STRUCTURED DEPOSITION' AND LANDSCAPE SETTING IN THE ROMAN PERIOD: THE CONTINUATION OF AN IRON AGE BELIEF SYSTEM?

During the British Iron Age, the practice of placing valuable objects within deeply intrusive features such as pits and ditches is well attested, while an increasing corpus of evidence suggests that such 'native' practices continued into the Roman period and perhaps beyond (Hill 1995, *passim*; Fulford 2001, *passim*; Leary *et al* 2005; Hamerow 2006, *passim*; Morris & Jervis 2011, *passim*). The repeated deposition of objects with monetary or symbolic value, such as human remains, complete animal carcasses or metal objects in similar contexts cannot be viewed as part of daily refuse disposal (Hill 1995, 100). Instead such structured deposits may form one part of a larger system of 'site maintenance practices' undertaken to ensure the wellbeing of a settlement and its inhabitants (Brück 1999, 334–5).

It is interesting to note the similarities that exist between Quarries 1–3 at Ewell and Iron Age grain storage pits in south-east and south-central Britain. Like the quarries, they were often backfilled with deposits that include articulated or semi-articulated animal bone groups, metal objects and pottery vessels in varying combinations and quantities, as well as disarticulated, articulated or semi-articulated human remains (Hill 1995, *passim*). Storage pits also represent sizeable holes into the earth that yielded a useful resource (seed corn rather than chalk), so it is therefore easy to see how pre-existing beliefs may have been transferred from one feature type to the other, either directly or in a modified form (particularly if some of the chalk was being used in an agricultural context to increase fertility through marling). Indeed, the contents of a series of features interpreted as Iron Age quarries at Winnall Down in Hampshire (which contained five Middle Iron Age crouched burials) and an Early to Middle Iron Age cemetery within a quarry at Suddern Farm in Hampshire, strongly suggests that quarries had long been treated in a similar way to the more ubiquitous grain storage pit (Fasham 1985, 25, 27; Cunliffe & Poole 2000, 152–70).

As set out above, Quarry 1 contained a far larger quantity of structured deposits than any other feature on the site. Backfilled during the late 1st century AD, the quarry appeared to be the earliest of the mines that were found, so it could have been treated differently in order to ensure a good outcome for future quarrying ventures. Of the seven early Roman quarries on the site, the two other examples that contained archaeologically identifiable structured deposits were Quarries 2 and 3. Most probably pertaining to the 2nd century AD, they were later than Quarry 1 but were by far the largest of the mines that were encountered, and this alone may have led to them being used as receptacles for structured deposition. Alternatively, organic remains, libations or other things that left little or no archaeological trace may have been offered to the other apparently empty quarries.

The quarries of Ewell fit within a much wider 'Romano-Celtic' tradition in which structured deposits were placed within deeply intrusive features, often termed 'ritual shafts' in the archaeological literature (Ross 1968, 251–75). These features are scattered throughout

Britain and the near Continent, well-known examples of which include the pits and wells of Newstead Roman fort in Scotland (Clarke 2000, 22 & 24) and the shafts of Luxembourg Gardens in Paris (Green 2002, 129). Examples from south-central and south-east Britain include clusters of shafts at Folly Lane, *Verulamium* (Fulford 2001, 210), the quarries and shaft at Springhead, Kent (Andrews *et al* 2011, 46–7, 80–3) and the cluster of wells at Swan Street in Roman Southwark (Beasley 2006). Numerous pits and wells containing structured deposits have also been found throughout the major towns of Silchester and *Londinium*, as well as within pits and wells in smaller Roman settlements including Baldock in Hertfordshire, Neatham in Hampshire and the sea-fort of Portchester (Fulford 2001, 201–8; 211–12). The phenomenon was also observed, variously in wells, pits and quarries, at Muntham Court, Sussex, Asthall, Oxfordshire (Woodward & Woodward 2004, 77), Oakridge, Hampshire (Oliver *et al* 1992, 72–4) and Old Kempshott Lane, also in Hampshire (Haslam 2012, 100–5), to name but a few of many examples. Rarely, older prehistoric monuments appear to have become a focus for shaft digging, as occurred at Silbury Hill (Kamash 2016, 687). This is by no means an exhaustive list and it is suggested that current understanding of these features, their contents and their place within Romano-British society would benefit considerably from a more comprehensive and systematic programme of comparative analysis, which unfortunately lies beyond the scope of this article.

The discovery of so many quarries and so-called 'ritual shafts' with structured contents concentrated to the south of Roman Ewell (both on the site itself, at Mongers Lane to the north and The Looe to the south), has led to a suggestion that the settlement fulfilled some special function. A spring-based healing centre has been put forward on account of the proximity of these features to the source of the Hogsmill: a landscape setting that is well paralleled at the Springhead temple complex in Kent where quarrying and 'shaft' digging also took place during the Roman period (Bird 2004c, 88; Andrews *et al* 2011, 46–7, 80–3). Such an assertion is supported by the fact that structured deposition in watery places is a recurring theme throughout much of British and European prehistory that again continued into the Roman period in Britain (Rogers 2011, 42–5). Furthermore, the phenomenon may be demonstrated locally by the discovery of 38 Roman coins of 1st–3rd century date that appear to have been thrown into the source of the Hogsmill (Abdy & Bierton 1997, 135). The landscape setting of the site, close to that spring, may therefore have added to its perceived suitability as a locale for structured deposition.

The possible importance of the wider landscape setting of the site cannot be denied but, in accordance with Brück's concept of 'site maintenance practices', it may be incorrect to divide the quarrying process into 'profane' aspects of stone extraction and 'sacred' or 'religious' 'reuse' of the quarries as 'ritual shafts' in a 'ritual' landscape. No such separation necessarily existed in the Romano-British mindset. Instead, structured deposition may have been a necessary part of quarrying at Ewell and perhaps elsewhere. Such a mindset could have influenced the entire quarrying process, from the choice of location close to the springs, the way in which the quarries were dug and the manner of their infilling. While this may well be true, structured deposits of early Roman date were also found at Ewell in an entirely natural feature (Solution Feature 2), even though nothing had been taken from the ground by human action on that occasion and this discovery hints at the existence of a larger concept.

The interment of structured deposits in deep and therefore dangerous holes in the ground, whether man-made or natural, is a theme that reverberates in a very general way across time and space. Although too numerous to list comprehensively, famous examples include the Palaeolithic painted cave of Lascaux in France and the remarkable Diktaeon Cave of Minoan Crete, which continued to receive offerings as late as Byzantine times (Mackenzie 2018, 527–8). In the Americas, the Mayans placed objects of value in natural sink-holes (cenotes), the Inca fastidiously venerated mines (Coggins & Shane 1984, *passim*; Petersen 2010, xix), while libations and sacrificial animals continue to be offered in certain Bolivian and Peruvian mines (Knapp 2002, 12). These are just a few of many examples from across the globe that together demonstrate that the association between deep holes in the earth and some form

of 'otherworld' is a remarkably repetitive and resilient concept that recurs in a number of unrelated cultures. Conceivably, then, the deeply intrusive features that were discovered at Ewell, whether natural or man-made, provided a way for the Romano-British inhabitants of the area to communicate with some other realm or unseen force, a phenomenon that was perhaps amplified by the nature of the wider landscape in which they lay.

MORTUARY RITES, EXCARNATION, CURATION AND SACRIFICE DURING THE LATE IRON AGE AND ROMAN PERIODS: HOW THE HUMAN REMAINS FROM EWELL FURTHER THE DEBATE

The taphonomic condition of the disarticulated bones of the ten or more people that were found in Infill Events 1 and 2 of Quarry 1 points to the existence of a mortuary rite (or, more probably, rites) that existed elsewhere in south-central and south-east Britain during the early Roman period. For example, a chalk-cut shaft of 1st century date was found at Oakridge, Hampshire that contained pottery, metal objects, quern stones, animal remains and human skeletal elements from a minimum of 24 adults and three children. Similarly, at Suddern Farm in Hampshire, an Iron Age quarry was used as a burial place for over 60 individuals, many of whom were only partially articulated (Oliver *et al* 1992, 72–4; Cunliffe & Poole 2000, 152–70).

In south-central and south-east Britain, semi-articulated or disarticulated human parts are commonly found in Middle Iron Age grain storage pits and ditches and it has been suggested that excarnation or some similar rite was partly responsible for them entering the archaeological record in this way (Cunliffe 2002, 505–7). Convention holds that this ceased by the 1st century BC as cremation became more common across much of north-west Europe. However, evidence from sites that include Copse Farm, Oving and North Bersted (West Sussex); Hayling Island and Owslebury (Hampshire); Hinxton Rings (Cambridgeshire), and Waterstone Park (Kent) and others suggest that in south-east and south-central Britain the situation was more complex (Cunliffe 2002, 595; 2018, 308; Carr 2007, 444–6; Hamilton 2007, 90; Haslam forthcoming). Here mortuary rites involving cremation, occasional burial and excarnation apparently co-existed, together with combinations of these practices, with differences expressed between and sometimes within settlements.

Excarnation in the strictest sense of the term is defined as the prolonged exposure of a corpse to be picked clean by scavengers, and this mortuary rite is often put forward as the agent behind the generation of disarticulated and semi-articulated human bone assemblages dating to the Middle and Late Iron Age in Britain (Cunliffe 2018, 308). This is, however, under debate since some taphonomic studies suggest that in south-central and south-east Britain, human remains were 'excarnated' in other ways. This perhaps included careful and prolonged curation in an above- or below-ground context, out of the reach of scavengers, prior to use or burial elsewhere. The signature for this is generally taken to be the presence of small bones that would otherwise be taken by animals and a lack of gnaw marks and other scavenger-induced damage, with evidence for excarnation by exposure being the opposite (see Carr & Knüsel 1997 *passim*; Madgwick 2008 *passim*). The evidence amassed to date suggests that during the Late Iron Age of south-central and south-east Britain, curation of human remains in some form, including temporary burial, co-existed with excarnation by exposure as well as cremation and permanent burial, and as such bone assemblages need to be considered on a site-by-site basis (Carr 2007, 446–7). An increasing body of evidence suggests that such traditions continued into the Roman period (*ibid*) and therefore the Ewell material has much to add to the discussion.

The disarticulated human bone from Quarry 1 is interesting in that no definitive evidence of weathering or cutting (tool marks) was observed, while small bones, such as those from the feet and hands, were well represented, comprising 27.21% of the assemblage overall. These findings are more suggestive of defleshing (rotting) in a curated context after death, either above or below ground, yet detailed taphonomic analysis of a subsample of the human remains from Quarry 1 revealed probable scavenger marks on 33 out of 34 bones selected for

analysis. Diagnostic marks were found on 32 of the bones (in the form of pitting, punctures, gnaw marks and gnawing of bone ends) that were more consistent with damage inflicted by canids rather than any other animal. Although this could result from an opportunistic attack by wolves or dogs that was quickly halted, an alternative though controversial interpretation is that canids, perhaps domesticated dogs that were easier to call off than wild animals, played a heavily-controlled role in the excarnation of the bones soon after death (Rigakis 2016, 28–36, 46). No Roman parallels are known to the authors; however, a Middle to Late Iron Age assemblage of disarticulated bone from Gussage All Saints, exhibited a similar degree of canid gnawing that was interpreted as possibly resulting from the use of dogs in a funerary rite (Redfern 2008, 295).

It is easy to see how the role of the dog in mortuary rites may have elevated the status of the animal or imbued the species with otherworldly attributes. This in turn could explain why at least 123 dogs ranging in age from puppies to old animals were (presumably) killed and interred in Quarry 1 beside the human remains and those of other animals. These included pigs, horses (both predominantly juvenile or neonate), cattle, ovicaprids, a crow and at least three stoats: most of these were also probably sacrificed, while the suckling pigs could represent evidence for an accompanying feast.

However, the suggestion that dogs were intimately involved in the excarnation of the human remains from Quarry 1 remains highly speculative at present, being based on a small sub-sample of material, and no contemporary evidence for the practice is currently known to the authors. Despite the controversial nature of these findings, they are included here in the hope that future scholars may undertake further work on this and similar assemblages that may better illuminate the taphonomic pathways of disarticulated early Roman human bone from features such as Quarry 1. One such study that incorporates the Ewell material is currently under way at the University of Reading, the results of which are eagerly anticipated by the authors (Green in prep).

Multiple methods for the disposal of the dead appear to have co-existed at Ewell, as is suggested by the largely articulated state of Inhumation 1, which was also found in Quarry 1. This middle-aged probable female would seem to have been curated (ie looked after for a time after death) owing to the retention of small bones (hands, feet and kneecaps) and a lack of macroscopic scavenger marks on what remained of her skeleton (although microscopic marks were observed on two sub-sampled bones, thus suggesting a limited degree of exposure). Normally this would suggest rapid interment; however, this is precluded by the loss of the lower legs and the lower right arm, which must either have been lost before final burial or accidently slipped away immediately after deposition. Given the lack of tool marks, neither of those options seems likely with a fresh corpse. Together this suggests that Inhumation 1 was probably kept for a time after death, either in a secure above-ground locale to avoid heavy disturbance by scavengers or below-ground in a primary burial site before removal to the shaft. In either case, some sort of covering or wrapping, such as a shroud or box, would have been useful to hold it together until it reached its final resting place. Such biodegradable coverings rarely survive in the archaeological record, although an example can be found at Wandlebury, Cambridgeshire, where a partially articulated Iron Age child was put into a pit wrapped in a cloth or sack (Cunliffe 2002, 552).

Isotope evidence indicative of variances in diet quality was found in a sub-sample of 21 human bones from Quarry 1. The results suggested that individuals from a spectrum of different social classes, from high to low, were interred in the feature, with most of the disarticulated material being from individuals with low to medium social standing (Rigakis 2016, 57). In contrast, Inhumation 1 appears to represent a higher-status individual, whose diet either became more meat-rich between childhood and adulthood or was instead raised elsewhere with greater access to fresh water or omnivore protein. Such social differences could perhaps go some way to explaining why multiple mortuary rites apparently co-existed at Ewell and elsewhere in the British Iron Age and Roman periods. It is necessary to state, however, that the Ewell material and other comparable assemblages from similar sites

require further isotopic investigation, including strontium analysis, before such a theory can be presented with greater certainty.

A good comparison for Inhumation 1 can be found at Swan Street in Roman Southwark. Here, a human skeleton had been tipped (head down) into a well that was backfilled around AD 140–250. The skeleton was lacking the left arm, ribs and a shoulder, suggesting that it too had been subject to post-mortem manipulation after partial decomposition had occurred (Beasley 2006, 42-44). Returning to Ewell, the two early Roman, very tightly-flexed crouched burials that were discovered in boundary ditches (Inhumations 2 and 4) and the undated though presumably early Roman example from the earlier investigation on the site (RDD14 quarry [4616]) might provide further evidence of curation after death, since these postures would have been far easier to achieve with a slightly degraded rather than a fresh corpse. These bodies could conceivably have been tightly bound prior to deposition.

The unnatural presentation of Inhumation 1 in Quarry 1 (prone, with the arms and legs somewhat twisted) appears unceremonious to a modern observer. That, in combination with the discovery of a bone-handled cleaver directly above the corpse, could be taken as evidence of something sinister. Human sacrifice is known to have occurred in Iron Age Britain, but it was supposedly banned in the Roman period (Beasley 2006, 61). An alternative and more probable interpretation given the taphonomy of the bones is that this presentation could instead be the result of throwing or rolling a semi-rotten corpse into the quarry. The corpse may then have been left in an unnatural pose because it was semi-rotten and would have fallen apart further if manipulated.

Inhumation 2, a crouched burial within a boundary ditch, was accompanied by another body, Inhumation 3, that expressed a comparatively naturalistic, prone pose in death that resembled that of a sleeping person. This could have been achieved in three ways: through careful manipulation of the body when placing it in its burial context, burial soon after death, perhaps in a state of *rigor mortis*, or sacrifice in the ditch itself under the influence of a poison or sedative. No known parallels for human sacrifice in Roman Britain are known to the authors, while no indication of trauma was present and, as previously stated, the practice had supposedly been outlawed by the Roman authorities. As such, the latter explanation is deemed the least probable of the three.

THE IMPORTANCE OF BOUNDARIES

Five Roman burials were found at Ewell that had either been placed directly into earlier Roman ditches or Late Bronze to Early Iron Age linear earthworks or were situated within pits that had been cut into the backfill of these boundaries. Three of the four were associated with ditch terminals. The Ewell burials are deviant by classical Roman standards, being in extra-cemetery contexts, but may not necessarily have been seen as such by the Romano-British inhabitants of Ewell, whose beliefs may well have been rooted in the British Iron Age. During that period in south-east England, non-supine burial in non-cemetery contexts was not uncommon, whereas supine burial within a cemetery was not practised (Cunliffe 2001, 505).

Like pits and quarries, structured deposits and inhumations were frequently interred in or beside ditches throughout much of British and European prehistory, particularly corners and terminals (Woodward 1992, 82; Hill 1995, 78; Cleary 2000, 138). A full inventory of this practice lies beyond the scope of this article, but an excellent Roman analogy from south-east Britain for the ditch burials at Ewell can be found at West Thurrock, Essex, where mid–late 1st century Romano-British inhumations were found in a Late Bronze to Early Iron Age ditch, which presumably survived as an earthwork in the landscape as did the prehistoric ditches at Ewell. As with three of the four Ewell examples, individuals were often flexed and buried on their side (Andrews 2009, 13–14). Another of many examples of this practice can be found at Nash on the Gwent levels in Wales where the placement of bodies near field boundary ditches was interpreted as an act that emphasised the liminal aspect of the boundaries themselves (Meddens & Beasley 2001).

One of the early Roman quarries and all the later Roman examples were deliberately dug through earlier boundaries, which suggests that pre-existing ditches were particularly suitable or auspicious places for quarrying. Again, this is a widely recurring phenomenon for shafts, wells and quarries that has been observed elsewhere in Roman Britain, including at Springhead in Kent, where a quarry partially cut a ditch associated with an Iron Age 'processional way' (Andrews *et al* 2011, 47). The practice was also noted at Oakridge, Viables Farm and Old Kempshott Lane in Hampshire, to name but a few of many examples (Oliver *et al* 1992, 70–1; Millett & Russell 1984, 54; Haslam 2012, 104). In addition to this, similar features have been found in numerous Romano-British settlements close to important boundaries in the landscape, such as enclosures, roads, cross-roads and watery places (Woodward & Woodward 2004, 70–7, 80–1; Beasley 2006).

The precise motivations for the use of ditches for structured deposition, quarrying and pitting remain unclear, but in more general terms it is conceivable that such features represented symbolic as well as actual boundaries in the landscape and this may have elevated their importance to the occupants of this part of the Roman Empire. Both the construction and backfilling of ditches required the gathering together of individuals and communal effort, while their use no doubt reinforced social concepts such as alliance, identity, inclusion or exclusion as well as defining zones of activity (Hill 1995, 76–83; Wells 2007, 390; Haslam 2012, 97). It has also been suggested that these features represent liminal places ('non-spaces') and as such it is possible that they provided a conduit or some other form of connection with an otherworld or unseen force, just as the quarries and the sinkhole appear to have done (Woodward 1992, 51). The placing of structured deposits in the backfill of ditches and the digging of deeply intrusive features through disused boundaries may also have provided an opportunity to acknowledge the loss of the boundary, the end of the life of an enclosure or even the end of a settlement through the deposition of 'leave taking' deposits (Brück 2007, 29; Haslam 2012, 104). Similarly, the positioning of such features close to functioning boundaries may have been deemed appropriate owing to the liminal nature of the boundaries themselves (Brück 2007, 29; Haslam 2012, 104).

THE CONTINUATION OF STRUCTURED DEPOSITION AT EWELL DURING THE LATE ROMAN PERIOD

The presence of the partial cat and dog skeletons in late Roman Quarry 9, which may have been accompanied by the deliberate deposition of a red deer antler pick, iron ring and bone pin, suggests that the link between quarrying and practices involving structured deposition continued into the later Roman period at Ewell. This is supported by the discovery of human infants within the fills of late Roman Quarry 8 and the uppermost backfill of Quarry 2. Neonate burials are not uncommon in Late Iron Age and Romano-British pits, a phenomenon that is found locally at The Looe in Ewell and Queen Mary's Hospital, Carshalton as well as further afield, for example at Suddern Farm, Hampshire, the pipeline excavations (Angelinos Pumping Station to Ardley reservoir) in North Oxfordshire and Castle Ditches in Llancarfan, Glamorgan, again to name but a few examples (Cotton 2001, 13; Hunnisett 2011, 18; Cunliffe & Poole 2000; Davis 2017; Hart *et al* 2010). In the Roman period people fastidiously buried their dead outside occupied areas, although newborns and infants under the age of approximately 18 months could be buried inside settlements (Philpott 1991, 97–101). At Ewell, this could perhaps explain why disarticulated adult human bone and adult burials in extra-cemetery contexts (found in relative abundance on the site during the early Roman period) significantly decreased during this later phase as burial in cemeteries became the norm. The interment of human infants outside a cemetery context could, however, have been comparatively acceptable to a more romanised populace that continued to adhere to certain pre-Roman beliefs.

It is important to acknowledge that the burial of adults in this landscape did not completely cease during the late Roman period, as demonstrated by the presence of Inhumation 6 in

the ditch that defined Enclosure 3. Little can be said about this inhumation owing to its heavily truncated state, but it appears to have been laid to rest in hobnail boots in a supine position in a more characteristically Roman fashion. Like the infant burials, this therefore also suggests that earlier beliefs persisted into the late Roman period in some form at Ewell, but that Roman traditions were by then more influential. A reasonable parallel exists at Old Kempshott Lane, Hampshire, where an older female was buried in a classically Roman style (in hobnail boots on a wooden litter with a New Forest indented beaker) in an extra-cemetery context during the late Roman period, in this instance at the bottom of a chalk and flint quarry (Haslam 2012, 100–3).

The resumption of structured deposition in the uppermost reaches of Quarry 2 and perhaps Quarry 1 during the late Roman period is significant. It clearly demonstrates that some memory of the importance of these earlier features persisted for decades after they fell out of use as quarries.

PAGAN APPROPRIATION OF AN IMPORTANT LANDSCAPE OR EVIDENCE OF THE ADOPTION OF CHRISTIANITY? A DISCUSSION OF THE MIDDLE SAXON BURIAL

Saxon occupation in the vicinity of Ewell is well attested (Lowther 1935, 17) and the discovery of a Middle Saxon burial on the site (Inhumation 7) was not completely unexpected. However, as discussed below, its location coupled with the contents of the grave add a great deal to the current understanding of the area, its inhabitants and the continued importance of earlier landscape features during this period.

Inhumation 7 was situated in open land within a grave that was very slightly too small for the occupant. Like the Roman human remains, this unusual burial context therefore defines this inhumation as a so-called 'deviant' burial – an umbrella term that includes any inhumation found in a 'non-normative' context for the period in which it was buried (Reynolds 2009, 39, 44). Saxon deviant burials are often explained as the disposal of social outcasts, miscreants or the 'undesirable dead', perhaps for superstitious, religious or judicial reasons. In some circumstances, the presentation of the body or its pathology suggests a violent end indicative of execution, murder, sacrifice or even death in conflict (*ibid,* 42–4), yet it should be remembered that not all deviant burials necessarily represent social pariahs or victims of violent practices.

Inhumation 7 possessed no indications of trauma, while its appearance, complete with grave goods, did not appear particularly irreverent, the only oddity being that the grave was very slightly too small. It, therefore, fits within the Middle Saxon tradition of final phase furnished burials in every other way apart from its extra-cemetery context. Probable victims of judicial killings commonly lacked all but the simplest grave goods (usually limited to low-status dress fittings: Reynolds 2009, 48), so the presence of the knife and coin could indicate that this individual was perhaps more valued than its burial context might at first suggest.

Isotope analysis has shed some light on the social standing of this young to middle-aged probable male. With a diet rich in animal protein, he appears to have been of high status throughout life (Rigakis 2016, 60). Consequently, this interment could represent anything from the special burial of a rich and revered individual to the burial of a wealthy pariah (*ibid*). The status of this person in both life and death, therefore, remains ambiguous; however, the liminal location of the grave coupled with the imagery on the coin have much to contribute to current understanding of the beliefs of Ewell's Middle Saxon occupants.

Inhumation 7 was discovered at the top of Quarry 3 in a grave orientated north–south that contained a knife and a *sceat* on which Christian motifs were found. Christian and pagan burials of Middle Saxon date are notoriously hard to differentiate. Until the 9th century, both were buried without the attendance of a priest beyond monastery or minster walls, while grave goods often characterised Christian as well as pagan inhumations (Reynolds 2009, 40–1; Hoggett 2010, 203; Welch 2011, 284). A connection with the new religion is sometimes

suggested by symbolism on grave goods, as is the case at Ewell; however, east–west rather than north–south burial did become more usual for Christians as the 7th century progressed (Lucy 2000, 130; Sherlock 2016, 244). In this instance it therefore remains possible that the Christian symbolism on the coin from Inhumation 7 says more about the politics of the proto-Kingdom that minted it than the beliefs of the occupant of the grave. Consequently, whether Inhumation 7 was a convert to Christianity cannot be stated with certainty, but if so then the location of the burial, directly above Quarry 3, suggests that either the beliefs of the deceased, or that of those responsible for the burial, could have been a fusion of very different belief systems, both old and new.

The relationship between the burial and the quarry could be coincidental but, given the wealth of structured deposits that were interred in the Ewell quarries throughout the Roman period, this seems unlikely. Instead, it may be that the quarry survived as a shallow earthwork before being reused during the Saxon period. This reuse implies some continuity of earlier pre-Christian beliefs at Ewell or, at the very least, the retention of a notion that the depression into which the grave was cut was of significance to past populations of the area. The prehistoric archaeological record of the Continental homeland of the Saxons contains numerous examples of structured deposition that approximate British Iron Age and Romano-British examples of the practice, while finds from across the Saxon cultural zone demonstrate that structured deposition continued after the Conversion (Hamerow 2006, 4–5; Green 2009, 1; Hines 2013, 25). In that context, this landscape, and what remained of the quarries, may have retained some meaning during the Middle Saxon period.

Saxon settlements and cemeteries of the 5th to 7th centuries sometimes incorporate earlier monuments that range in date from the prehistoric to the Roman period (Semple 2013, 51; Williams 2015, *passim*). The detail behind this practice remains unclear, although in general terms it is reasonable to assume that their reuse was an attempt to appropriate the British landscape for the new culture by forging identity, ownership and belonging (Semple 2013, 51). It is also possible that, for the Saxons, such places held ancestral or supernatural qualities that could not be replicated through the construction of a new building or the use of a new landscape setting (Williams 1997, 3; Henig 2008, 191). Saxon cemeteries have been found in association with Roman buildings that include temples, mausolea, forts, fortresses, signal stations, town walls and villas (Williams 1997, 9–14), while at Poulton Down, Wiltshire, a 6th or 7th century female was found in a Roman well, which is undeniably more like a Romano-British burial context than a Saxon one. It is, however, important to point out that she was interpreted, perhaps correctly, as a concealed murder victim rather than evidence of the continuation of an older belief system (Reynolds 2009, 52). Further afield, at the Anglo-Saxon royal centre of Yeavering in Northumbria, a Saxon building interpreted as a 'temple' was established near a Roman 'ritual shaft' and an earlier Roman temple; however, it was more probably the temple rather than the infilled shaft that attracted attention in that instance (Ellis Davidson 1988, 22; Dauksta 2011, 108). Reuse of Roman pits, wells or quarries for the purpose of structured deposition during Saxon times therefore appears to be a rare phenomenon and to the knowledge of the authors, the Middle Saxon burial at Ewell does not as yet possess a good parallel elsewhere. This may simply be because such features were often fully infilled, concealed from view and presumably forgotten before the Saxons arrived, their survival both as shallow earthworks and as a folk memory being the exception rather than the rule.

General conclusions

The geology and topography of the landscape in which Ewell lies has influenced the site and its environs for millennia. Archaeologically identifiable development commenced in the Late Bronze to Early Iron Age, as demonstrated by the discovery of a well-organised pastoral field system. The site was situated in an excellent environment for animal husbandry, positioned as it was close to a natural spring between upland pasture to the south and the plains of the

valley to the north. In keeping with wider settlement trends across the North Downs, it may be that an accompanying settlement existed on the hill in the vicinity of The Looe.

The site overlay a seam of high-quality flint, so it is not surprising that lithic resource gathering and stone tool production had commenced by at least the Mesolithic. Quarrying then occurred during the early Roman period, when chalk and flint began to be used as building materials or chalk for marling, with demand perhaps being amplified at Ewell by the proximity of the site to a major settlement (*Londinium*) that required stone. Good transport options would have been vital to the success of this enterprise and were satisfied by the proximity of Stane Street and the Hogsmill river.

Within the belief system of the Romano-British inhabitants of the area, this industrial landscape possessed important qualities that made it suitable for acts that involved structured deposition. Watery places formed important foci for such acts throughout the prehistoric and Roman periods, as did deeply intrusive holes in the ground and boundaries of one form or another. Ewell had all of these: a natural spring, a collection of prominent boundaries (in the form of earlier earthworks and nearby Stane Street), a quarrying industry and a geology that is subject to the development of solution features. A wide variety of structured deposits was chosen for interment within quarries and ditches that included animal carcasses, deliberately broken pottery vessels, human remains and perhaps some metal objects and it is suggested that their deposition represents the continuation at Ewell of a prehistoric belief system, for example as a form of 'folk magic' or 'practical magic', organised within the Romano-British community. Indeed, during the early Roman period, the nature of the human remains found on the site closely resembled south-central and south-east British Iron Age modes of burial, with two being crouched, two being prone and at least ten being disarticulated, thus being 'deviant' by classical Roman but not Iron Age British standards. This, therefore, suggests that the world view of those involved had more in common with earlier prehistoric belief systems in this part of Britain. The disarticulated bone and at least one of the early Roman inhumations appear to represent at least two distinct variations of a mortuary rite in which human remains were interred in deeply intrusive features. Inhumation 1 appeared to have been more carefully curated for a period of time prior to final burial, either above or below ground, while the disarticulated bone may have been more thoroughly excarnated in either an above- or below-ground context. A controversial finding that arose from the study of a sub-sample of the human bone from Quarry 1 tentatively suggested that at least some of it underwent excarnation by exposure, specifically to canids, most probably under controlled conditions for a limited period of time. This is an interesting but preliminary theory that remains unproven, but one that is certainly worthy of further investigation.

Beliefs associated with practices involving structured deposition in certain feature types proved remarkably resilient at Ewell and were retained in an adapted form into the late Roman period. The most noticeable difference was the treatment of human remains, which appeared to express a greater degree of Roman influence during the latter half of the Roman period. Two infants were selected for burial in quarries and disarticulated adult bone was rarely encountered, while an adult skeleton found in a ditch wore hobnail boots and was probably buried in a supine position, thus more closely resembling a Roman cemetery burial.

Despite potential for a great deal of demographic and social change that included the arrival and re-introduction of Christianity in Britain, the quarries and the landscape in which they lay appear to have continued to hold some significance for occupants of the area into the post-Roman era as demonstrated by the presence of a Middle Saxon burial at the top of one of the quarries.

The feature types in which structured deposition occurred at Ewell fit within a much broader pattern that manifests itself throughout much of British and European prehistory and beyond. Features containing structured deposits at Ewell, both within the confines of the site or within its immediate environs, universally represent liminal realms that humankind rarely transgresses upon, be they 'non-spaces' (boundaries), watery places (the Hogsmill spring) or deep and therefore dangerous entrances into the bowels of the earth (quarries and

the solution feature). Such liminal places perhaps provided conduits through which unseen forces could be influenced for the benefit of the community by acts of structured deposition (Woodward 1992, 51). Similar ideas are echoed in very general terms across many unrelated cultures, both ancient and modern, thus suggesting that such concepts form a profound part of the human condition.

Endnote

The tables and figures listed below are available on the Archaeology Data Service website https://doi.org/10.5284/1000221
Select *Surrey Archaeological Collections* volume 103 and the files are listed as supplementary material under the title of the article.

TABLES

Table 5 Non-metric traits of the early Roman adults
Table 6 Non-metric traits for the late Roman and Saxon adults
Table 7 Identifiable human bone fragments within Quarry 1 Infill Event 1
Table 8 Identifiable human bone fragments within Quarry 1 Infill Event 2
Table 9 Crude prevalence of the condition of the disarticulated bone recovered from Quarry 1
Table 10 ^{15}N and ^{13}C values of all samples
Table 11 Results of the detailed taphonomic analysis undertaken on a subsample of human bone from Quarry 1 Infill Events 1 and 2 (Period 4)

FIGURES

Fig 3 NESCOT, Ewell. Diagram to show the relationship between land uses and phasing presented in the article (not to scale).
Fig 19 NESCOT, Ewell. Scatter chart of the isotope values from all bone samples (ribs and femora).
Fig 20 NESCOT, Ewell. Scatter chart showing all isotope values gained from the analysis (bone and tooth values). Light green are the values from bone samples (ribs and femora), dark blue are the values gained from the tooth samples. No great value difference can be seen between bone and tooth samples with one exception, from Inhumation 1.
Fig 21 NESCOT, Ewell. Scatter chart showing the values from the articulated remains Inhumation 1 (light green), Inhumation 7 (orange) and infant A[289] from Quarry 2 Infill Event 3 (light blue).
Fig 22 NESCOT, Ewell. Age distribution from epiphyseal fusion for major taxa within Quarry 1 Infill Event 1. N=total number of identifiable bones (shown in brackets).
Fig 23 NESCOT, Ewell. Age distribution for major taxa within Quarry 1 Infill Event 2. N=total number of identifiable bones (shown in brackets).
Fig 24 NESCOT, Ewell. Age distribution for major taxa within Quarry 1 Infill Event 3. N=total number of identifiable bones (shown in brackets).
Fig 25 NESCOT, Ewell. Quantification of all pottery.
Fig 26 NESCOT, Ewell. Quantification of Period 4 pottery.
Fig 27 NESCOT, Ewell. Period 4 forms by % EVEs.
Fig 29 NESCOT, Ewell. Quantification of Period 5 pottery.
Fig 30 NESCOT, Ewell. Period 5 forms by % EVEs.
Fig 37 NESCOT, Ewell. Chronological distribution of Roman coins from Ewell Sites A and B compared with Reece's (1995, 183) and Walton's (2011, 420) British means.

Fig 38 NESCOT, Ewell. Chronological distribution of Roman coins from Ewell Sites A and B compared with coins from Chichester (Reece 1991, site 14), Gloucester (Reece 1991, site 49), and Sea Mills (Reece 1991, 59).
Fig 42 NESCOT, Ewell. Location of test pits 1–30 and distribution of 5m^2 areas subject to controlled surface collection of worked flint.

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