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The Early Saxon cemetery at Park Lane, Croydon

JACQUELINE I McKINLEY

with contributions by

ESTHER CAMERON, ROWENA GALE, BRIAN GILMOUR, PAUL HILL, K L HUNTER, LORRAINE MEPHAM, PETER NORTHOVER, NICK STOODLEY, LOGAN THOMPSON and PENELOPE WALTON ROGERS

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Summary

The Early Saxon cemetery at Croydon was first discovered in the late 19th century, when c *104 5th–7th century items – grave goods and burial urns – were recovered during the construction of terraced housing along Edridge Road. The investigations reported here relate mainly to the Wessex Archaeology excavations (1999 and 2000), and incorporate the findings from the 1992 Museum of London Archaeology Service evaluation of the site and a reappraisal of the Edridge Road material in the light of the recent finds.*

The Wessex Archaeology excavations uncovered all or parts of 46 Saxon inhumation graves and two cremation burials, representing those on the east side of the cemetery. A high proportion (72%) of the graves contained goods, comprising weaponry (33%) – including four swords – jewellery (13%) and several high-status items, including a bronze bowl filled with hazelnuts. The finds indicated a predominantly 6th century date, with a range potentially extending from the late 5th to late 7th/early 8th centuries. The cultural affinities indicate links with the South Saxons, with limited Kentish influences and sparse Anglian ones. While there was relatively good preservation of organic remains including textiles, horn, wood and skin/leather, the human remains were poorly preserved with small quantities of bone recovered from only 48% of graves.

A late Roman/early post-Roman inhumation burial – of plaster burial form – was found on the east side of the Saxon cemetery, perhaps indicating at least one influence on the choice by the Saxons for the location of their cemetery.

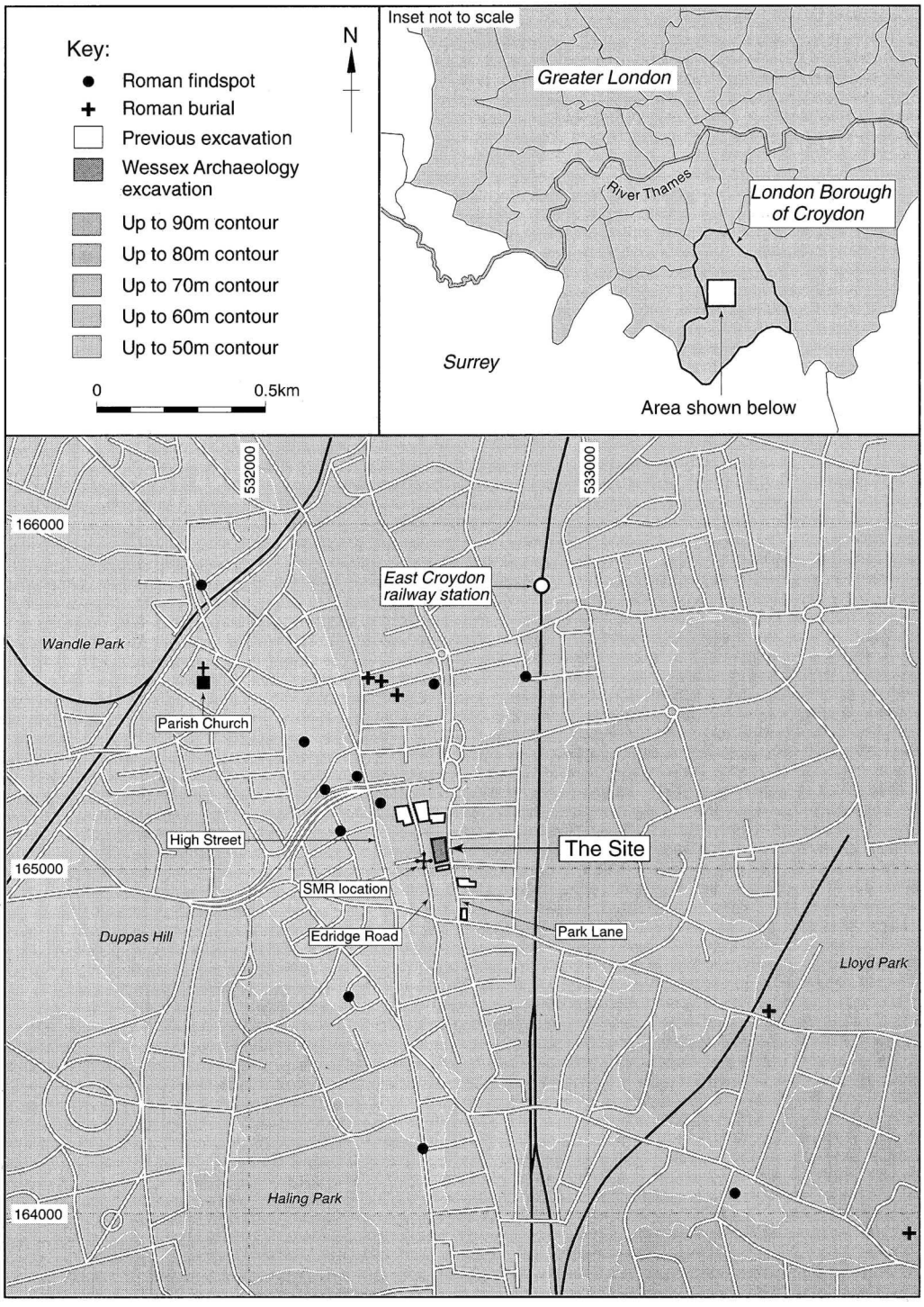

Fig 1 Park Lane, Croydon. Site location plan with major findspots of Romano-British material in the area. (© Crown Copyright. MC 100014198)

Introduction

SITE LOCATION

The site lay on the west side of Park Lane, Croydon, on land formerly occupied by four Edwardian villas, nos 82–90 (centred on TQ 5325 1650), with basements and gardens to the rear (fig 1). Immediately west of the site lay the gardens and terraced houses of Edridge Road, the boundary forming a drop of at least 0.75m to the west due to terracing of the natural slope. Edridge Road and Park Lane lay between the 50m and 60m contours and the ground level on the site at time of excavation was between 58.5m and 59m OD.

GEOGRAPHIC AND TOPOGRAPHIC BACKGROUND

Croydon – from the Saxon *Crogedena* (AD809), believed to mean the 'valley where wild saffron [crocus] grows' (Ekwall 1991, 134) – is situated on the southern border of the London basin at the foot of the long slope of the North Downs. It lies on the east side of the Wandle valley, within the vicinity of the river's original headwaters, and just north of an important gap through the Downs (Gent 1991, 4).

The underlying geology comprises Upper Chalk overlaid by Upper Pleistocene River Terrace sandy gravels, above which is a thin layer of pea grit/grey silt, Flandrian hillwash and humic soils (Peake 1982). The sands of the Thanet Beds are exposed immediately north-east of the site forming a narrow boundary between the chalk to the south, and the gravels and clays to the north (BGS 1981). Croydon lies within an area currently described as having loamy–heavy soils, often affected by ground water (Macphail & Scaife 1987, fig 2.1). Though the diversity of geology would support a varied vegetation including beech and grassland on the chalk to the south, and heath and birch/pine woodland on the sands and mixed oak woodland on the clays to the north (Gent 1991, fig 1), temporal variations in land use in the region are likely to have affected both the local vegetation and, potentially, the soils (Macphail & Scaife 1987, 31).

SITE HISTORY AND ARCHAEOLOGICAL BACKGROUND

In the medieval period the site was part of an open field system and may subsequently have been incorporated within 15th century burgage plots extending back from the High Street (Savage 1982). Rocque's map of 1762 shows the site to be occupied by orchards and associated buildings. By 1794 it comprised part of the gardens of a house known as The Elms (OS 25-inch map 1868–9; Savage 1982; Gent 1991, fig 26) which, following the death of its last owner, Sir Thomas Edridge, in 1892, was demolished and a row of terraced housing constructed along the western half of the Elms Estate in 1893–4 (Griffith 1897; Meaney 1968, 239).

The presence of the mixed-rite, Early Anglo-Saxon cemetery became apparent during this phase of construction, when at least 104 objects of 5th–7th century date (table 1) – most commonly items of weaponry – were recovered by workmen during the cutting of what was to become Edridge Road (Griffith 1897; Morris 1959, 137–7; Meaney 1968, 239). The items were collected from the site by Mr Thomas Rigby, who attributed the scarcity of small items to 'the manner of discovery by the careless excavators, who may also have parted with some of the more portable specimens to other persons' (Griffith 1897). He had observed that the inhumation and cremation burials lay 0.7–0.8m below the ground surface at that time. No mention was made of the condition of the bones or what was done with them, but the reference to 'skeletons' suggests sufficient survived to be recognizable. There is no record of the number of graves, their exact positions and associations between items from individual graves (except between a *francisca* and a hone stone: Shaw 1970, 95), nor of the extent of the cemetery. The Sites and Monuments Record (SMR) findspot for the 19th century finds coincides with the south end of the site (fig 1), though it is probable that the items were spread over a wider area along the line of housing. A further clue is given in that Griffith (1897)

states that the graves were found at 'the residence [ie The Elms] of the late Sir Thomas Edridge', the northern boundary of which appears commensurate with that of the site, the southern boundary lying *c* 75m south of the site (OS 25-inch map 1868–9; Gent 1991, fig 26); this places the SMR findspot potentially central to the area in which the earlier graves were found along a *c* 125m north–south stretch. The cemetery may, however, have extended further. No finds were recorded during the insertion of four basemented villas on the site in about 1903.

Following the demolition of nos 82–86 in the early 1990s, the Museum of London Archaeology Service (MoLAS) conducted an evaluation to assess the date, nature, form and extent of the surviving archaeological features and deposits in the northern half of the site (PAK92; Nielsen 1992a and b). At least five inhumation burials and seven deposits believed to be urned cremation burials were uncovered, together with other probable mortuary features pertaining to the Saxon cemetery, and a number of pits and gullies believed to be Bronze Age in date (*ibid*).

Other investigations (fig 1) along Park Lane – at nos 68–74 (Jackson *et al* 1997, 221; Jackson *et al* 1999, 241), no 94 (Youngs *et al* 1986, 140), nos 99–101 (Whittaker 1995, 19) and the junction with Coombe Road (*ibid*) – and Edridge Road, nos 5–25 (Savage 1982; Miller 1989) and nos 4–20 (Jackson *et al* 1997, 221) – have either found no evidence of graves or encountered unsuitable preservation conditions, including disturbance caused by 19th century gravel extraction at the north end of Edridge Road (Savage 1982).

In the Roman period Croydon is believed to have formed one of a number of roadside settlements lying in a 'ring' around London, set on the edge of the London Clay (where there is little settlement evidence) on the apparently preferred geological boundary location with access to mixed soils and springs (Bird 1996, 220; 2000, 152 and 156). The line of the Roman road between London and Portslade is thought to run through Croydon, following the valley bottom between Purley to the south and Broad Green to the north (Margary 1956, 113–15; OS *Roman Britain* 16-inch map 1994). Drewett (1974) has argued that the course of the road runs along the gravel terraces to the east of the river, though no traces have yet been found (Savage 1982). Several possible branch roads from Purley to Beddington and Kenley to South Croydon are also thought to have existed (Margary 1956, 115–19). Many finds of Roman date have been recovered in the immediate vicinity (fig 1). These include both single and small groups of inhumation burials, individual coins and several large hoards (generally late Roman: Bird 1987, 192), pottery, pits, ditches and evidence of buildings, mostly concentrated within an area to the north and west of the site in the vicinity of the parish church and the current town hall, with a few burials to the south-east on the higher ground (Drewett 1970a and b; Masham 1970; Bird 1987, 187; Bird *et al* 1989, 185; 1996, 207; Jackson *et al* 1997, 220; 1999, 241; Howe *et al* 2000, 202–3). The general scatter of Roman material over a relatively wide area implies that the Roman settlement at Croydon represented a roadside village rather than just a hamlet or farm (Bird 1987, 168–9; 2000, 156) and that it may have specialized in the production of the autumn crocus – from which its Anglo-Saxon name is believed to derive (see above) – for yellow dye and flavouring (Bird 1996, 225). About 1.5km to the west of Croydon at Beddington, a Roman villa complex was found in the 19th century, *c* 450m to the south of which lay an Early Saxon cemetery (Morris 1959, 133; Bird 1987, 170–2).

The date of the numerous 'skeletons [...] iron weapons, sword blades, etc.' recovered since the late 16th century in the George Street/High Street area, *c* 450m north of the site, appears unclear (fig 1; Meaney 1968, 239). The description of the finds indicates a Saxon date and a reference is included in Meaney's *Gazetteer* (*ibid*), but the SMR indicates that at least some of the burials were Roman (Shaw 1970, 96), with several having been made in lead coffins.

The Saxon settlement is also assumed to have developed close to the water supply near the present parish church, *c* 600m north-west of the site. Croydon's situation close to a gap in the Downs and on the route of a Roman road would have placed it on what is recognized as an important line of communication between Surrey and Sussex (Poulton 1987, 211). There is evidence in this area for a Saxon church, and domestic debris and coins have also

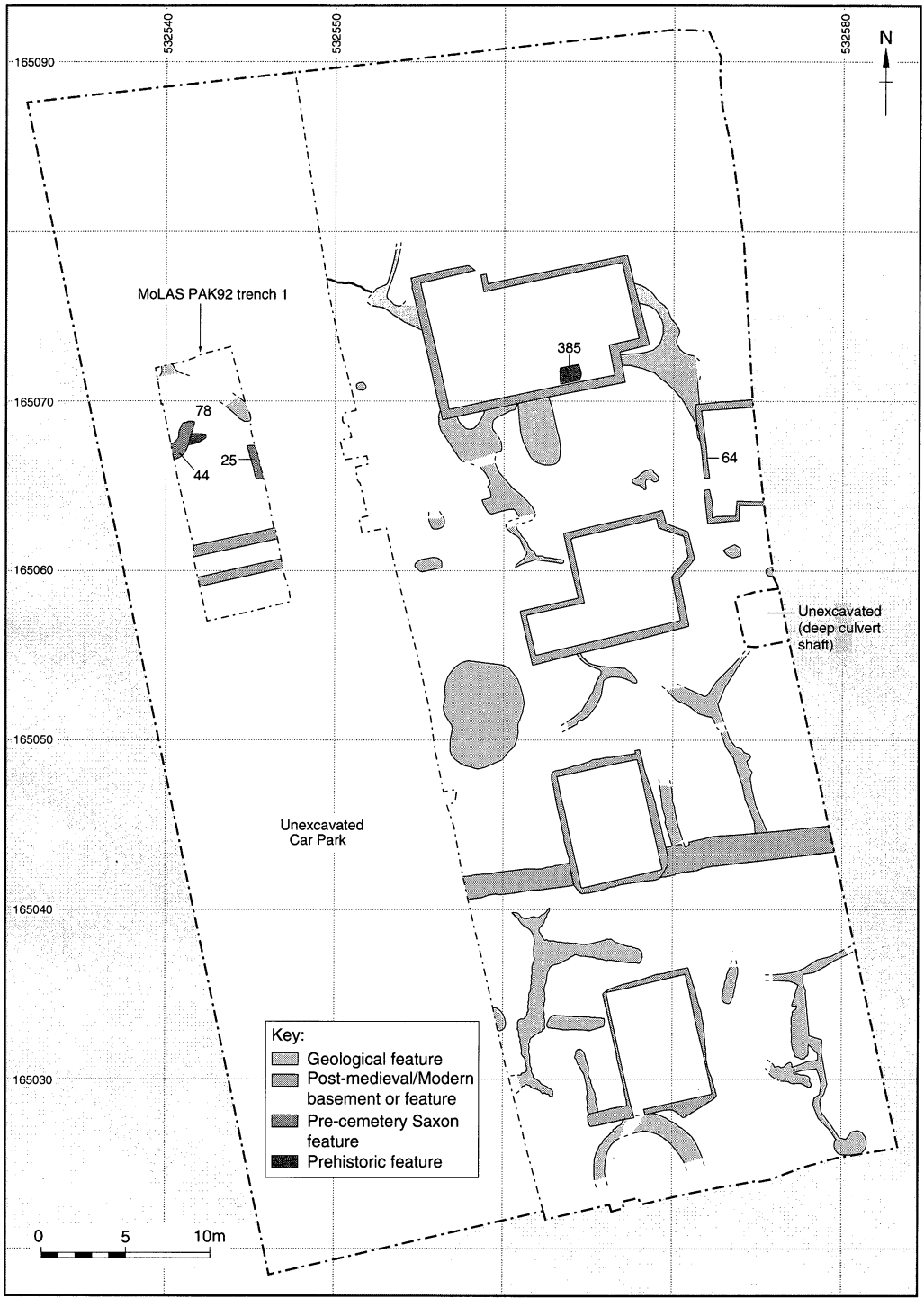

Fig 2 Park Lane, Croydon. Site plan showing non-cemetery features: prehistoric, pre-cemetery Saxon, post-medieval, modern and natural.

been recovered (Drewett 1970a and b; Masham 1970; Gent 1991, 5). A documentary reference to land at Croydon *c* AD871 implies the presence of a settlement, with further reference to 'a church and one mill' in a will made in AD906 (Drewett 1970a and b).

PROJECT BACKGROUND

The planning application (93/1310/P) for the redevelopment of the site was initially deferred by the London Borough of Croydon's Planning and Environmental Committee. A Planning Inquiry was held in 1995 in which various arguments were put forward in favour of either full excavation of the site or part excavation and part preservation *in situ* (Whittaker 1994, 1995; Welch 2000). It was resolved to grant planning permission for redevelopment by implementing the latter option. The eastern portion of the site adjacent to Park Lane (*c* 70 × 25m), which fell within the footprint of the proposed buildings, was to be subject to full excavation. The western portion of the site (*c* 71 × 16m), which was to function as a car park, was to be preserved *in situ* with a watching brief being maintained during the construction of the car park (fig 2).

Wessex Archaeology was commissioned by Frogmore Developments Ltd to undertake the archaeological investigations in advance of the proposed construction works. The main phase of excavation was carried out between October and December 1999, with shorter phases taking in the margins of the site in August and October 2000. The watching brief was conducted between March and July 2000 during the construction of the car park and installation of ground monitoring equipment in accordance with the requirements specified by English Heritage as part of the planning permission. The site archive and finds will be deposited with the Museum of London Archaeology Service under site code PLO99.

Methods

Mechanical excavation was undertaken under constant archaeological supervision to the top of the *in-situ* archaeological horizons. The old worked soil horizon was removed in a series of shallow spits to ensure finds recovery and minimal disturbance of underlying deposits; three areas (*c* 2 × 2m, 4 × 4m and 2 × 5m) were hand excavated to provide a check on definition of the context and finds retrieval. All subsequent excavation was undertaken by hand; all exposed graves were fully excavated; linear features were subject to sufficient excavation to allow the form, nature and, where possible, date of the feature to be ascertained. Targeted samples were taken from grave fills to facilitate the full recovery of human remains and small artefacts. Cremation-related deposits were subject to whole-earth recovery. A series of pH samples was also recovered from targeted areas within each grave fill and sections of the worked soil horizon. All organic deposits were bulk sampled.

The 1992 MoLAS evaluation of 82–86 Park Lane (PAK92; Nielsen 1992a and b) included three trenches and six test pits, all but one of which lay in the area of the site subsequently subject to full excavation. The largest of the evaluation trenches (trench 1, 15 × 5m) was situated in the northern half of the area designated for preservation *in situ* (fig 2). Grave goods from two of the inhumation graves observed within this area were lifted in the evaluation, together with one vessel from what was believed to be a cremation burial; all other features and deposits remain *in situ* (see *Endnote* (grave catalogue), below). A full description of the findings from the evaluation has been presented elsewhere (Nielsen 1992a and b); however, as the contents of trench 1 form the only part of the evaluation not subsequently included in the excavation, the finds recovered have been incorporated in this analysis and the features discussed in the context of the cemetery as a whole. References to cuts and deposits use the original evaluation context numbers and are all prefixed by 'PAK92'.

The artefacts recovered from Edridge Road in the late 19th century, currently held in the British Museum and Croydon Museum (table 1), have been described and discussed elsewhere

(Griffith 1897; Shaw 1970; Welch 2000). As they comprise remains from the same cemetery, however, they must form part of the current discussion; consequently the material was subject to a rapid scan by the various specialists, including the first analysis and report on the cremated bone surviving from two of the burials.

The primary aim of the excavation was to investigate the Anglo-Saxon cemetery, to ascertain its extent, form, date and associated features. Although there were non-cemetery features of prehistoric and post-medieval date they will be covered in brief and this report will deal primarily with the findings associated with the cemetery.

Evidence

ARCHAEOLOGICAL FEATURES AND DEPOSITS

All the features in the main area of excavation (and the majority of those in evaluation trench 1) had, to some degree, cut into the natural gravel – a free draining, coarse sub-angular flint gravel with sandy matrix, occasional flint nodules and chalk pea-grits. The gravel rose slightly from north to south (by *c* 0.1–0.15m) and from west to east (by *c* 0.3–0.8m), ranging from 57.37m OD (north-west) to 57.88m OD (east central). The surviving depth of the overlying mid-reddish brown sandy silt soil horizon varied considerably from *c* 0.04–0.7m having been severely truncated in places (see *Modern disturbance*, below). The nature of the fills of the cut features demonstrated that they had been made through this matrix, though the cuts were only clearly visible in three instances – inhumation graves 4, 54 and 327 in the central area of the site. The cuts were only evident in the lower levels of what appeared to comprise a single deposit, the upper levels of which (very slightly darker) had been subject to subsequent working thereby obliterating traces of the cuts.

Prehistoric (fig 2)

The recovery of a number of struck flints (35 from the excavations and 56 from the evaluation), of fresh appearance and largely unpatinated, provided evidence of early prehistoric activity in the area. The assemblage largely comprises blade technology indicative of a Mesolithic–Early Neolithic date, with at least two Mesolithic backed bladelets and one Late Neolithic transverse arrowhead (identifications by Phil Harding). The majority were residual, with 66% of those from the evaluation and 11% from the excavations being recovered from the medieval worked soil, and 67% from the excavations redeposited in grave fills. The only possible contemporaneous features are a sub-rectangular pit (385: steep concave sides, slightly concave base *c* 1.15m diameter, 0.7m deep) excavated below the northern villa basement, the only finds from which comprised the Mesolithic bladelets, and the shallow (0.2m) oval feature PAK92 78 from which a single struck flint was recovered (fig 2). In view of the general residual nature of this material, however, the date of these features should be regarded as uncertain. Three residual fragments of unabraded middle Neolithic Peterborough ware were recovered from PAK92.

A few fragments (five) of slightly abraded Late Bronze Age pottery were found redeposited in Anglo-Saxon features in the excavations with several small abraded fragments from three features in the evaluation, including one cremation grave and two linear cuts PAK92 25 and 44 (fig 2). The profile and fill of the latter bore strong similarities to those of the Anglo-Saxon linear feature PAK92 6 (fig 3), and on balance it seems most probable that the pottery from the fill is residual. PAK92 25 had been truncated by a Saxon inhumation grave, but so had feature PAK92 6, and the fill was similar to those of PAK92 6 and 44. A series of 0.5m^2 slots had been cut 0.1m deep into the base of PAK92 25, possibly to contain upright posts and the south end of the feature had a rounded terminal. It seems most likely that both PAK92 25 and 44 are post-Roman or Anglo-Saxon in date.

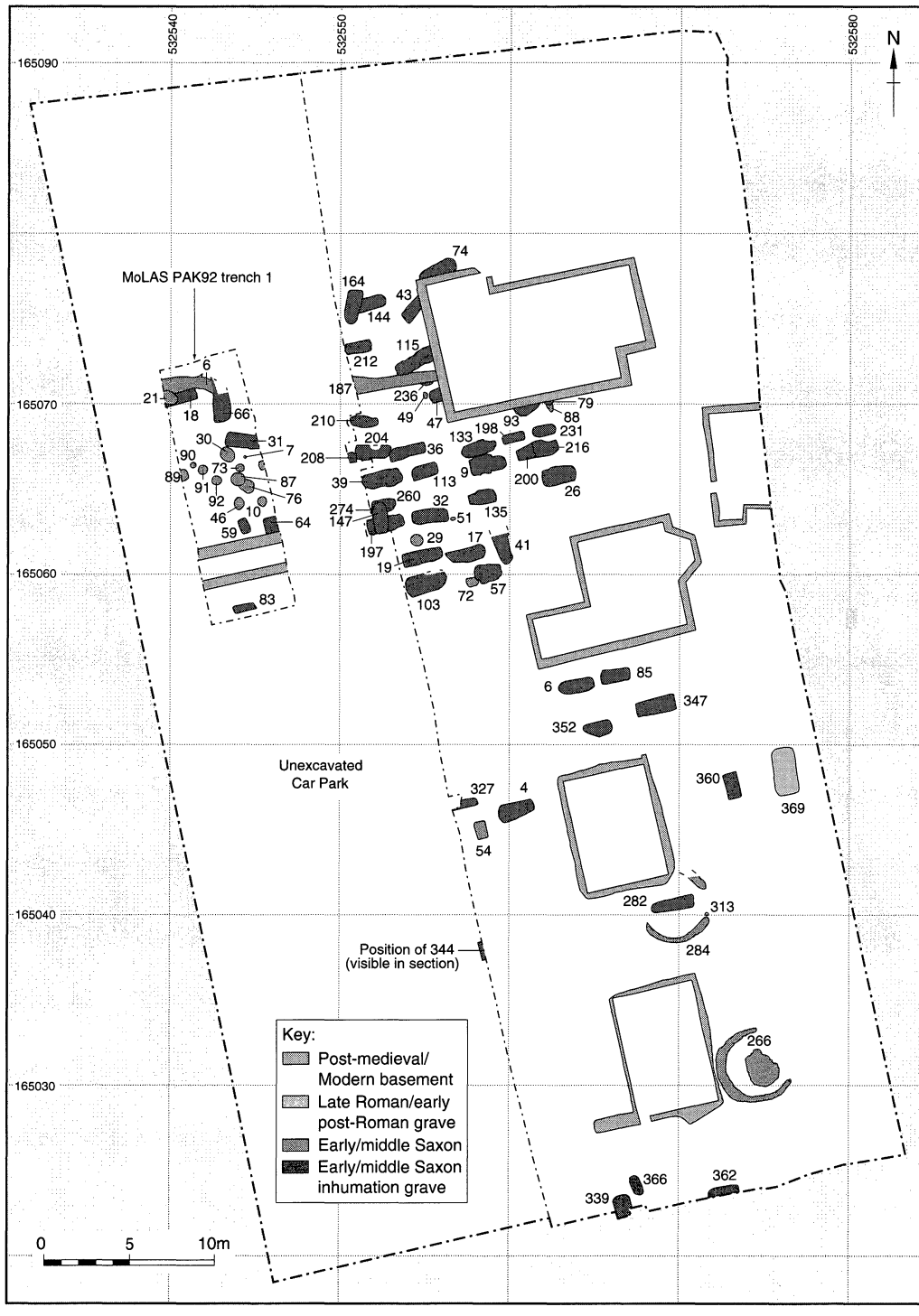

Fig 3 Park Lane, Croydon. Site plan showing cemetery features: late Roman/early post-Roman and Saxon.

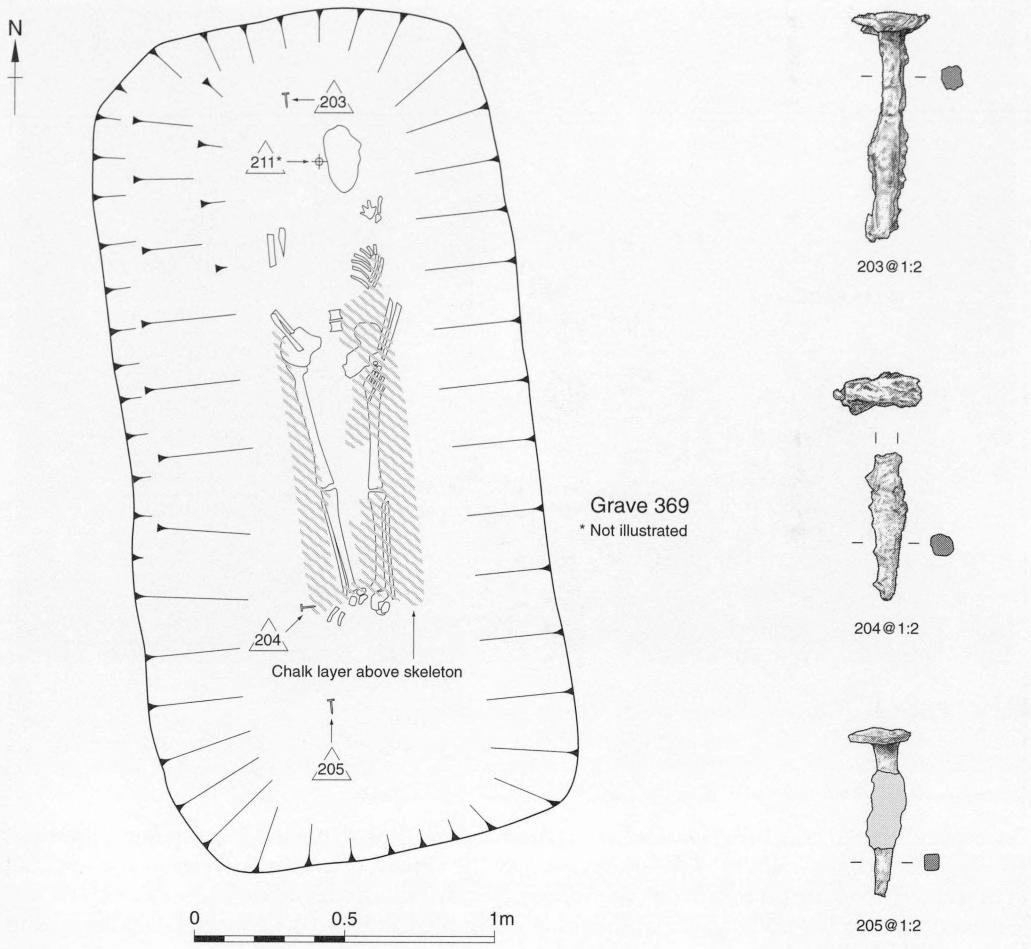

Fig 4 Park Lane, Croydon. Plan of late Roman/early post-Roman grave 369. Key to grave plans and key to finds.

Key for grave plans:

Note objects shown in graves are schematic representations only

- Flint packing
- Surviving bone
- Undiagnostic find/ orientation not discernible at excavation
- Truncation by later feature
- Edge unclear or postulated
- Limits of excavation
- Base of grave

Key for finds:

- Uncleaned corrosion products

Fig 5 Park Lane, Croydon. View of grave 369 from the south.

Romano-British and early post-Roman (figs 3–5)

No features could conclusively be dated to the Romano-British period but a general presence in the immediate vicinity was indicated by the small quantity (sixteen fragments) of redeposited Roman pottery from the fills of Saxon graves and later features in the main excavation, and the pottery, tile and coin (a barbarous radiate of Tetricus I, contemporary copy, AD270–290) from the medieval worked soil in evaluation trench 1.

A large (2.76 × 1.37m, 0.66m deep; base at 57.02m OD), rectangular inhumation grave (369: figs 3–5), oriented north–south (4° east from), was situated on the south-east margins of the site. The ends were almost vertical and the sides an acute slope with a ledge along part of the west side. Four nails were recovered from within 0.20–0.34m of the base at either end of the grave which, together with the acute edges formed by the 0.09m depth of puddled chalk (pH 7.1) deposited over the distal half of the skeletal remains (supine and extended older adult male 371), indicated the original presence of a coffin. The form of the deposit displayed the characteristics of a Roman plaster burial (Philpott 1991, 90). Such burials generally include gypsum plaster or lime, though some using chalk have been found at *Verulamium* and in the cemeteries of east London (*ibid*; Barber & Bowsher 2000, 320–1). The various possible reasons for the practice – linked to the preservative properties of the material and/or its colour – have been discussed elsewhere (Philpott 1991, 90–6) and include its role as a reflection of status, a symbol of light and purity, connections with Christianity or simply fashion. The north–south orientation of the grave suggests this was not a Christian burial.

The majority of such graves appear to be 3rd–4th century in date, but in view of the significance of the temporal link between this burial and those within the Anglo-Saxon cemetery, a sample of human bone (right femur, preserved due to the presence of the chalk) was submitted to Rafter Radiocarbon Laboratory for accelerator mass spectrometry dating. The results (NZ-14468, sample R-26721, 1551±70 BP) gave a calibrated date of AD340–650 (calibration using the maximum intercept method of Stuiver & Reimer (1993) and the data

in OxCal 3.15 (Bronk Ramsey 1995; Stuiver *et al* 1998)). The poor preservation of the bone is reflected in the low $\delta^{13}C$ ratio of –18.9 and the relatively high standard deviation. The unimodal radiocarbon probability distribution is slightly skewed, however, and centres towards the Early Saxon period (AD420–610 at 68% confidence) rather than the late Romano-British. On the basis of this information there is a 92% probability of a post-Roman date for the burial (M J Allen and A Bayliss, pers comm). The continued use of late Roman burial rites into the post-Roman period has been demonstrated by radiocarbon dating at a number of sites (eg Heare & Birbeck 1999, 226–30) and the practice, not surprisingly, is likely to prove to have been more common than it may currently appear.

Feature 360, a rectangular (1.57 × 0.97m, 0.5m deep; base at 57.34m OD), vertical-sided, flat-based cut with a single fill, lay on the same north–south orientation as grave 369, *c* 3m to the west. The form and fill of the cut was characteristic of a grave, but no bone or associated artefacts were found. On the basis of its appearance, orientation and proximity to grave 369, it is suggested that this may represent a grave of similar date.

Anglo-Saxon (figs 3–51)

Most of the Saxon features and deposits comprised inhumation graves and their contents (46; figs 3 and 6). Other features included cremation graves and/or features and deposits probably related to the mortuary rite (twelve), and several postholes, the position of which suggests they may have served as grave markers (four).

The possible Saxon date of the linear features PAK92 25 and 44 has been discussed above. PAK92 6 (0.8m wide, 0.3m deep; base at 57.09m OD), which had a similar fill and form, contained fragments of redeposited Bronze Age and Saxon pottery and, as in the case of the other two, had been truncated by a Saxon inhumation grave (fig 6). The implication is for an Early Saxon date for these features preceding at least some of the inhumation burials. The linear feature 187 (0.86m wide, 0.25m deep; base at 57.12m OD) may form an eastern continuation of PAK92 6; the features are commensurate and have similar fills, though the profile of the former is more irregular than that of the latter. Context 187 cuts what appears to be the remains of an inhumation grave (236) and is cut by grave 115, indicating a Saxon date for the feature.

Cremation graves and/or related mortuary deposits

The presence of a smashed, redeposited stamped ceramic vessel (fig 7) in the upper fill of grave 32, together with the occurrence of small quantities of cremated bone within the fills of several inhumation graves (mostly within an 8 × 5m area among the northern group of graves), suggests that at least some of the cremation burials made within the cemetery pre-dated the inhumation graves. Only one *in-situ* cremation burial (grave 29, unurned; see *Endnote* (grave catalogue), below) was found in the excavation, though a feature of similar size and shape *c* 2m to the east may have been related to the mortuary rite.

Six sub-circular features containing upright ceramic vessels (some truncated) were observed in the evaluation (trench 1) and were interpreted as cremation graves (figs 3 and 6). The features were clustered within a *c* 4.5 × 3m area and respected by the inhumation graves. All had been cut into the natural gravel except PAK92 90–92. Only one of these features was fully excavated (PAK92 30), but the vessel and cut proved to be devoid of cremated bone, and in this case at least, the deposit cannot represent the remains of a cremation burial. This also brings into question the potential interpretation of the other, similar features, as cremation graves. The deliberate deposition of a ceramic vessel within a specifically excavated cut, as appears to be the case, suggests some form of ritual behaviour, perhaps still associated with the cremation rite though not representative of the burial itself. Cremation-related deposits of this type – with the attendant characteristics of a burial but devoid of any human remains – have been observed in other periods in which the mortuary rite was practised (Toynbee 1971, 54; McKinley 1997, 71–2; 2000a, 42–3; forthcoming a; Oestigaard 1999).

Fig 6 Park Lane, Croydon. Plan of MoLAS evaluation trench 1 showing Saxon cemetery features.

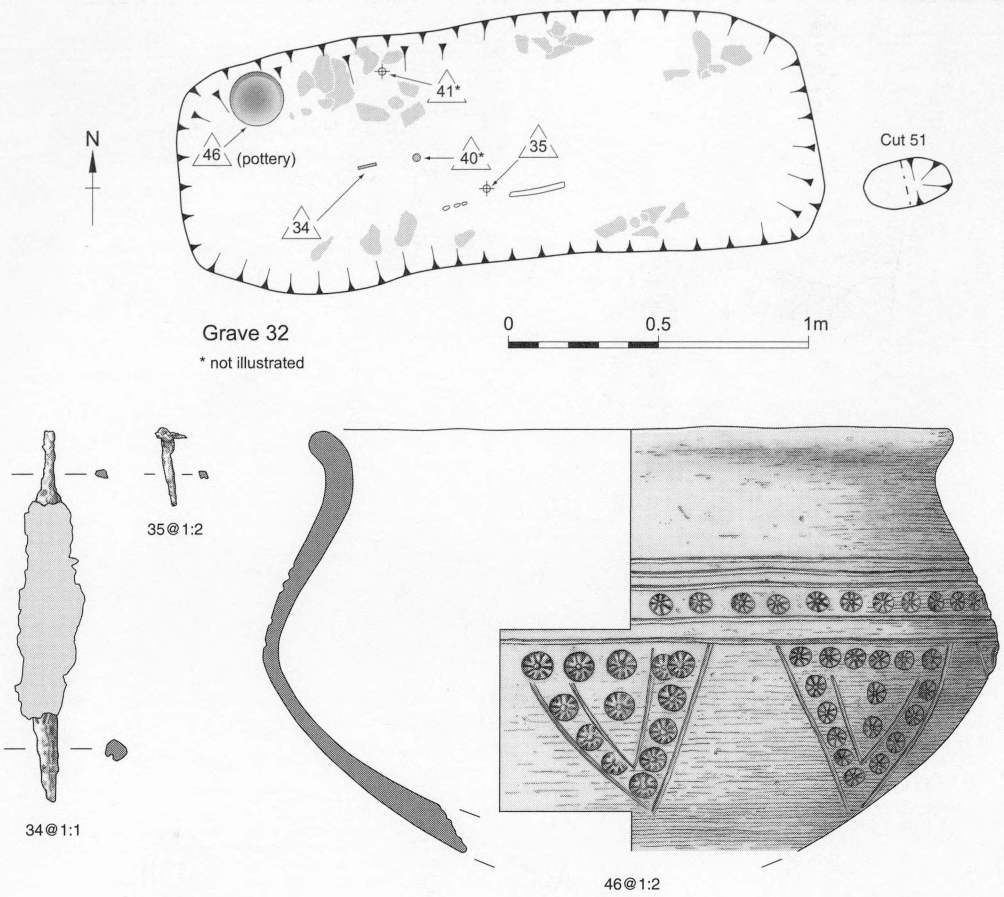

Fig 7 Park Lane, Croydon. Plan of grave 32 and posthole 51, with redeposited cremation urn ON 46 with illustrations of associated grave goods. (Key: see fig 4).

They appear to represent 'cenotaph' or 'memorial' deposits, the body either not being available for disposal or the burial itself being made elsewhere. If the known cremation burials at Croydon are representative of the earliest phase of Anglo-Saxon activity, might the remains of one of these early incomers – possibly a warrior – not have been sent back to their place of origin on their death?

Four pits or postholes, of between 0.5 × 0.3m and 0.7–0.55m, and 0.21–0.3m in depth (bases between 57.25m and 57.32m OD) formed a rectangle (*c* 2.7 × 2m) roughly centred on the vessel deposited in cut PAK92 76 (fig 6). While the profiles differed slightly – two having concave sides and bases, and one straight sides and a flat base (the other not fully excavated) – and there was no dating evidence (one contained burnt flint; an iron nail from one other does not appear to have been retained), their location suggests they were related and probably linked to feature 76. The presence of such features in association with cremation graves or cremation-related deposits has been observed in several contemporaneous cemeteries both in England and continental Europe, the four corner posts often being linked by narrow ditches or gullies (Evison 1988, 35–6; Down & Welch 1990, 25–33; Lucy 2000, 118–19). The area described by these features varies from *c* 1m square (Apple Down, West Sussex: Down & Welch 1990, fig 2.13) to *c* 3.3 × 3.08m (feature 32, Alton, Hampshire: Evison 1988, fig 49). Some, for example those at Leibenau, north Germany, appear to have been associated with

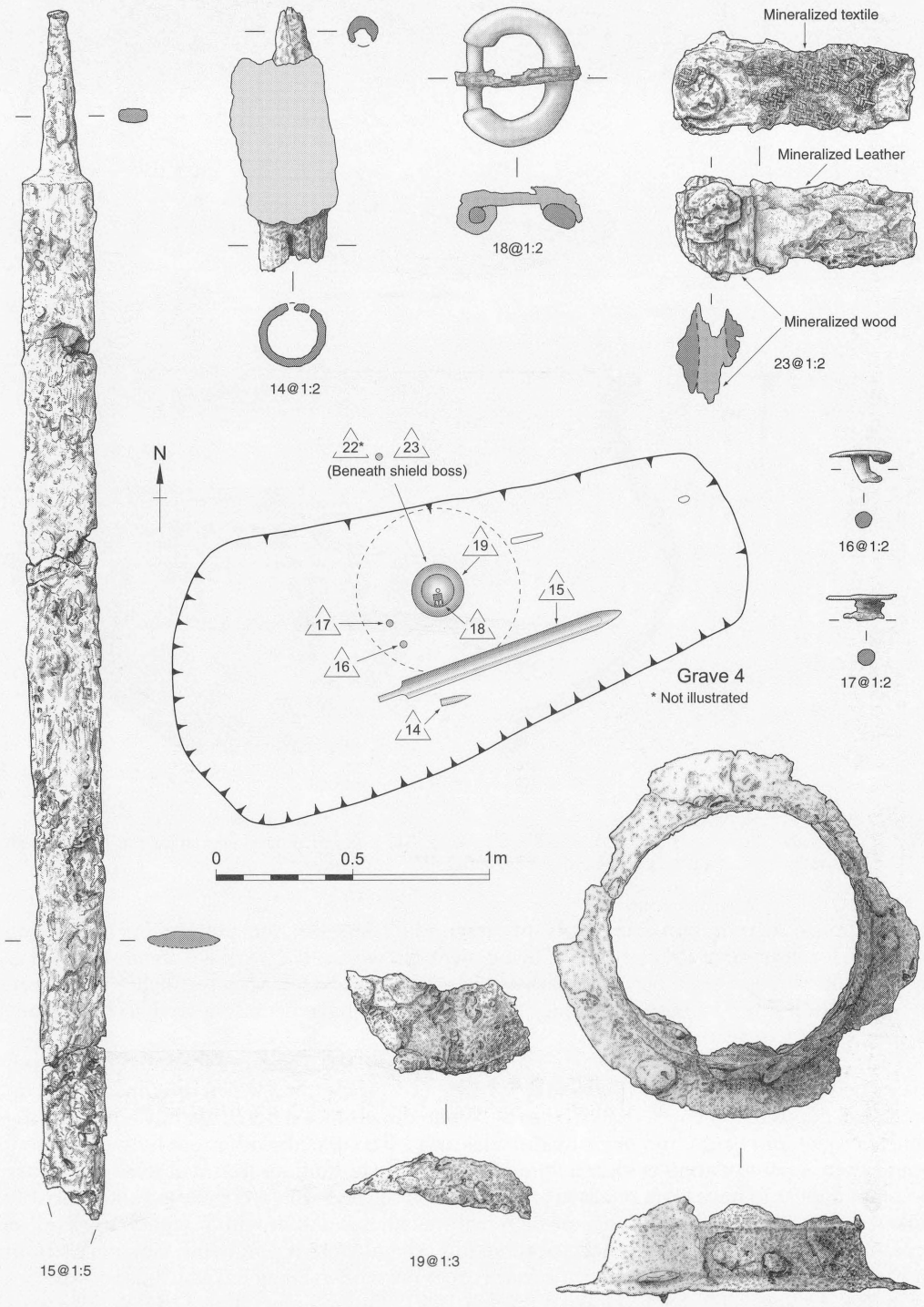

Fig 8 Park Lane, Croydon. Plan of grave 4 with illustrations of associated grave goods. (Key: see fig 4).

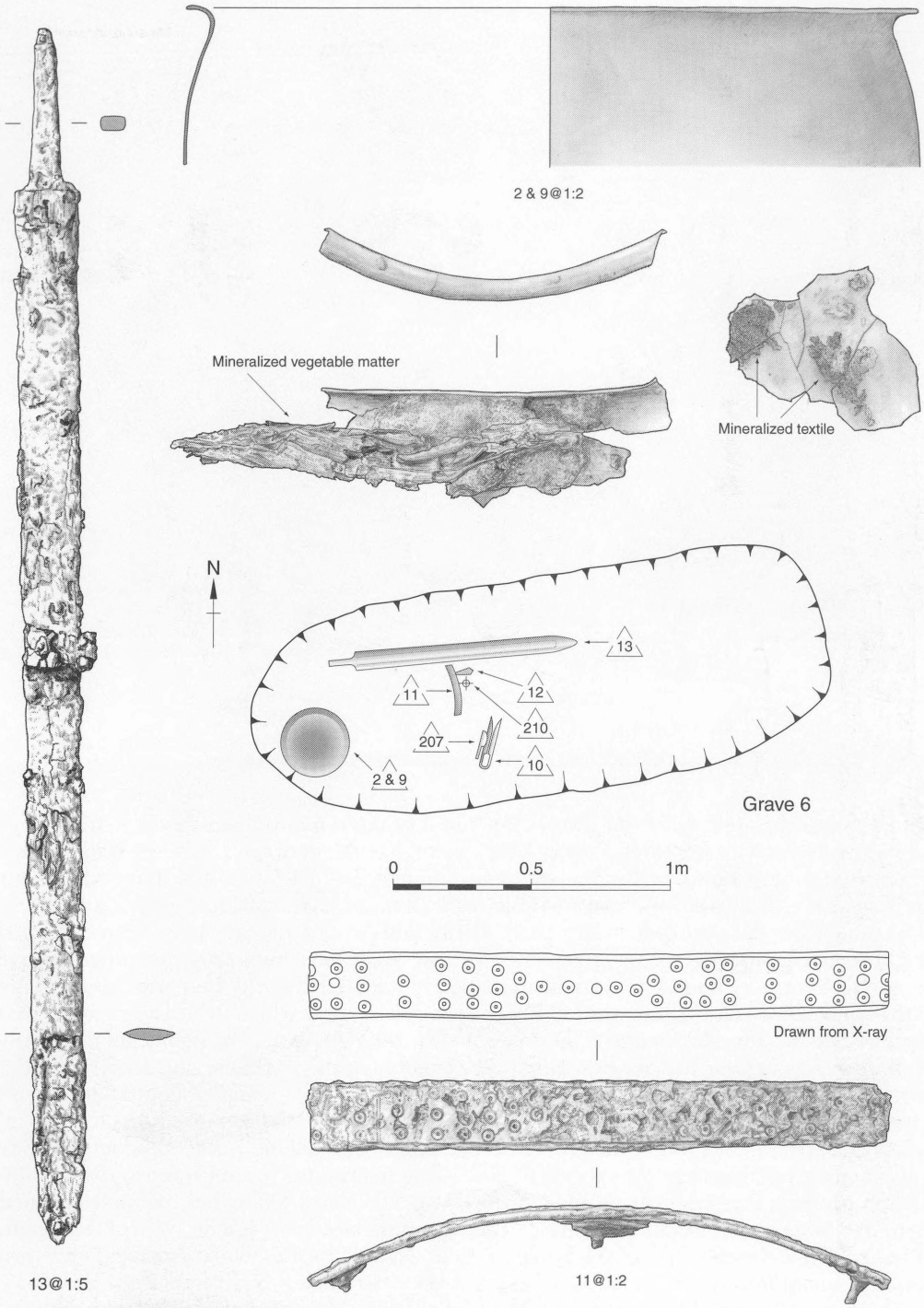

Fig 9a Park Lane, Croydon. Plan of grave 6 with illustrations of associated grave goods. (Key: see fig 4).

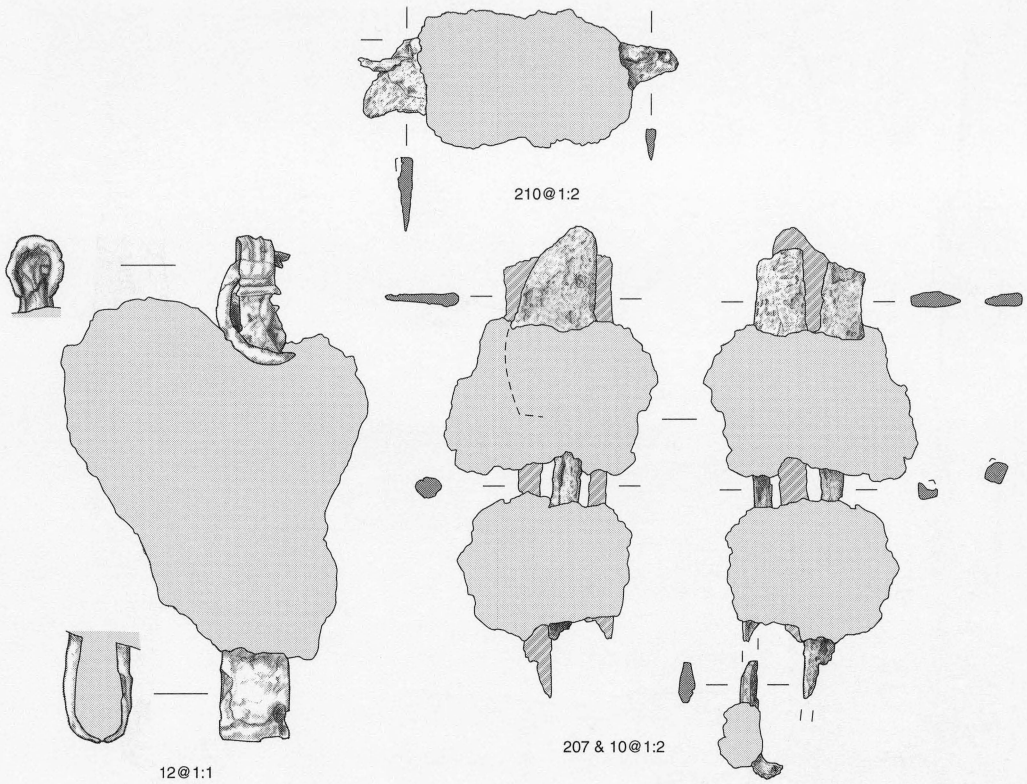

Fig 9b Park Lane, Croydon. Grave 6: illustrations of associated grave goods (*continued*).

the pyre sites through which the graves for burial of the remains from the cremation were subsequently cut (Cosack 1983; Evison 1988, 35–6). No link between a pyre site and the post structure has been found in English examples, though it should be noted that many occur on sites where there has been considerable truncation of the old ground surface and traces of burning from the pyre (penetrates *c* 0.08–0.1m) and pyre debris may have been disturbed and lost. It has also been suggested that the posts may have supported 'commemorative houses' or 'mortuary houses' to contain cremation burials, the grave (if there was one; in many of the Apple Down cases there was only a central posthole) over which the feature was centred representing the 'foundation grave' (Down & Welch 1990, 29). It may be significant that many of these graves appear to have contained very small quantities of bone and some to hold a form of cremation-related deposit other than 'the burial'. For example, 'cremation 7' with which feature 32 at Alton was associated (Evison 1988, 85) has the characteristics of redeposited pyre debris rather than a 'burial' (McKinley 1998; 2000b) and, although no bone weights are given, it is clear that very little (a few fragments only) was included in the deposit. The 31 posthole features from Apple Down (Down & Welch 1990) either had no associated cremated bone or very small quantities (<10g) with a maximum of 40g (ie >4% of the weight of bone from a cremated adult; McKinley 1993a). Not all 'burials' with associated four-post structures contained small bone weights however, 550g being recovered from the single occurrence at Berinsfield, Oxfordshire (Boyle *et al* 1995, 62), bringing it much closer to the average weights recovered (see *Pyre technology and cremation ritual*, below). Currently, the true nature of the deposit within cut PAK92 76 at Park Lane remains obscure as it was not fully excavated.

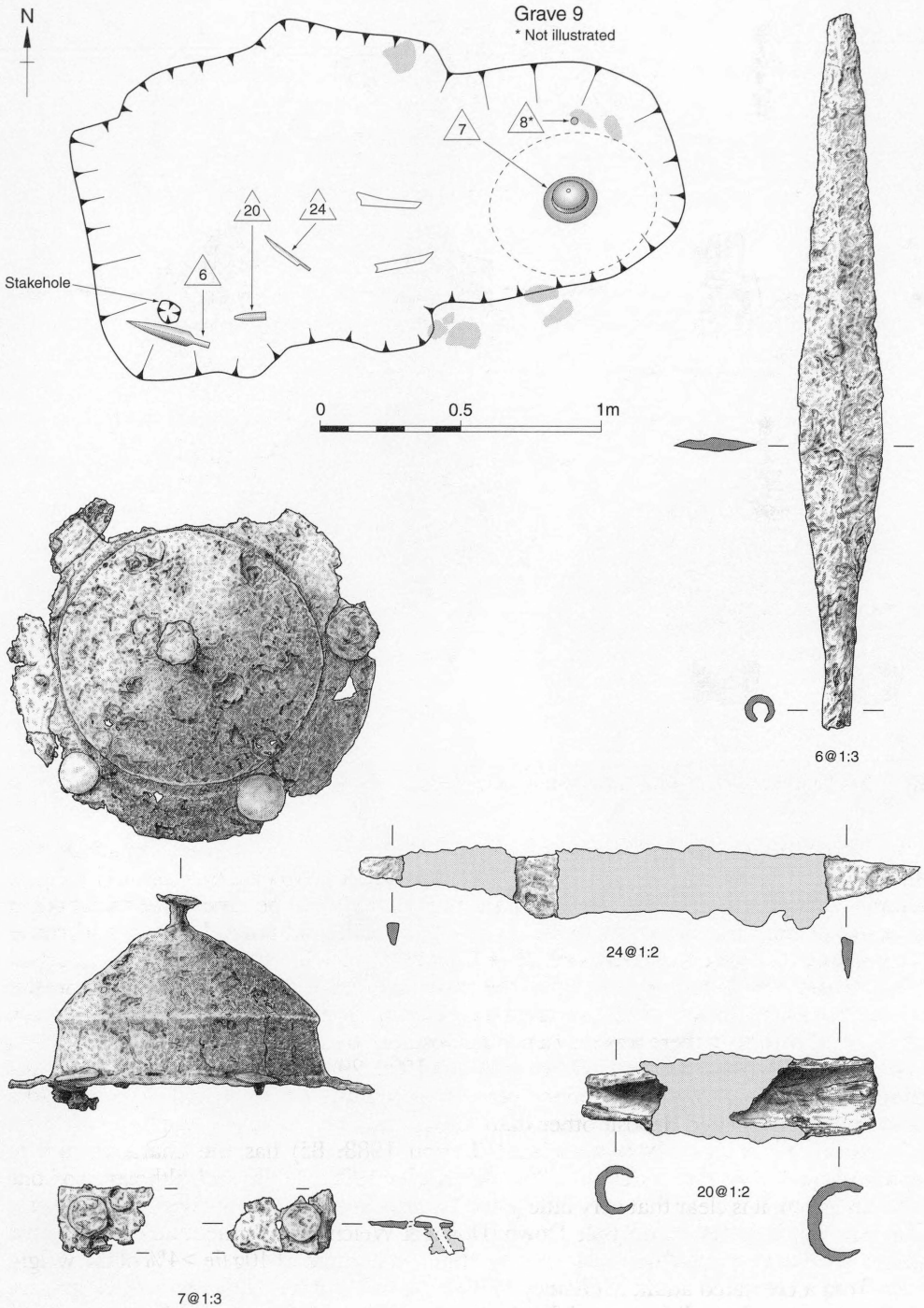

Fig 10 Park Lane, Croydon. Plan of grave 9 with illustrations of associated grave goods. (Key: see fig 4).

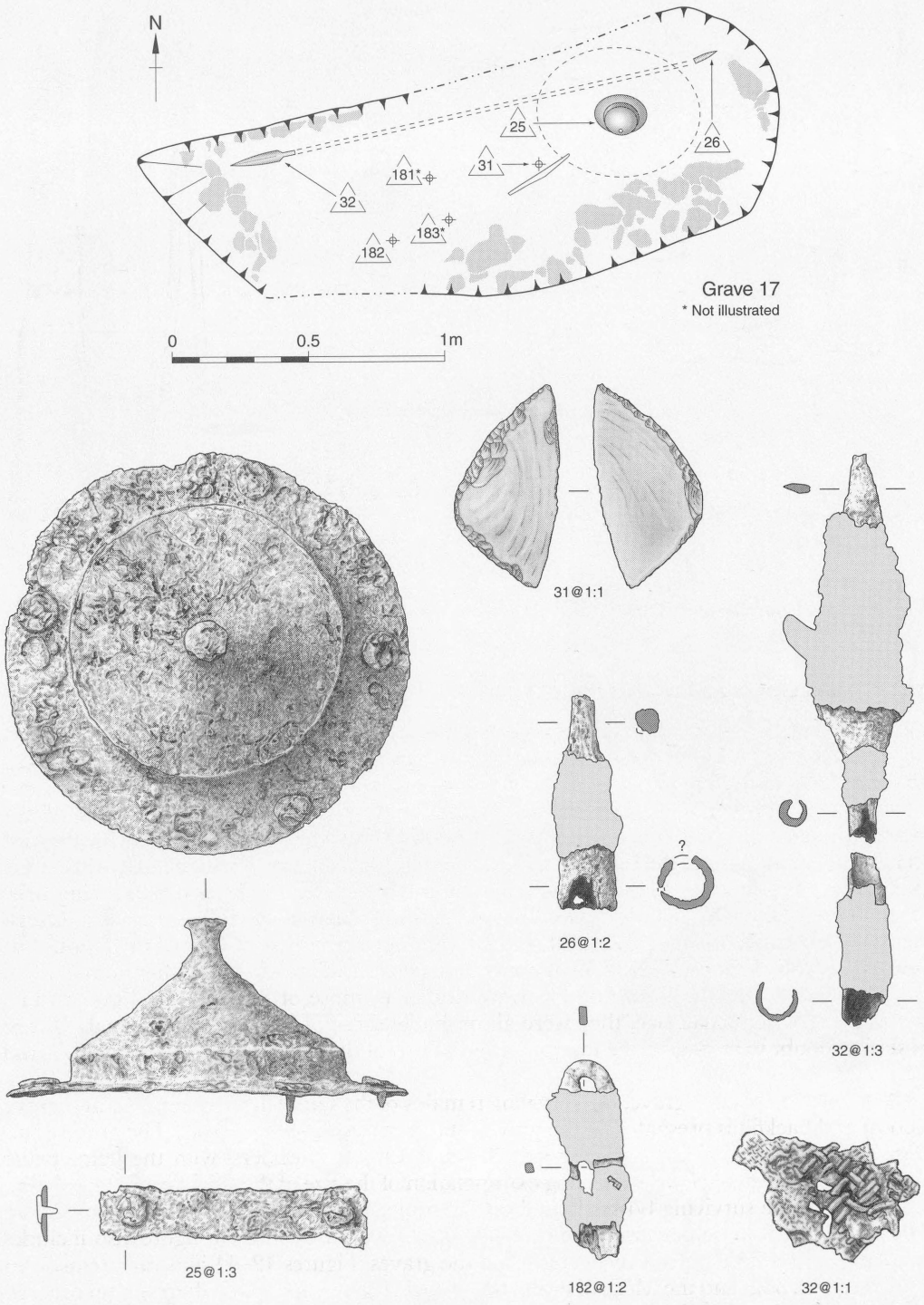

Fig 11 Park Lane, Croydon. Plan of grave 17 with illustrations of associated grave goods. (Key: see fig 4).

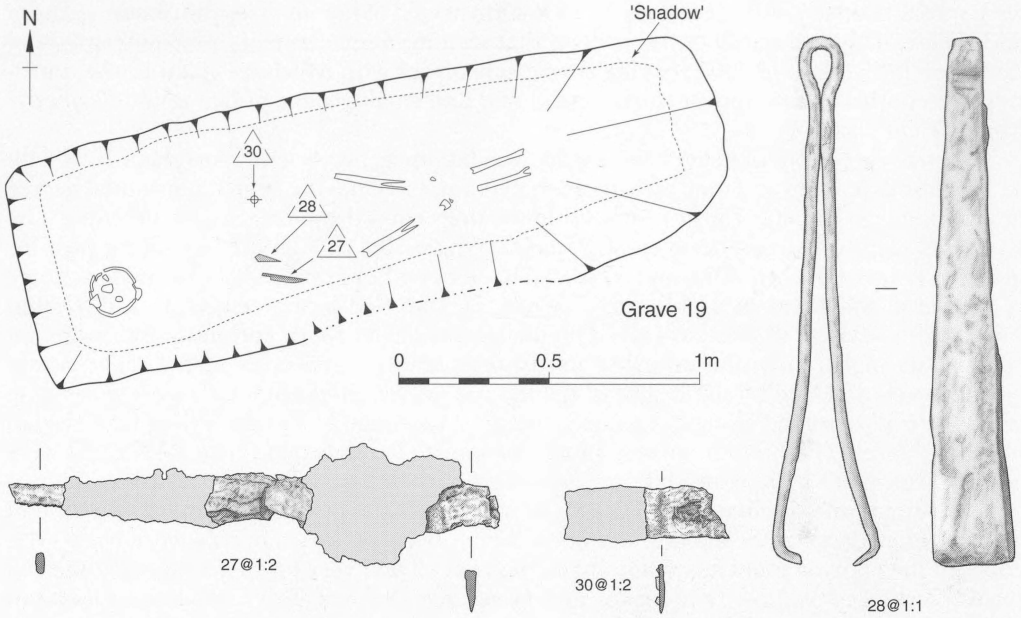

Fig 12 Park Lane, Croydon. Plan of grave 19 with illustrations of associated grave goods. (Key: see fig 4).

Inhumation graves and related features

All or parts of 46 Saxon inhumation graves were recorded from the excavations and a further six were identified within the evaluation trench (figs 3 and 6). Two graves on the western margins (208 and 274) fell outside the limits of excavation and only their positions were recorded. Six graves had been partially removed in 1903 during the insertion of the northernmost villa basement (43, 47, 74, 79, 93, 115); two graves (229 and 362) extended below the foundations of the building to the south of the site and could not be fully excavated; one other possible grave (344) was only seen in the west section during the watching brief stage. None of the inhumation graves observed in the evaluation was fully excavated, though items were removed from PAK92 31 and 64. The interpretation of four of the features as graves (54, 236, 366 and PAK92 59) is not certain because of their lack of either human bone or grave goods, but the form and fills were similar to those of the excavated graves, and judging from their small size, they were all probably those of immature individuals. There is similar doubt in respect to the interpretation of two of the heavily disturbed graves 79 and 93.

A description of each grave, the surviving remains of the burial (human remains and grave goods) and backfill is presented in the grave catalogue (see *Endnote*, below). The grave plans (figs 7–41) show location of grave goods (ONs, ie Object Numbers) with the items being presented in schematic form, including extrapolation of the size of the shield from the position and angle of the surviving bosses (based on the proposed maximum 0.6m diameter shield: Härke 1990, 26) to demonstrate the probable area covered by it. Each figure also includes scale drawings of the objects recovered from the graves. Figures 42–44 illustrate items from graves 29 and 362, and the MoLAS evaluation trench 1 graves for which there are no detailed plans (see figs 3 and 6).

The majority (*c* 74%) of the graves were concentrated in a *c* 15 × 20m area in the north-west of the site where they appeared to form several relatively orderly rows. Three smaller groups and two 'singletons' were found in the central and southern parts of the site and there

were substantial intervening areas (up to 15 × 20m) devoid of burials. This distribution pattern and orderly arrangement of graves reflects that seen in many contemporaneous cemeteries (Stoodley 1999, figs 142–146), having strong similarities with Mitcham *c* 6km to the north-west, where the burials appear in clusters of *c* 50 and small groups of five to ten (Bidder & Morris 1959, figs 2–4).

The surviving depth of the graves ranged from 0.08m (grave 4) to 0.61m (grave 103), with 41% at less than 0.2m and only 30% more than 0.3m, there having been a substantial degree of truncation in the late 19th to early 20th centuries caused by terracing of the area. The base level of graves varied between 56.97m OD (grave 103; though the base of the possible grave 344 was at 56.75m OD) and 57.58m OD (east end of grave 282). The median range of base level was between 57.11 and 57.30m OD, with *c* 30% between 57.21 and 57.30m OD and an average of 57.27m OD. The few graves at the south end of the site were cut consistently higher than those further north, presumably a reflection of the slight rise in ground level indicated by the height of the natural gravel. Similarly, the lowest grave base levels were all observed along the western margins, presumably corresponding with the fall in ground level. The human remains in the incompletely excavated grave PAK92 18 were at the lowest point at 56.64m OD.

Ascertaining the orientation of the graves was occasionally rendered difficult because of the lack of evidence as to the position of the body. Bone preservation was very poor, with *c* 52% of the excavated graves containing no bone at all and very low percentages of skeletal recovery (see *Endnote* (grave catalogue), and *Human bone*, below). Grave goods were found in *c* 72% of the graves which occasionally assisted in defining body position, but the true orientation of some remains questionable (see *Endnote* (grave catalogue) and *Human bone*, below). Five main variations in orientation could be discerned. The majority of the graves (*c* 69%) were aligned west–east, 15% south–north, 6% south-west to north-east, 5% north–south and 4% east–west. The variations in degree within these five categories was quite small, creating a series of relatively tight clusters and giving the impression of fairly homogeneous groups (fig 47). The large west–east group was mostly offset to the south by between 3° and 20°, but there were some very closely matched orientations at 10° and 13°. Spatially there were some clusters, with adjacent graves being set at the same angle (fig 3) – graves 133, 198 and 231 for example – suggesting the earliest grave was clearly visible at the time the subsequent graves were cut and aligned with it. The most cohesive 'variant' group is represented by the south-west to north-east graves, all clustered on the north-east margin of the cemetery.

Although a west–east orientation is generally presented as the usual burial position in most 5th–7th century cemeteries, a substantial proportion of burials demonstrate variations from this norm (Lucy 2000, 130–1). Some cemeteries, such as Apple Down (Down & Welch 1990, fig 2.77), show similarly tight clusters in orientation to those seen at Park Lane, while elsewhere the ranges appear much wider, for example at Dover Buckland, Kent (Evison 1987, fig 29), Alton, Hampshire (Evison 1988, fig 9) and Edix Hill, Cambridgeshire (Malim & Hines 1998, fig 3.3). The possible significance of different grave orientations has been well rehearsed (Evison 1987, 152–61; Boyle *et al* 1995, 124; Lucy 2000, 130–1). The mainly west–east orientation at Park Lane, with the head facing the direction of the rising sun, appears to agree with the norm, though the orientation falls consistently within the 'summer' half of the range suggested by the 'solar arc' (Evison 1987, fig 29; Lucy 2000, 132). It is highly unlikely that there were no burials in the winter months, which suggests that the orientations of earlier graves were used to help position subsequent ones rather than each being directly aligned with the sun on the morning of burial. Topography and the presence of earlier burials or monuments are also thought to have influenced the orientation of burials in some cemeteries. At Park Lane, most were set across the gently rising (west–east) slope of the terrace, with the feet towards the higher ground, while only 20% were set along the slope. The only earlier feature for which there is conclusive evidence was the large north–south late Roman/post-Roman grave 369, but it does not appear to have acted as a focus, if, indeed, it was even

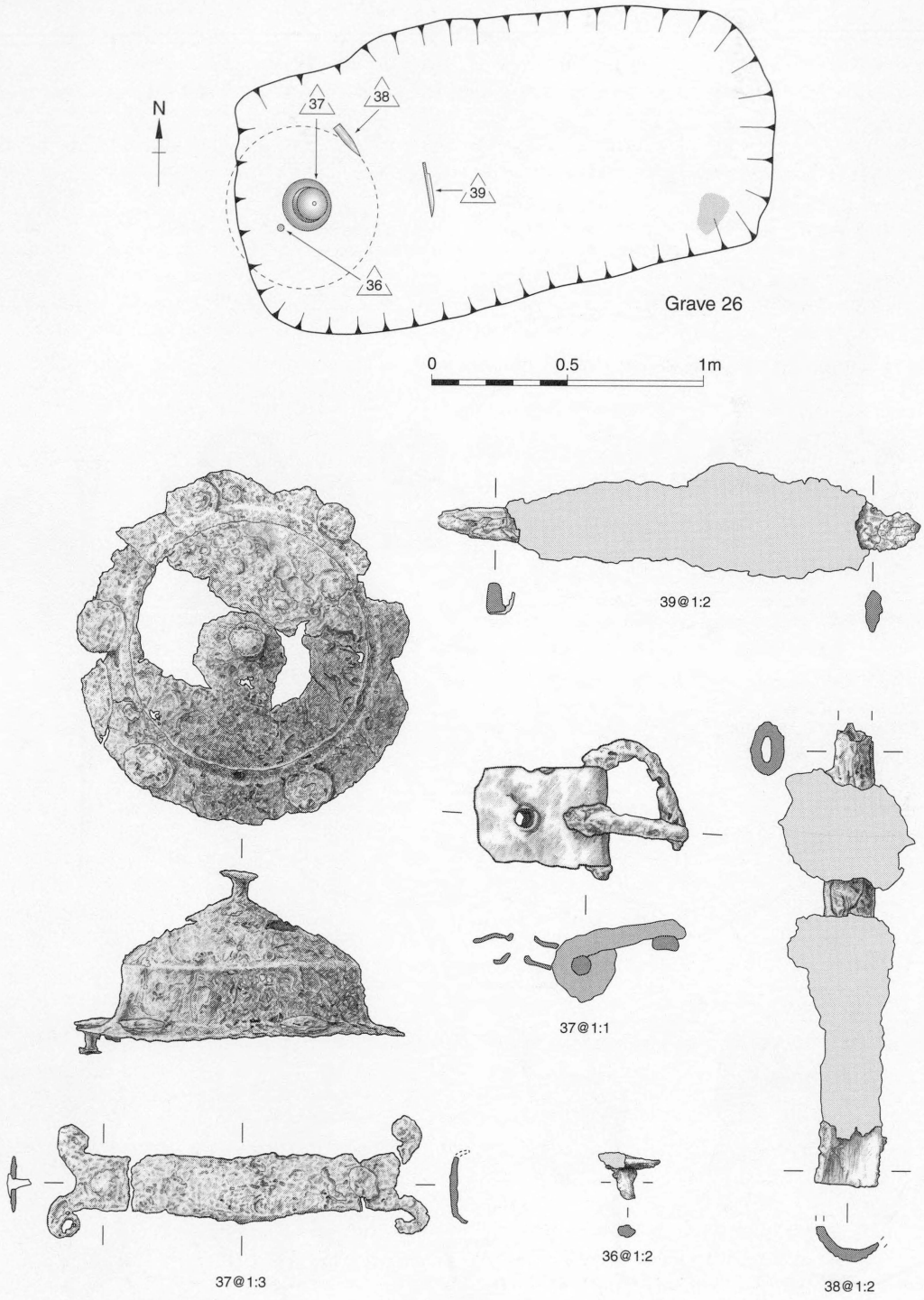

Fig 13 Park Lane, Croydon. Plan of grave 26 with illustrations of associated grave goods. (Key: see fig 4).

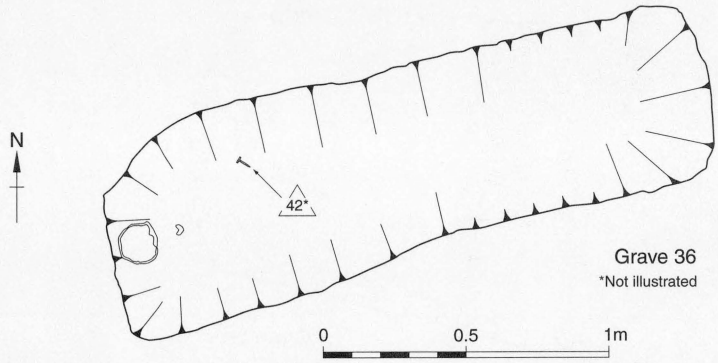

Fig 14 Park Lane, Croydon. Plan of grave 36. (Key: see fig 4).

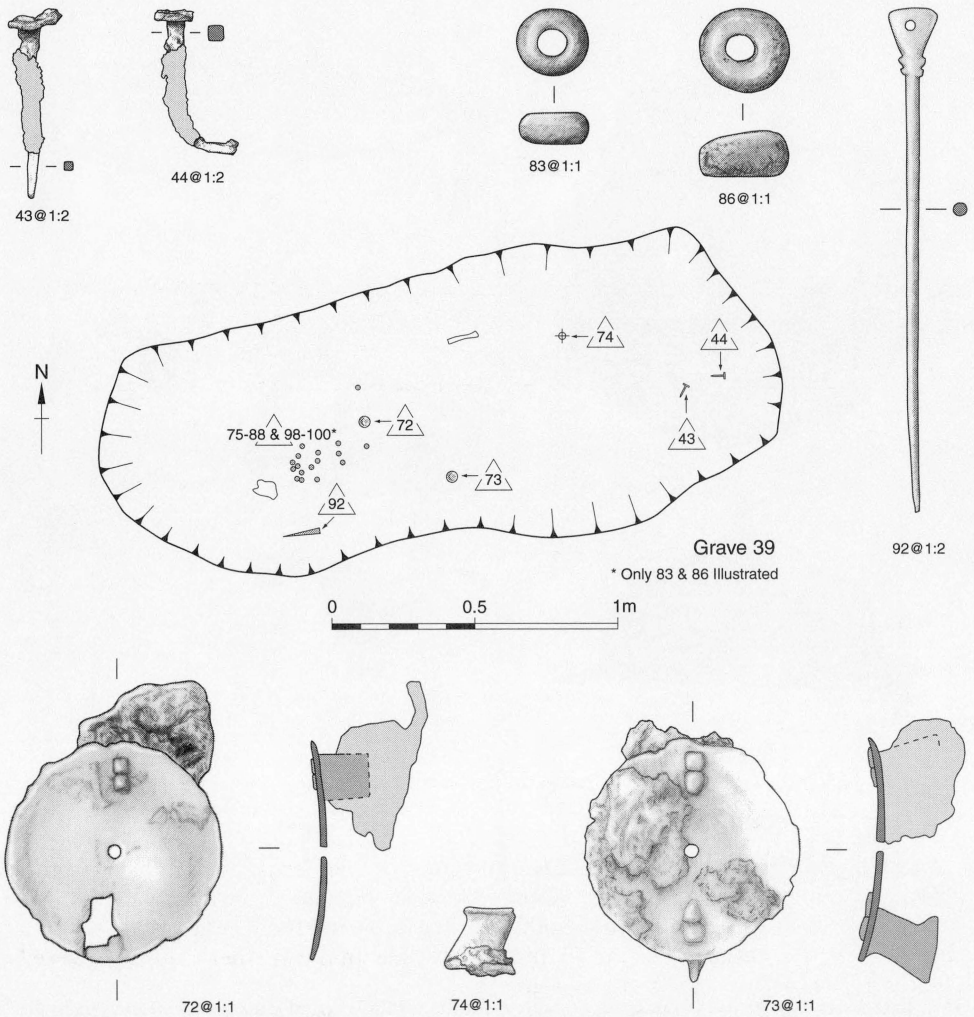

Fig 15 Park Lane, Croydon. Plan of grave 39 with illustrations of associated grave goods. (Key: see fig 4).

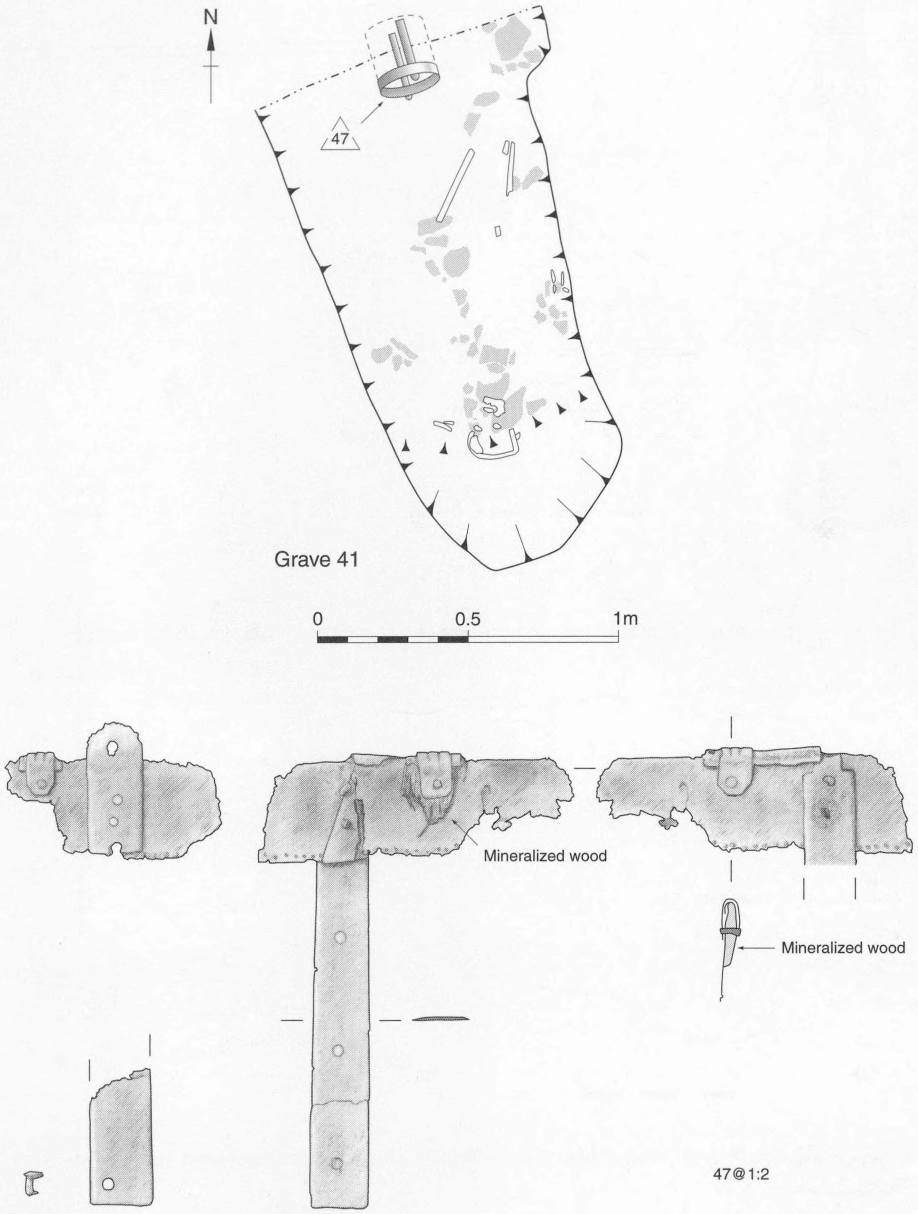

Fig 16 Park Lane, Croydon. Plan of grave 41 with illustrations of associated grave goods. (Key: see fig 4).

evident to the Saxons. Other than the spatial clustering mentioned above, there is little else to link any of the orientation variants in terms of age, sex, date or grave goods as has been noted in some other cemeteries (Lucy 2000, 130–1); however, the two graves containing the greatest number of objects – 147 (male) and 164 (female) in the northern cluster – were both oriented south–north and cut west–east graves.

There was very little intercutting between graves; one west–east grave (216, fig 35) cut through most of the similarly orientated 261, but not quite to full depth. Two south–north graves cut through west–east ones; 164 extended below its earlier counterpart 144, while grave 147 stopped

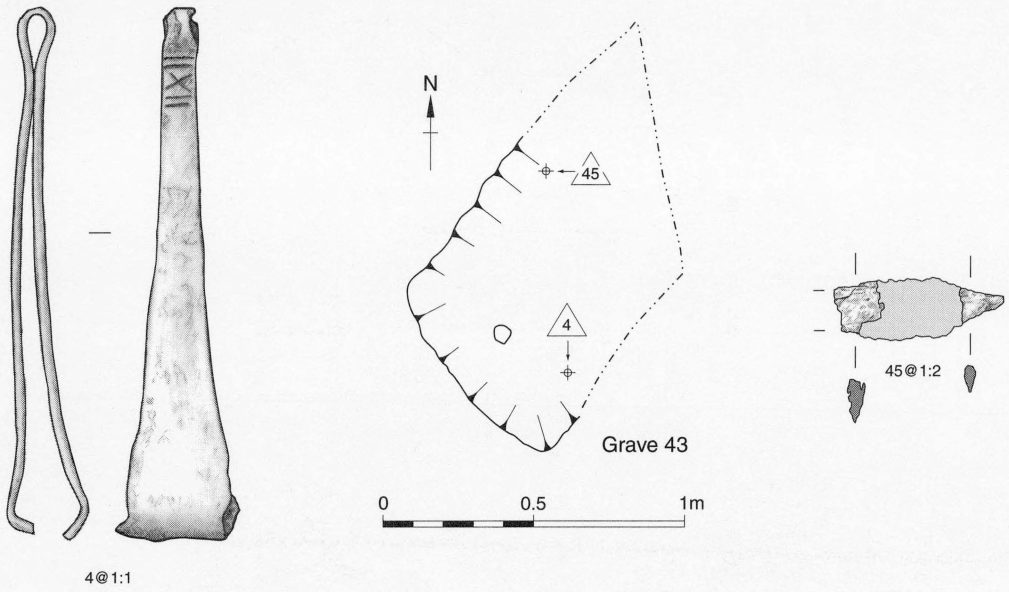

Fig 17 Park Lane, Croydon. Plan of grave 43 with illustrations of associated grave goods. (Key: see fig 4).

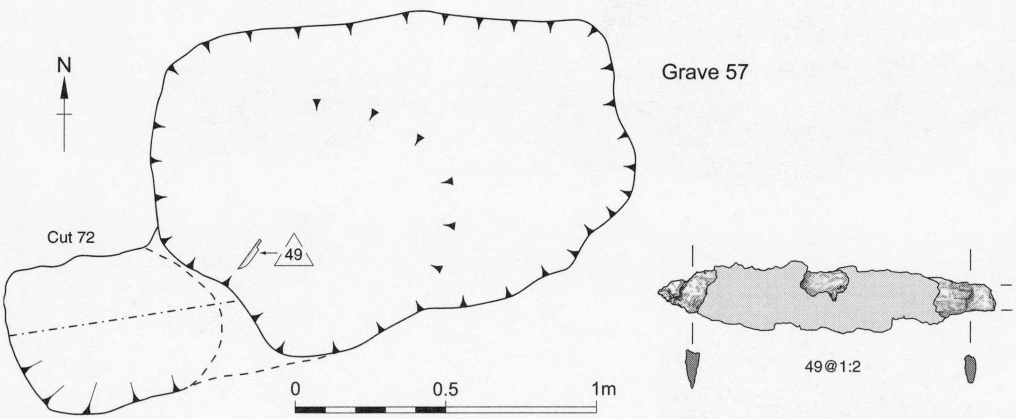

Fig 18 Park Lane, Croydon. Plan of grave 57 and feature 72 with illustrations of associated grave goods. (Key: see fig 4).

c 0.1–0.2m above the base of the earlier graves 197 and 260. In this the cemetery follows many of its contemporaries and the implication is that graves were marked in some way either by posts or possibly small earth mounds (ie upcast). The excavators at Park Lane's nearest neighbour at Mitcham believed the graves there were not marked since there was common intercutting and 'stray' bones were found in several graves (Bidder & Morris 1959, 77).

Most of the backfills comprised mid–dark reddish-brown sandy silt with common gravel inclusions, reflective of their having cut through the gravel and the overlying reddish-brown sandy silt soil matrix (a thin layer of pea-grit was observed at the base of most features). Some variation was seen in *c* 23% of graves, most visibly in the south–north 147 and 164, where the matrix was a dark greyish-brown indicative of another element being incorporated in the fill. The distribution of the graves with such fills is slightly dispersed but predominantly

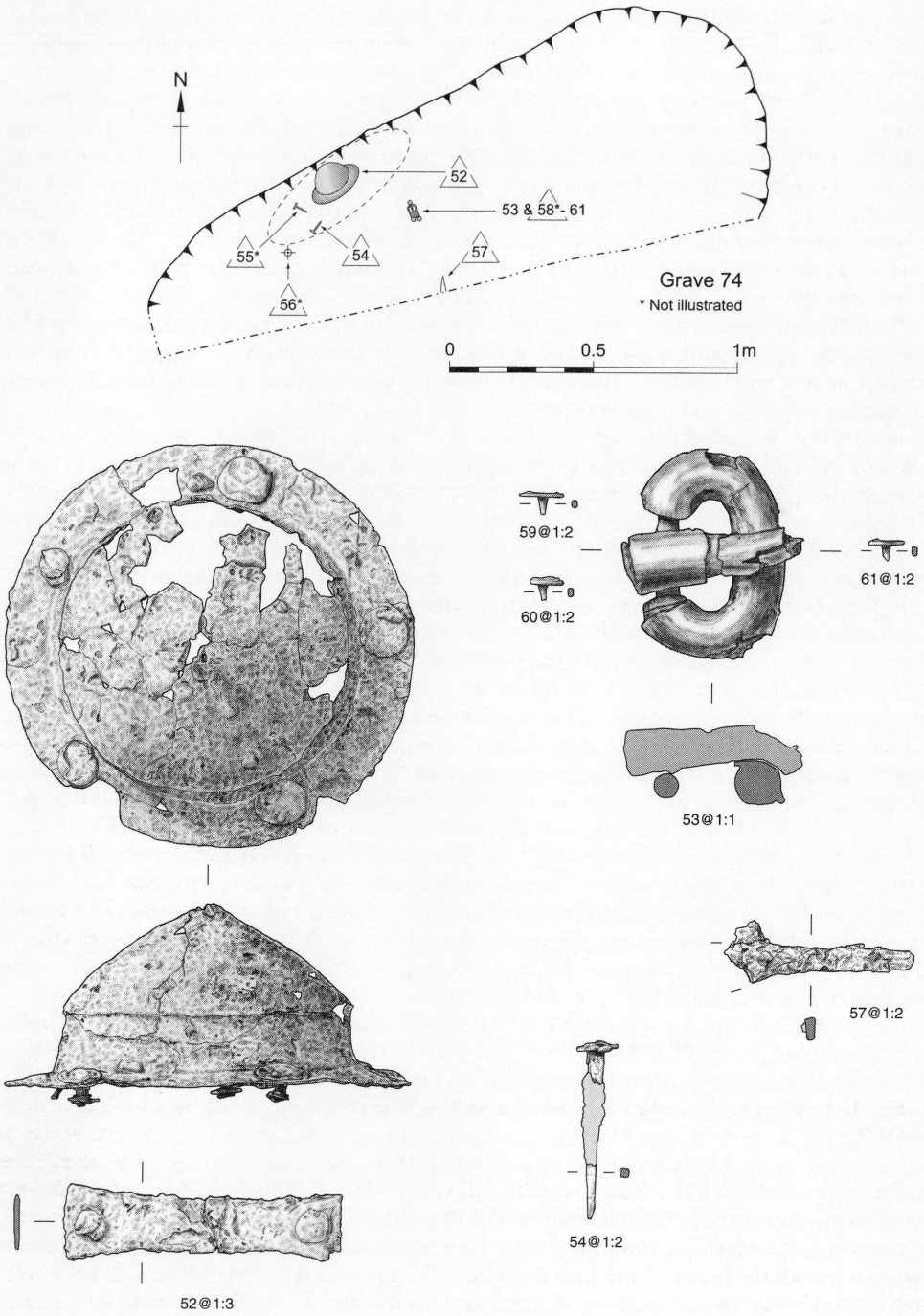

Fig 19 Park Lane, Croydon. Plan of grave 74 with illustrations of associated grave goods. (Key: see fig 4).

follows the western margins of the site and, as all the graves in evaluation trench 1 had similar fills, the implication is for a variation in the soil matrices in the eastern part of the cemetery. The obvious recognition of skeletal material in the graves disturbed during the construction of Edridge Road also supports the probability of a change in the soil matrix further west to one more conducive to bone survival; either that, or the changes in the overlying matrix and site conditions following the 19th and early 20th century building activities, have proved detrimental to the bone. It may be significant to note that the Mitcham graves were also cut into gravel and are often described as having a 'sand' fill, yet the skeletal material was clearly much better preserved than that from Park Lane (Bidder & Morris 1959, 57–75). Rare charcoal flecking was observed in eight grave fills, and small quantities of material were recovered among the standard sample series taken from one other grave. Two of the graves also contained small quantities of redeposited cremated bone (see *Cremation graves and/or related mortuary deposits*, above) and most of the others were in the vicinity of those from which cremated bone was recovered; in some cases at least, the charred plant remains may represent the remnants of redeposited pyre debris.

The grave cuts were all basically sub-apsidal (Hogarth 1973, fig 6) with the notable exception of 347 which was sub-rectangular (fig 40). The average length was 1.82m (SD 0.44) with a range of 0.93m (PAK92 59) to 2.6m (282; fig 38), and the average width 0.8m (SD ±0.17m) with a range of 0.43m (PAK92 85) to 1.13m (103; fig 21). Three graves tapered at one end: graves 4 and 282 towards the feet, and 347 towards the head; grave 200 (fig 31) tapered at both ends. Variations in width along the length of the graves were observed in several other cases, with wider sections towards the west (head) end in two instances (9 and 103), and towards the east or north (foot) end in three (39, 135 and 41). The eastern 0.42m of grave 197 was *c* 0.2m narrower than the rest of the cut and, from the thirteen nails (fig 29) recovered within the area, appears likely to have contained a box of some sort, the cut probably having been made specifically to accommodate it. On a similar theme, the opposing sides of the eastern (distal) third of graves 32 and 36, and the western (proximal) third of grave 39, were vertical while the sides formed a slope around the rest of the cut. Three of the graves (39, 41 and 135) which were wider towards the distal end may have contained slightly flexed burials; two (39 and 41) held the remains of possible containers to one side of which the feet may have been laid (the other alternative, in the absence of skeletal remains, is that the burials in these relatively short graves were of immature individuals). There is no clear correlation between the width variations and any other aspect of the graves or burial remains. Most of the graves with these characteristics were concentrated in the south-west of the main northern burial group, with the exception of the tapered graves, three of the four of which were dispersed in the central-southern part of the site.

Integral features in the form of ledges of varying size and extent were observed in nine (19%) of the graves. In three instances (41 and 135 0.04m deep, 197 0.2m deep), the ledge was relatively narrow and set at the proximal end of the grave (Hogarth 1973, fig 7, type b1), where it appears to have functioned as a 'pillow' for the head (eg fig 16). In graves 113 and PAK92 59, distinct changes in slope at the head end of the grave may have served a similar function, particularly in the former where flint nodules set to either side may have 'cushioned' the head (fig 22). Similar ledges at the distal end of the grave (*ibid*, type b2) were observed in three cases (32, 57 and 210). While the ledge in grave 210 may have served as a stop-support for the feet (such as observed in later medieval tomb effigies; fig 33), the others do not appear to have had any obvious function. Two graves, 115 (fig 23) and 204 (fig 32), had ledges extending around most of the margins (*ibid*, type b7), each composed of a lining of flint nodules and gravel 0.1–0.3m thick, extending to almost the full surviving depth of the graves. In the case of 204, two of the grave goods – a spearhead and a shield boss – were resting on the ledge a minimum of 0.14m above the base of the grave. The original depth of these ledges is unclear since they largely correspond with the surviving depth of the graves. It is possible that they may have served as supports for grave covers (*ibid*, 111) on which some of the grave goods may have rested; alternatively, their formation may have been a fortuitous

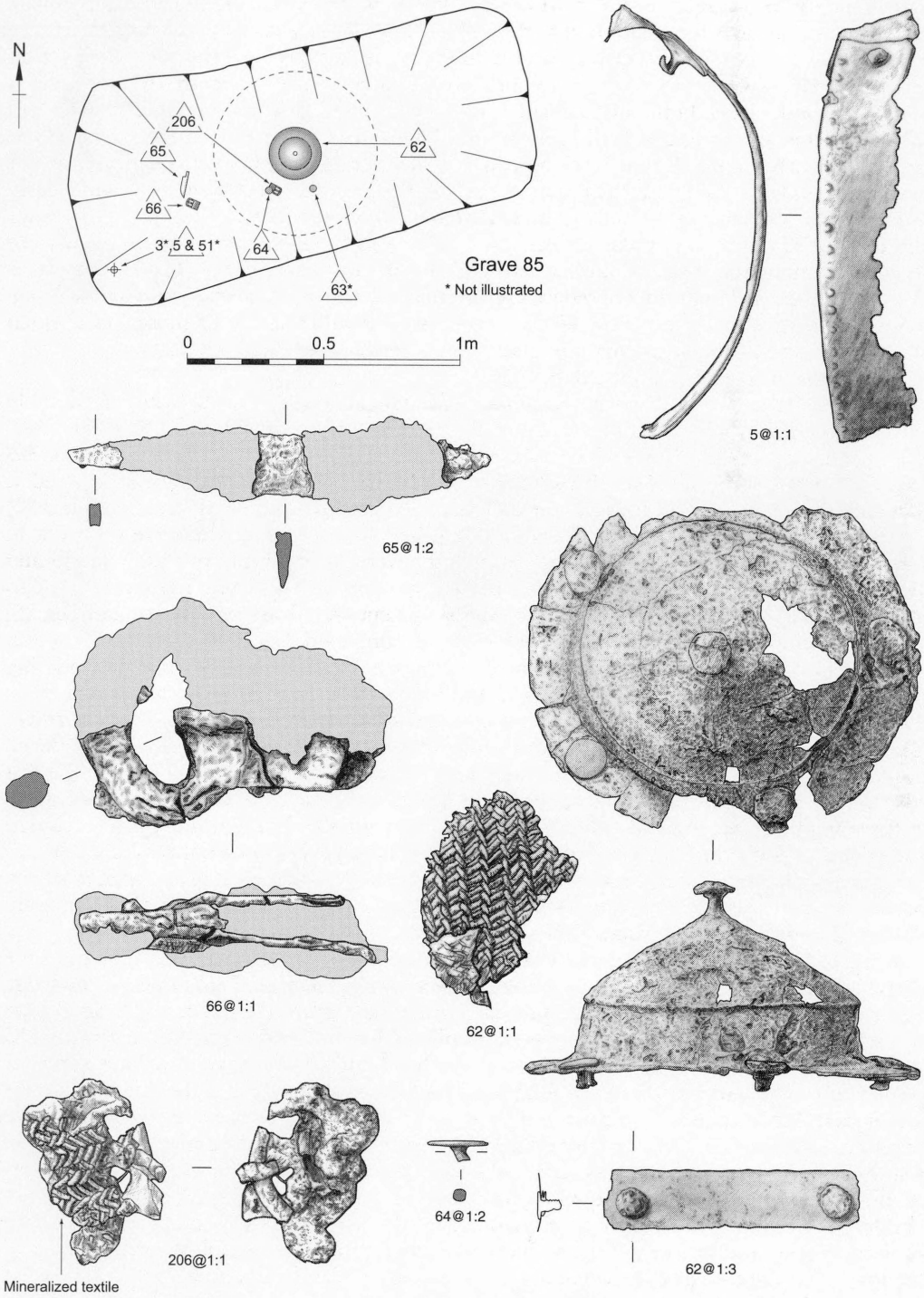

Fig 20 Park Lane, Croydon. Plan of grave 85 with illustrations of associated grave goods. (Key: see fig 4).

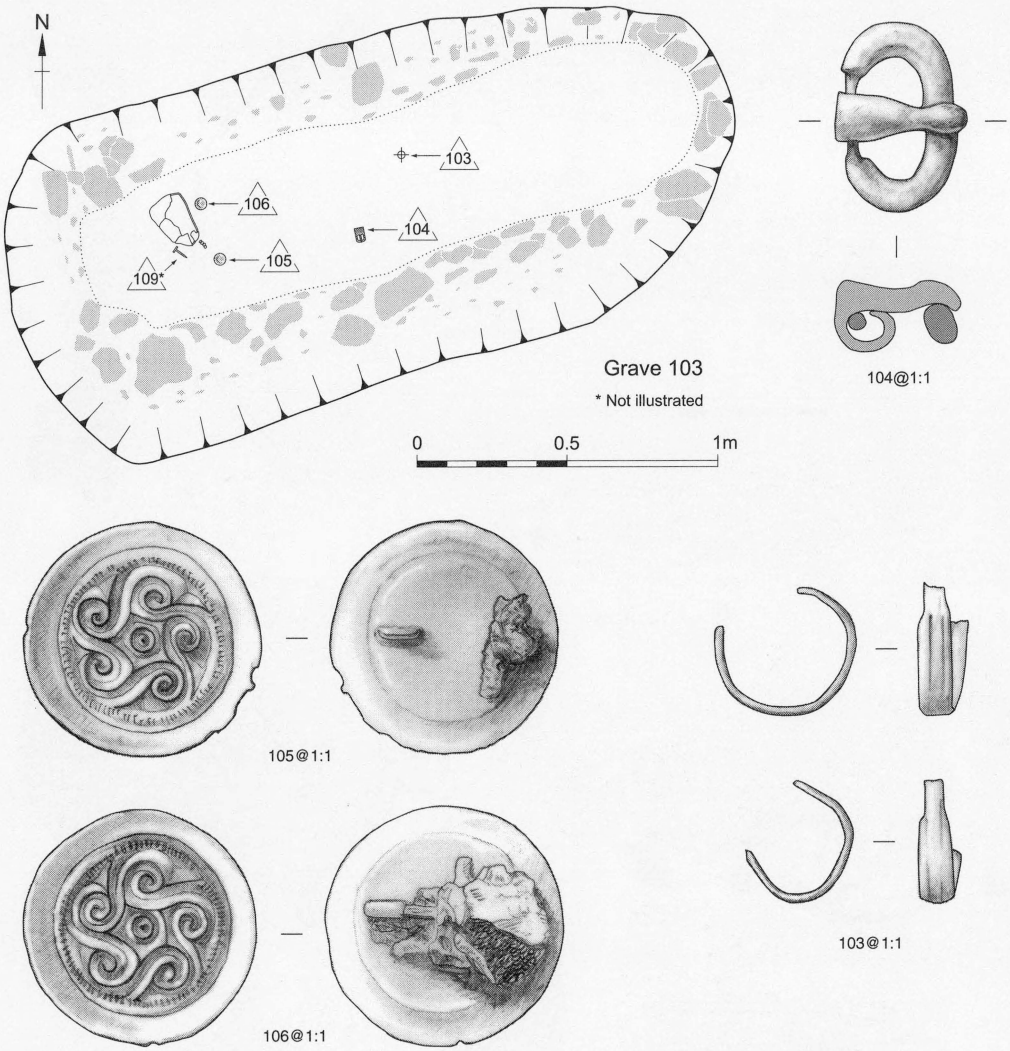

Fig 21 Park Lane, Croydon. Plan of grave 103 with illustrations of associated grave goods. (Key: see fig 4).

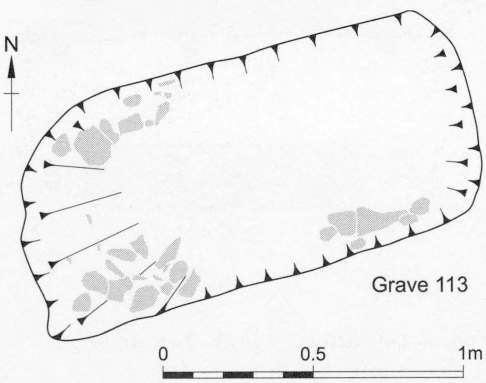

Fig 22 Park Lane, Croydon. Plan of grave 113. (Key: see fig 4).

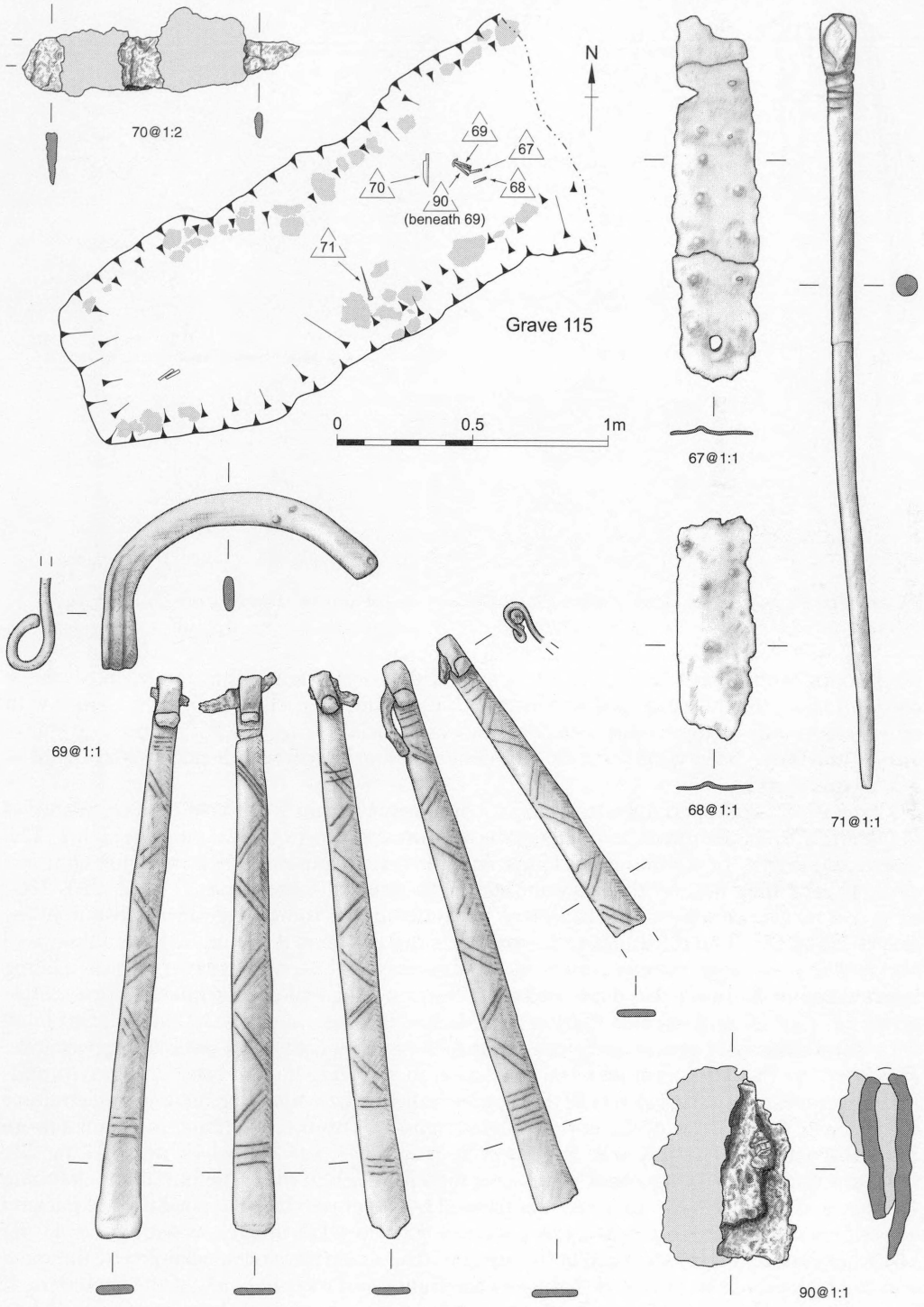

Fig 23 Park Lane, Croydon. Plan of grave 115 with illustrations of associated grave goods. (Key: see fig 4).

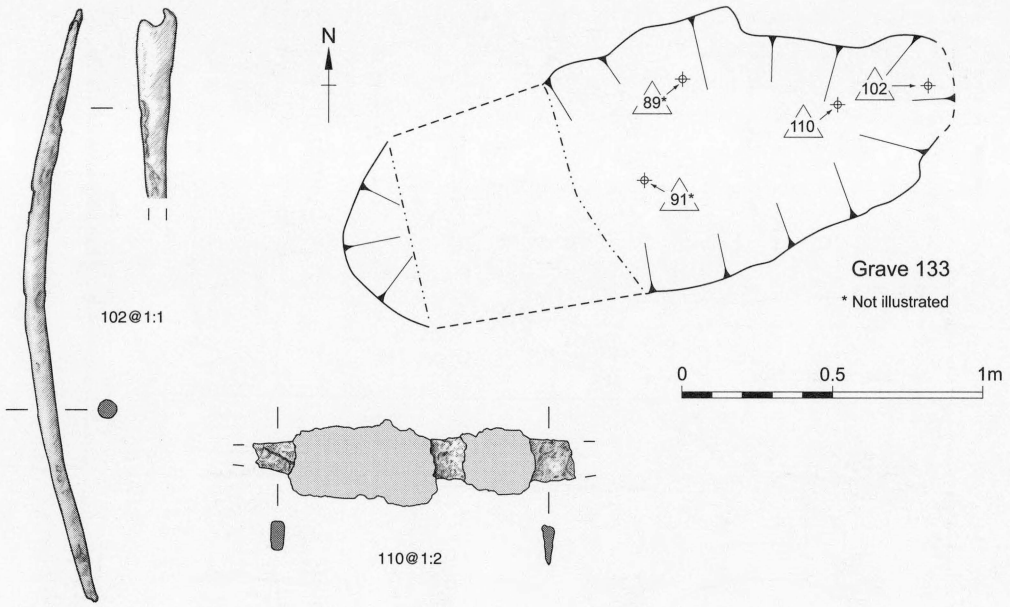

Fig 24 Park Lane, Croydon. Plan of grave 133 with illustrations of associated grave goods. (Key: see fig 4).

by-product of the grave lining. All the graves with ledges were within the main northern concentration, for the most part confined within a south-west cluster which, together with other features distinctive to this area (see this section below), suggests this northern group of graves may have been used by a set of individuals sharing certain distinctions in detail of grave construction.

Large flint nodules, comprising a major component of lining or packing, were recorded in fifteen (33%) of the graves in the main excavation and two from evaluation trench 1. The extent and density of the lining/packing materials varied considerably from dense compact deposits extending around the sides and across the base of some graves (17, 32, 210, 236), to sparse inclusions which may represent the remnants of something more substantial (eg graves 9 and 26). The thick linings around the sides of graves 115 and 204 were discussed above. The presence of the component materials across the base of the graves suggests a lining inserted before the burial was made as distinct from packing added subsequently, for example grave 147 (figs 27 and 46) and 197 (fig 29). Most of the base of grave 210 (fig 33) was lined with dense, compact gravel and occasional flint nodules creating a cobbled appearance. However, the distribution of material in relation to surviving human bone and grave goods in some graves, eg 17 (fig 11) and 32 (fig 7), may indicate the nodules being used to give closer definition to the position of the body and grave goods. This use of a lining to create a more defined space is particularly well illustrated by graves 103 (figs 21 and 45) and 164 (fig 28), the latter not only creating a much narrower area in which to make the burial but changing the shape of the space in relation to that formed by the grave cut. The possibility of packing or support may be suggested in a few instances (eg grave 113 above), as with grave 41 (fig 16), where nodules were arranged in the position that would have been occupied by the spine and the legs (which were flexed slightly to the right), and to either side of the shoulders. If the body was not placed fully supine, the nodules may have been used to support it in a slightly side-on position; alternatively, they may have been pre-placed to define the body position. All the graves with lining or packing were confined to the main northern part of the cemetery.

The use of flint nodules as packing or as a 'pillow' has been observed in several Early Saxon

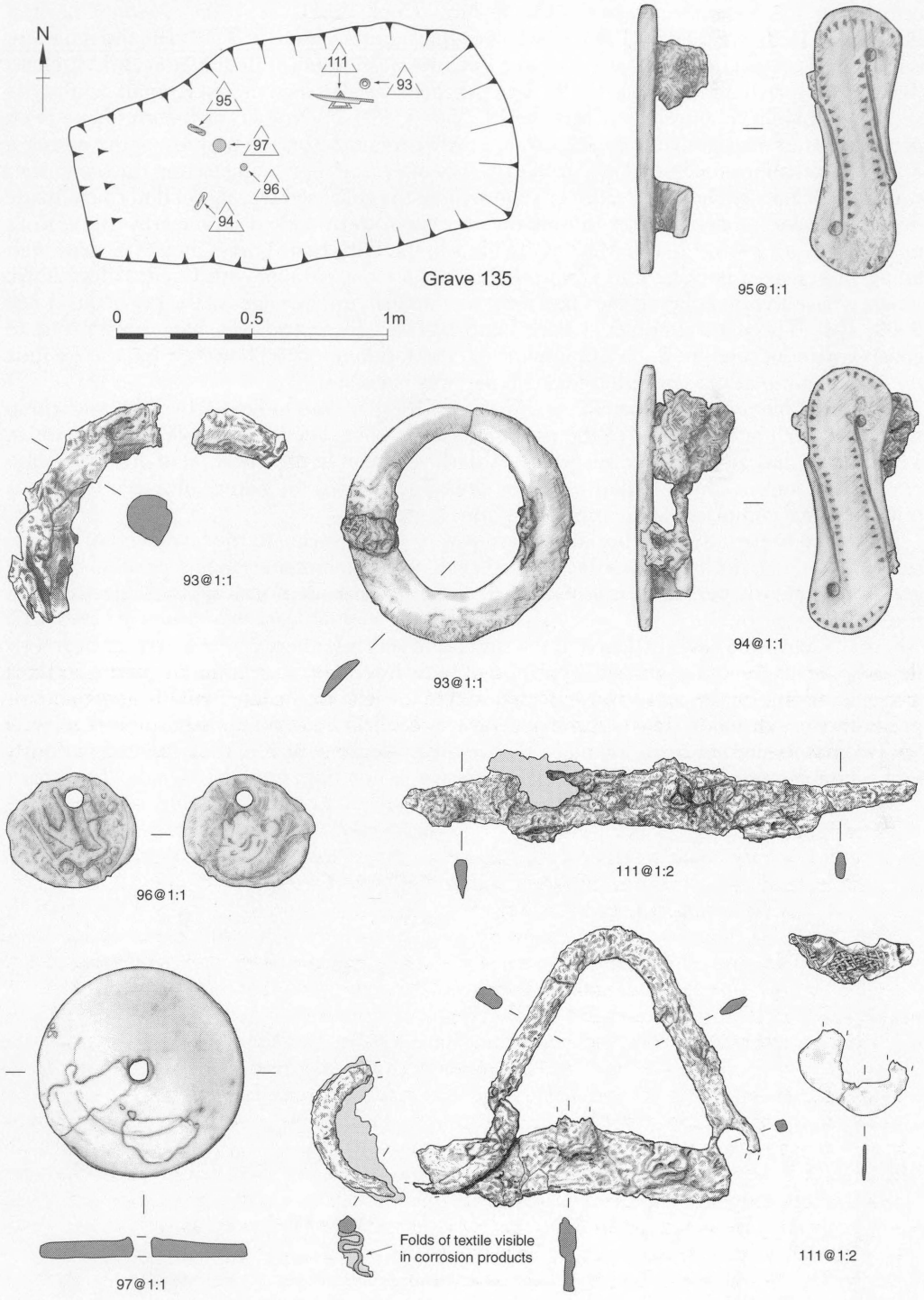

Fig 25 Park Lane, Croydon. Plan of grave 135 with illustrations of associated grave goods. (Key: see fig 4).

cemeteries, for example Portway, Hampshire (Cook & Dacre 1985, 54–5), Charlton Plantation, Wiltshire (Davies 1985) and Dover Buckland (Evison 1988, 17–18), though there is no record of such inclusions at Park Lane's nearest neighbours at Beddington and Mitcham (Bidder & Morris 1959; Morris 1959). The practice was also seen in late Roman cemeteries such as Lankhills, Hampshire (Clarke 1979, 355–6, 428–9). Numerous theories have been proposed as to the significance of this trait, partly depending on the position of the nodules. Those found above the body have been variously interpreted as: being to stop the spirit from walking (Meaney & Hawkes 1970, 71); representing the collapsed remains of flint cairns made over the grave, or deliberately to bulk-out the grave to provide a larger grave mound as marker (Evison 1988, 17–18). Most of the flints in the Park Lane graves, however, represent lining rather than packing and this probably has a close parallel with Great Chesterford, Essex, where Evison believed they had been used to firm up the edges of the grave pits (Lucy 2000, 101). The natural gravel at Park Lane was very loose and may have been prone to collapse without support. Such a pragmatic interpretation does not, however, have to exclude the ritual connotations suggested for such deposits elsewhere.

The probable presence of a coffin within grave 19 (fig 12) was indicated by a shadow within the grave fill. The possibility of the extensive ledges being used to support grave covers in 115 and 204 has already been suggested. A dark variation in the lower fill of grave 164 also created the impression of a shadow left by organic material, the nature of which is unclear but may have comprised some form of organic cover.

Information pertaining to burial position is very sparse owing to the low levels of skeletal survival. In the majority of cases the assorted evidence from human remains, position of grave goods (particularly personal ornamentation) and grave size, demonstrated or suggested that the bodies were buried supine and extended. There were at least two graves (41 and 197) where the legs were slightly flexed to the right, and several others where a greater degree of flexion was suggested by either the position of bone fragments in relation to grave goods (eg grave 39, fig 15, legs appear to have been flexed to the left), or the length of the grave and/or position of grave goods. The latter include graves 85, 135 and 260, though some or all may have contained immature individuals. Where the evidence survived, the head was variously laid supine (graves 22 and 147), on the left (grave 41) or right (grave 103) side. The upper

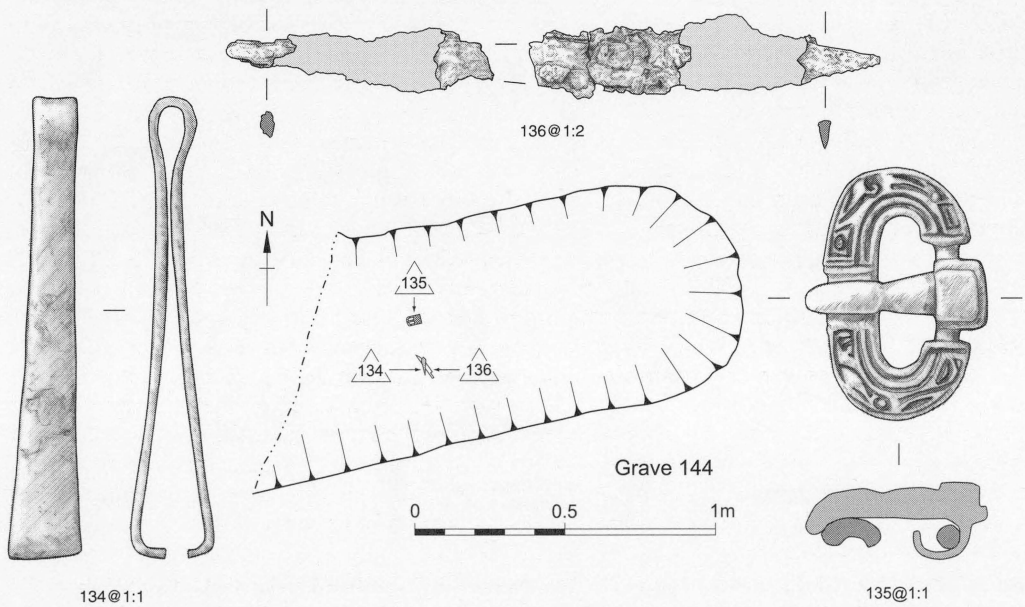

Fig 26 Park Lane, Croydon. Plan of grave 144 with illustrations of associated grave goods. (Key: see fig 4).

limbs were extended to the side in grave 147, while the height and position of the finger ring in grave 103 implies the left arm was extended with the hand resting on the hip.

A large proportion (*c* 72%) of the graves contained goods, with up to eight items per grave (table 2; NB an 'item' may comprise more than one 'object'). One or more items of weaponry (swords, spearheads, shield bosses) were recovered from 33% of the graves and items of jewellery (brooches, beads, rings) from 13%. The latter were confined to the main northern group while those graves with items of weaponry were distributed across the site (fig 48). Most of the graves in the central area contained at least one piece of weaponry, with two of the four swords (9% of graves) being recovered from graves in this area (4 and 6). Specific categories of item were not routinely placed in the same position within individual graves; for example, although spearheads were generally placed at the proximal end of the grave, half were found to the left and half to the right side of the head (fig 49). Most of the swords were to the left side of the body, with the hilt resting on what would have been the shoulder in three graves and in the area of the waist in one. There was considerably more variability in the position of the shield bosses, with a preference for the abdominal or thigh area. Over half the knives were recovered from the waist region, though 23% were found in the area of the chest. Tweezers were similarly placed at the waist or on the chest. The various types of container represented (buckets, bowls, ?boxes) had been placed either by or towards the feet, or to the side of the head. The weaponry – particularly the spearheads – was found at a consistently higher level in the grave fill than other items: the spearheads ranged from 0.09 to 0.22m above the grave base, with a mean of 0.16m; the swords from 0.04 to 0.12m with a mean of 0.08m; the shield bosses (lowest point) from 0.02 to 0.18m (latter resting on a ledge) with a mean of 0.06m. In contrast, the beads and brooches were all found much closer to the grave bases with ranges of 0–0.06m and 0–0.01m, and means of <0.01m. The greatest variability was seen among the knives and buckles, which had wide ranges (0–0.18m and 0–0.14m respectively), and high standard deviations around the means of 0.06m and 0.08m.

The proportion of graves (including the truncated and partially excavated graves) with goods is particularly high. Only half those at Mitcham contained goods, the 20% with weapons considered to be unusually high (though 23% from Berinsfield contained weapons; Boyle *et al* 1995), and the 5% with swords exceeding most other cemeteries in England (the 20% with swords from Sarre in Kent representing the maximum recovered: Bidder & Morris 1959, 78). This may be seen to be offset by the relatively low proportion of graves with brooches (11%), particularly since the 20% with brooches at Mitcham was observed to be fewer than seen in most large cemeteries (*ibid*). The potential significance of these observations is discussed further below in the context of the finds and the cemetery as a whole.

The large east–west grave 282 was surrounded by a truncated penannular ditch (284, fig 3), *c* 4.5m in diameter. This form of grave, probably originally covered by a low mound, appears to have originated in Kent with the occasional inclusion of ring ditches in predominantly flat-grave cemeteries in the mid–late 6th century AD (Shephard 1979, 47), thereafter spreading progressively westwards (Grinsell 1936, 28–30; Hogarth 1973, 118–119; Welch 1980, 258, figs 15.3 and 15.4; Garner 2001, 177, 179–181). The graves characteristically contain extended inhumation burials with relatively sparse grave goods (Hogarth 1973, 119), iron knives forming the most frequently recovered artefact (Grinsell 1936, 30). The presence of a posthole or stakehole in the gap in the ditch circuit – usually at the foot – was observed in *c* 25% of the examples from St Peters, Broadstairs, Kent (Hogarth 1973, 113). The remnants of a second penannular feature (266) – also *c* 4.5m in diameter but more irregular in form – *c* 11m to the south of 284, suggested the presence of a second ditched grave; however, on excavation the central feature was found to represent a tree-throw hole. Ring-ditches with no associated graves have been observed in a number of Saxon barrow cemeteries (Cook 1985, 59; Garner 1994, 184) and 266 may still have comprised a mortuary-related feature. The penannular ditches at St Peters and other Kent cemeteries tended to be situated towards the margins, suggesting their use came late in the life of the sites, probably in the 7th century (Hogarth 1973, 118–19; Lucy 2000, 98–9). The

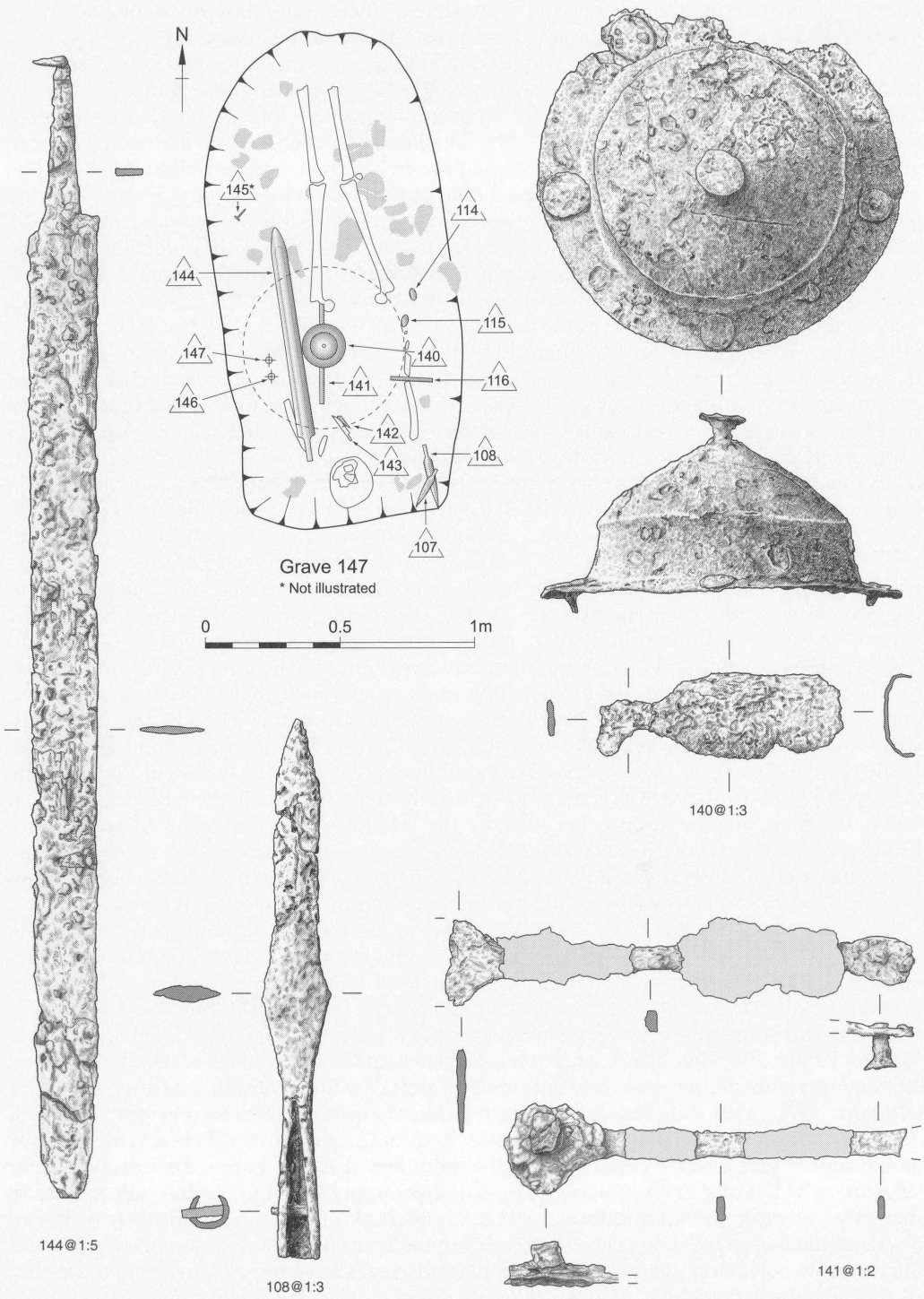

Fig 27a Park Lane, Croydon. Plan of grave 147 with illustrations of associated grave goods. (Key: see fig 4).

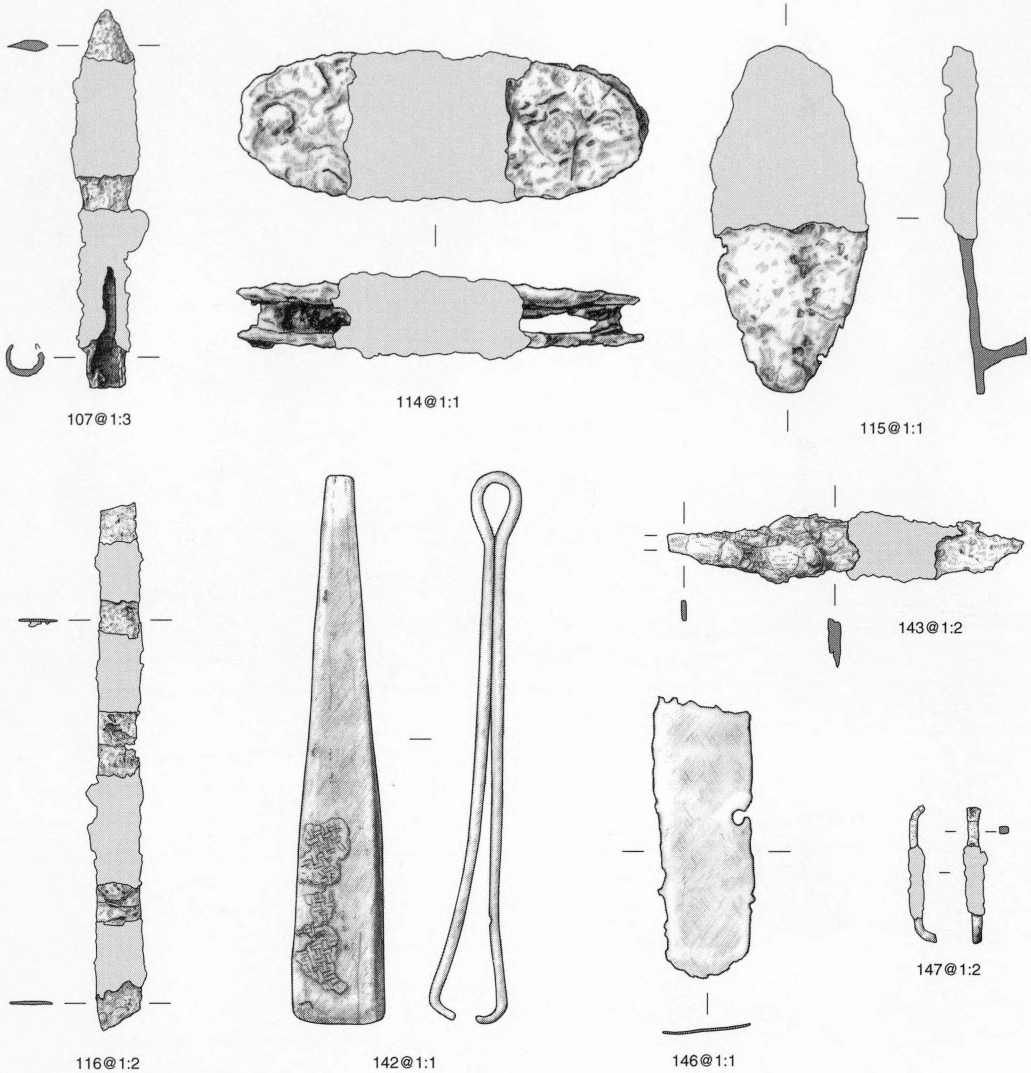

Fig 27b Park Lane, Croydon. Grave 147: illustrations of associated grave goods (*continued*).

position of the Park Lane example appears to correspond with these observations, though the dating evidence from the grave is not conclusive (see *Knives,* below).

Other mortuary-related features may be represented by postholes noted in close proximity to several graves – 51 adjacent to grave 32 (fig 7), 49 adjacent to 47 (fig 3) and 88 at the south end of the possible grave 79 (fig 3) – and the small stakehole observed in the south-west corner of grave 9 (fig 10); all may represent the position of grave markers. Less clear is the relationship between grave 57 and the attached feature 72 (see *Endnote* (grave catalogue), below; fig 18); there may be some link between 72 and the central ledge within the grave which appear to follow very similar lines, possibly reflecting the course of an earlier cut, but there was no clear evidence for a re-cut and the fills were identical.

Two pits (PAK92 21 and 87) in evaluation trench 1 were interpreted as being of Saxon date by the excavators (figs 3 and 6). Both cut mortuary features, suggesting they may have

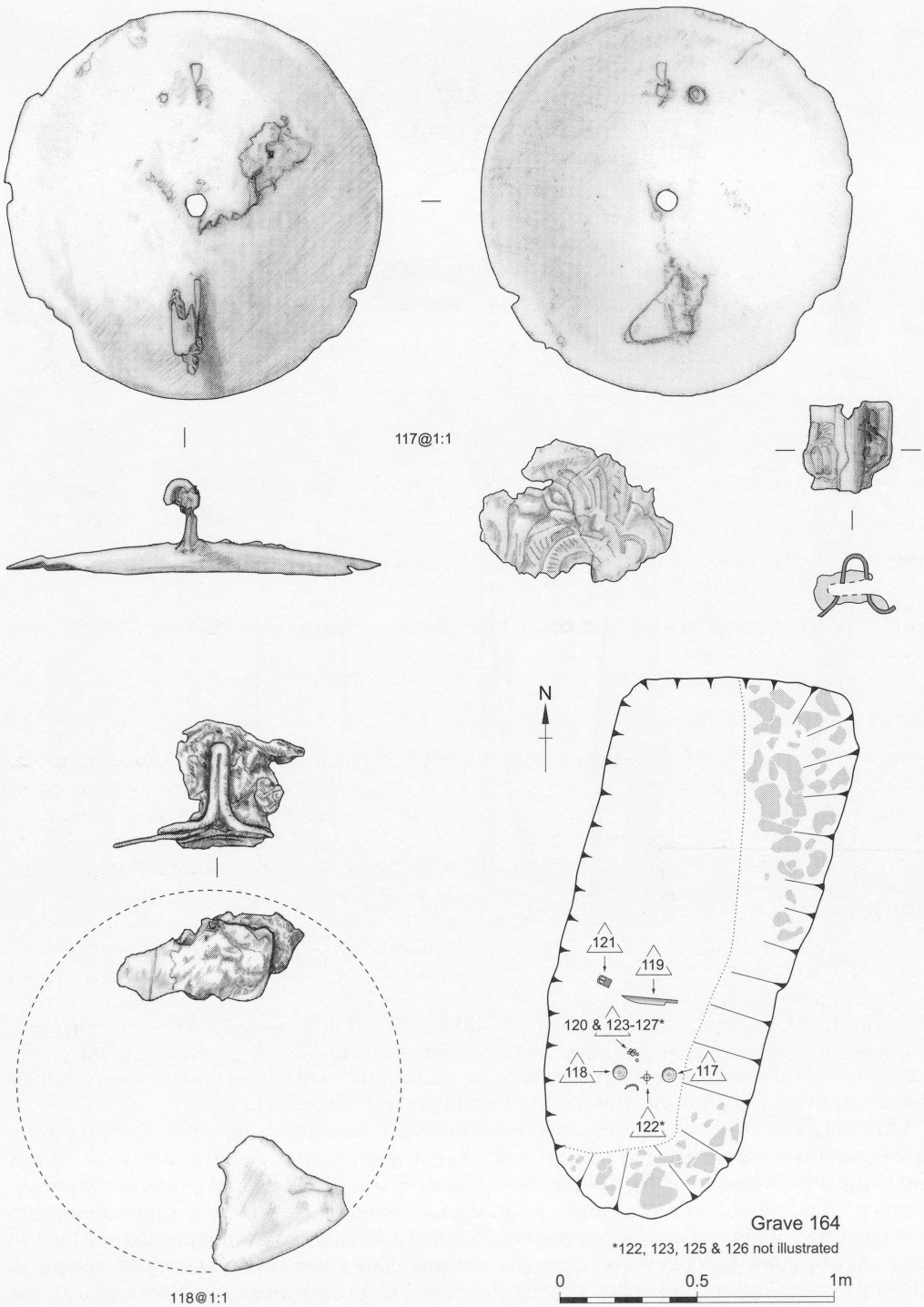

Fig 28a Park Lane, Croydon. Plan of grave 164 with illustrations of associated grave goods. (Key: see fig 4).

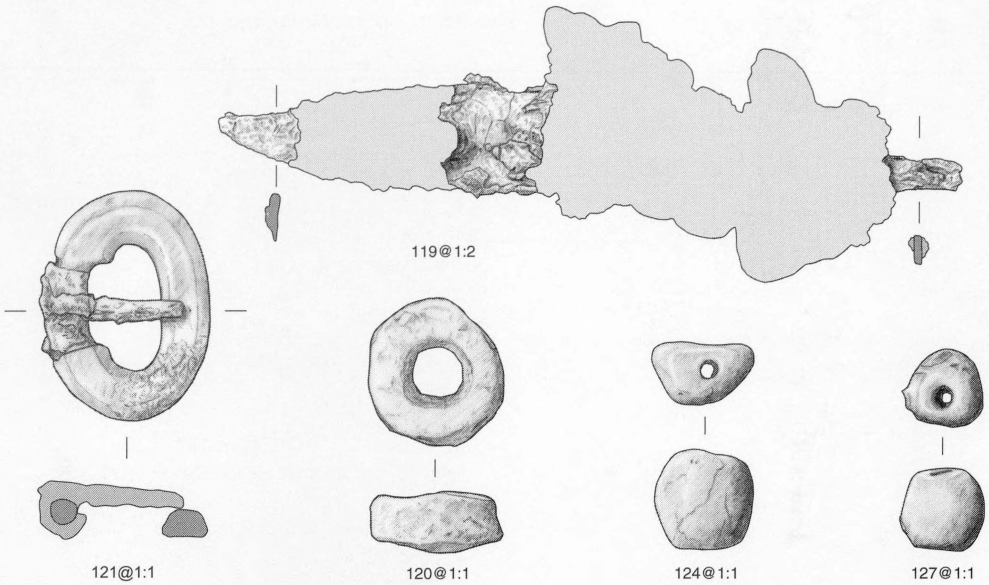

Fig 28b Park Lane, Croydon. Grave 164: illustrations of associated grave goods (*continued*).

post-dated the cemetery; no other dating evidence was recovered from either feature and there was no indication as to their function.

Late medieval/post-medieval

A flint-lined pit (318; 0.6m deep) in the south-west section may relate to the same period as a chalk-walled cellar (64) constructed against the frontage of Park Lane, which was clearly cut through by drains inserted for the 1903 villas. There is no evidence for such a structure on the tithe map of 1847 (Gent 1991, fig 26) nor on the 1868–9 OS map, both showing The Elms, constructed in 1794. Rocque's 1762 map, made during the use of the area as an orchard, appears to show a structure adjacent to what was to become Park Lane in roughly the appropriate position, and the cellar could represent an apple store or associated building. Similarly, an east–west ditch at the south end of the site, which cut through the Saxon ring ditch but was cut by the 1903 basement, could represent some form of boundary as represented on the map marking the south end of the orchard (*ibid*). Several other postholes and small pits, with no obvious pattern of distribution and associated finds to suggest their specific use, also fall within this broad date range, as do two similar features from evaluation trench 1.

Modern disturbance

The land surface within the vicinity had been terraced during the construction of the houses along Edridge Road and the 1903 villas. This involved substantial truncation of the old ground surface, removing the primary soil horizon to within 0.04m of the underlying gravels in places, particularly along the western side of the site, with subsequent make-up of between 1 and 1.2m. The four villa basements had cut into the natural gravels (basement floors at 56.95–57.39m OD), the northern basement disturbing a minimum of six Saxon graves (fig 2). The north end of the site was substantially damaged by deep cellars (base levels *c* 56.7m OD) and there were frequent modern intrusions – drains, soakaways, wall foundations – cutting into the gravel all along the eastern margins of the site. In all, *c* 35% of the area of excavation was affected by modern disturbance.

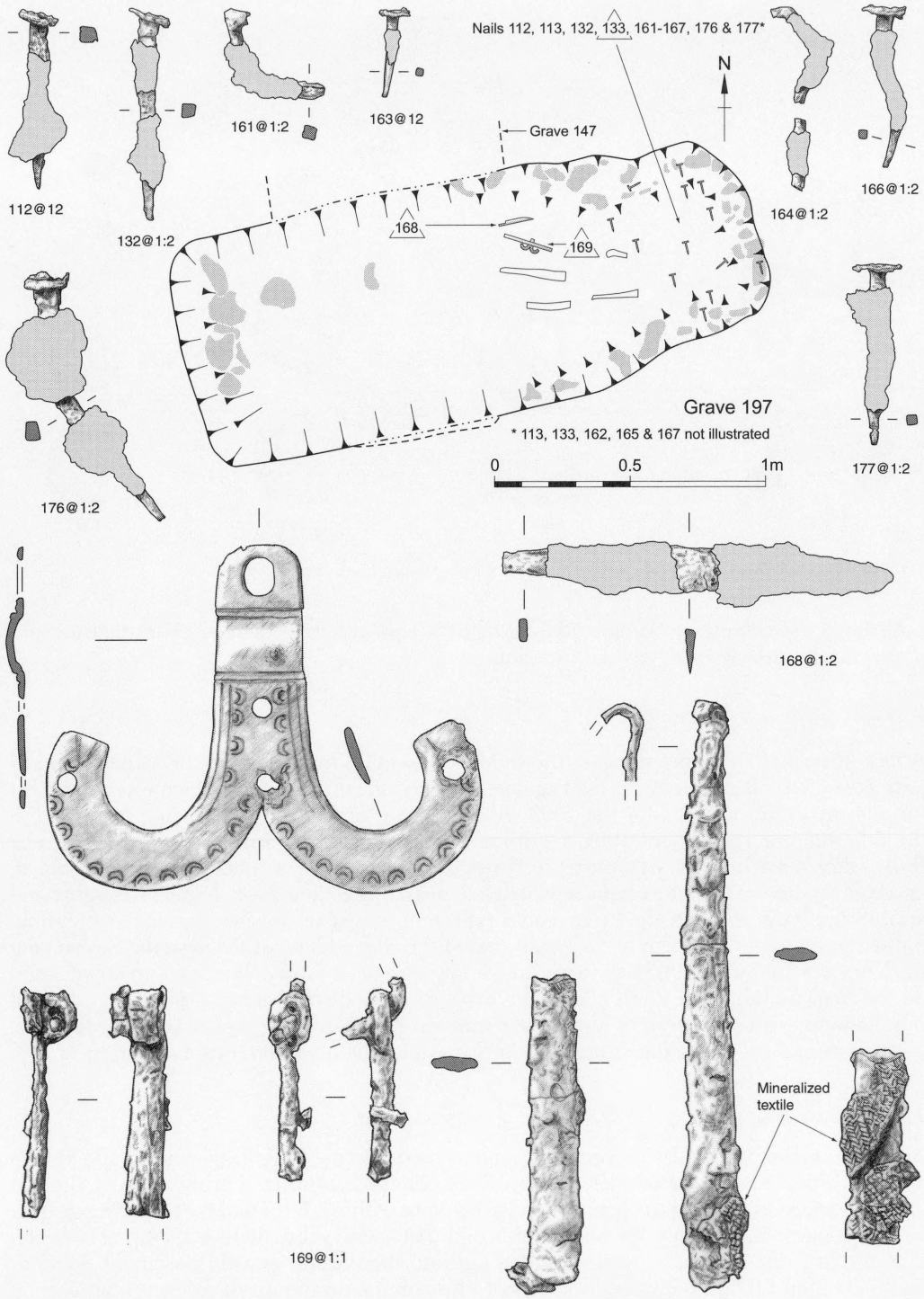

Fig 29 Park Lane, Croydon. Plan of grave 197 with illustrations of associated grave goods. (Key: see fig 4).

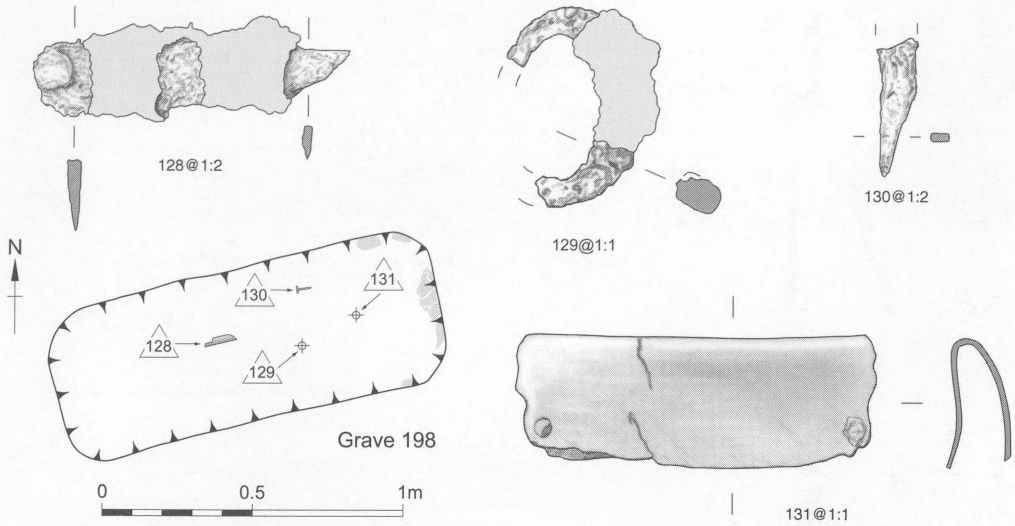

Fig 30 Park Lane, Croydon. Plan of grave 198 with illustrations of associated grave goods. (Key: see fig 4).

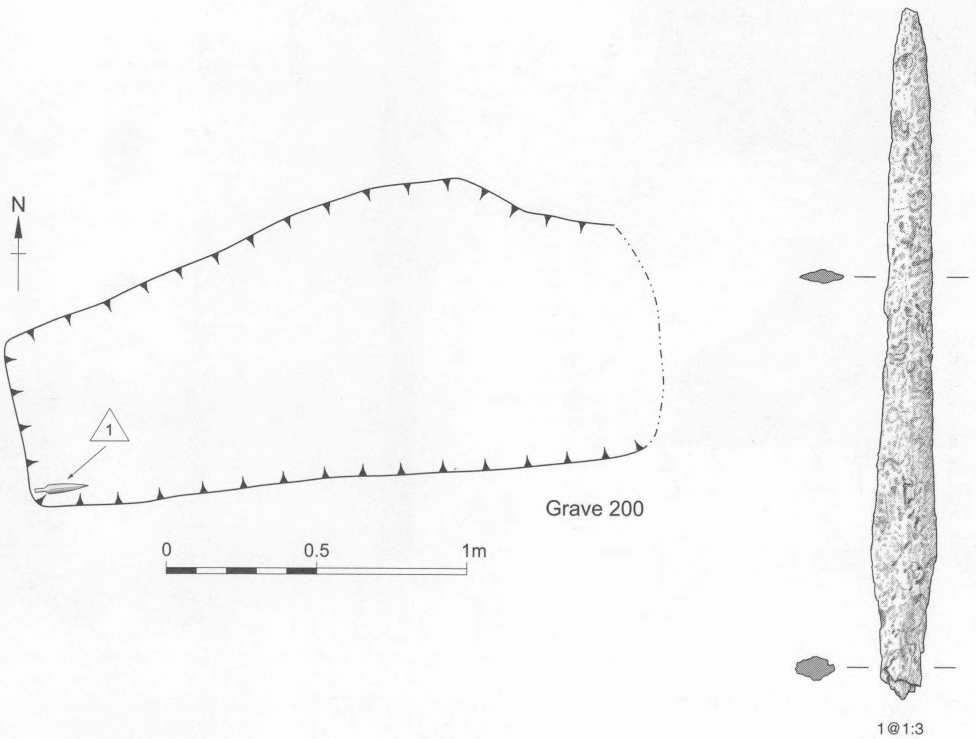

Fig 31 Park Lane, Croydon. Plan of grave 200 with illustrations of associated grave goods. (Key: see fig 4).

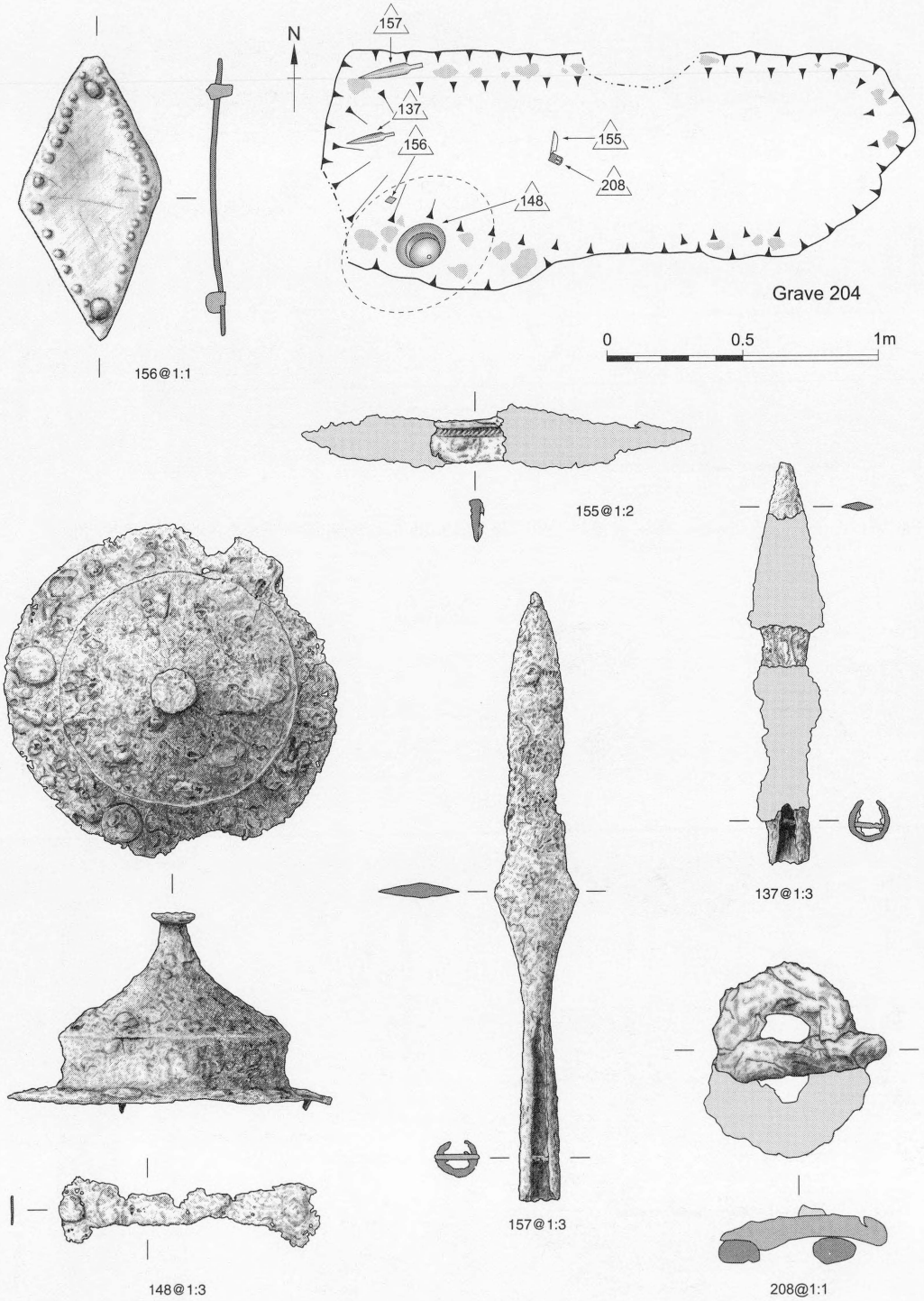

Fig 32 Park Lane, Croydon. Plan of grave 204 with illustrations of associated grave goods. (Key: see fig 4).

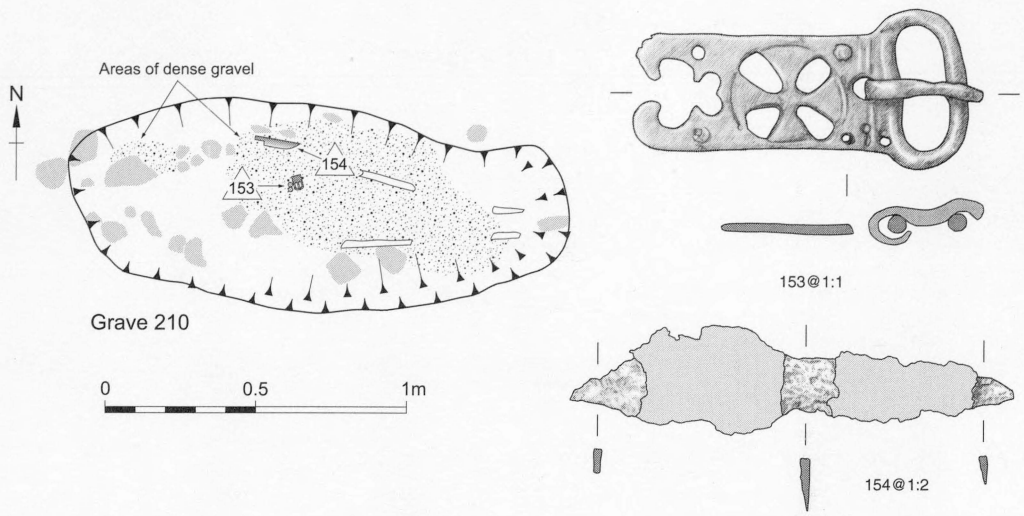

Fig 33 Park Lane, Croydon. Plan of grave 210 with illustrations of associated grave goods. (Key: see fig 4).

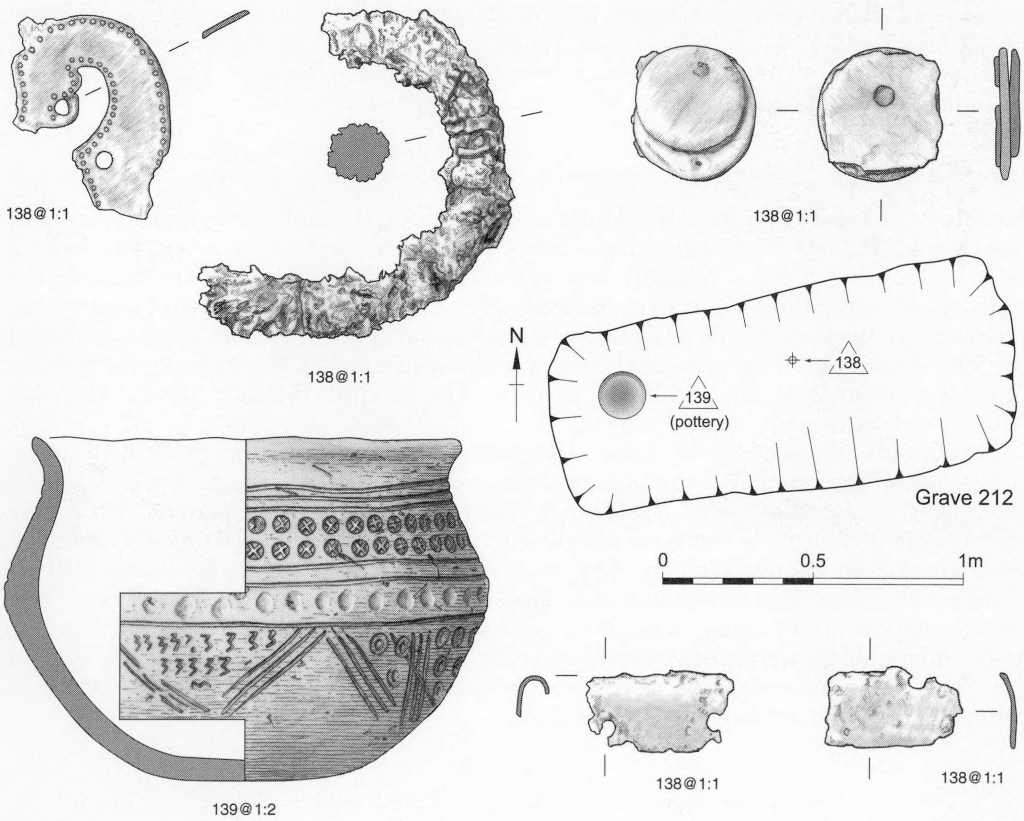

Fig 34 Park Lane, Croydon. Plan of grave 212 with illustrations of associated grave goods. (Key: see fig 4).

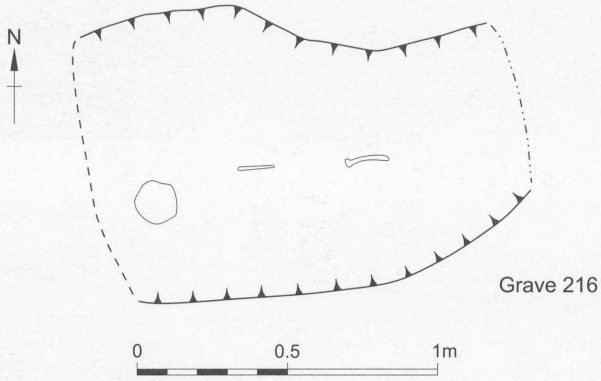

Fig 35 Park Lane, Croydon. Plan of grave 216. (Key: see fig 4).

Natural features

A series of 21 acute V-shaped linear features was recorded extending across the whole of the site, commonly converging in regular tripartite form (fig 2). All had a similar form and fill, and were cut by all subsequent archaeological and most other natural features. These features were identified as ice-wedge polygons. Two probable solution hollows were excavated in the central and northern areas of the site, the latter cut by several Saxon graves and overlying at least one polygon formation. Twelve tree-throws were observed and investigated, and there was substantial root activity in parts of the southern half of the site.

HUMAN REMAINS AND CREMATION RITUALS

Human bone from 31 contexts was examined, including unburnt bone from the remains of one post-Roman and twenty Early Anglo-Saxon inhumation burials, and redeposited unburnt bone from three contexts. Cremated bone was recovered from twelve contexts (including the remains of two inhumation burials) most of which represented small quantities of redeposited bone from the fills of inhumation graves, with only one unurned cremation burial (fig 50). The remains from two urned cremation burials found in 1893–4 during the Edridge Road works and currently held by the Croydon Museum and Heritage Service (Croydon Museum) were also subjected to analysis.

Analysis of the cremated bone followed the author's standard procedure (McKinley 1994a, 5–21; 2000c). Age (cremated and unburnt bone) was assessed from the stage of skeletal and tooth development (Beek 1983; McMinn & Hutchings 1985), and the patterns and degree of age-related changes to the bone (Brothwell 1972; Buikstra & Ubelaker 1994). Sex was ascertained from the sexually dimorphic traits of the skeleton (Buikstra & Ubelaker 1994). Stature was estimated in accordance with Trotter & Gleser (1952; 1958). Platymeric (degree of anterior-posterior flattening of the proximal femur) and platycnemic (meso-lateral flattening of the tibia) indices were calculated according to Bass (1987). A summary of the results is presented in the grave catalogue (see *Endnote*, below); age and sex of remains from the Saxon inhumation burials are included in table 2.

Condition

Most of the unburnt bone was in exceptionally poor condition, as is reflected in the very low percentages of skeletal recovery, with 52% of the graves containing no bone at all and the

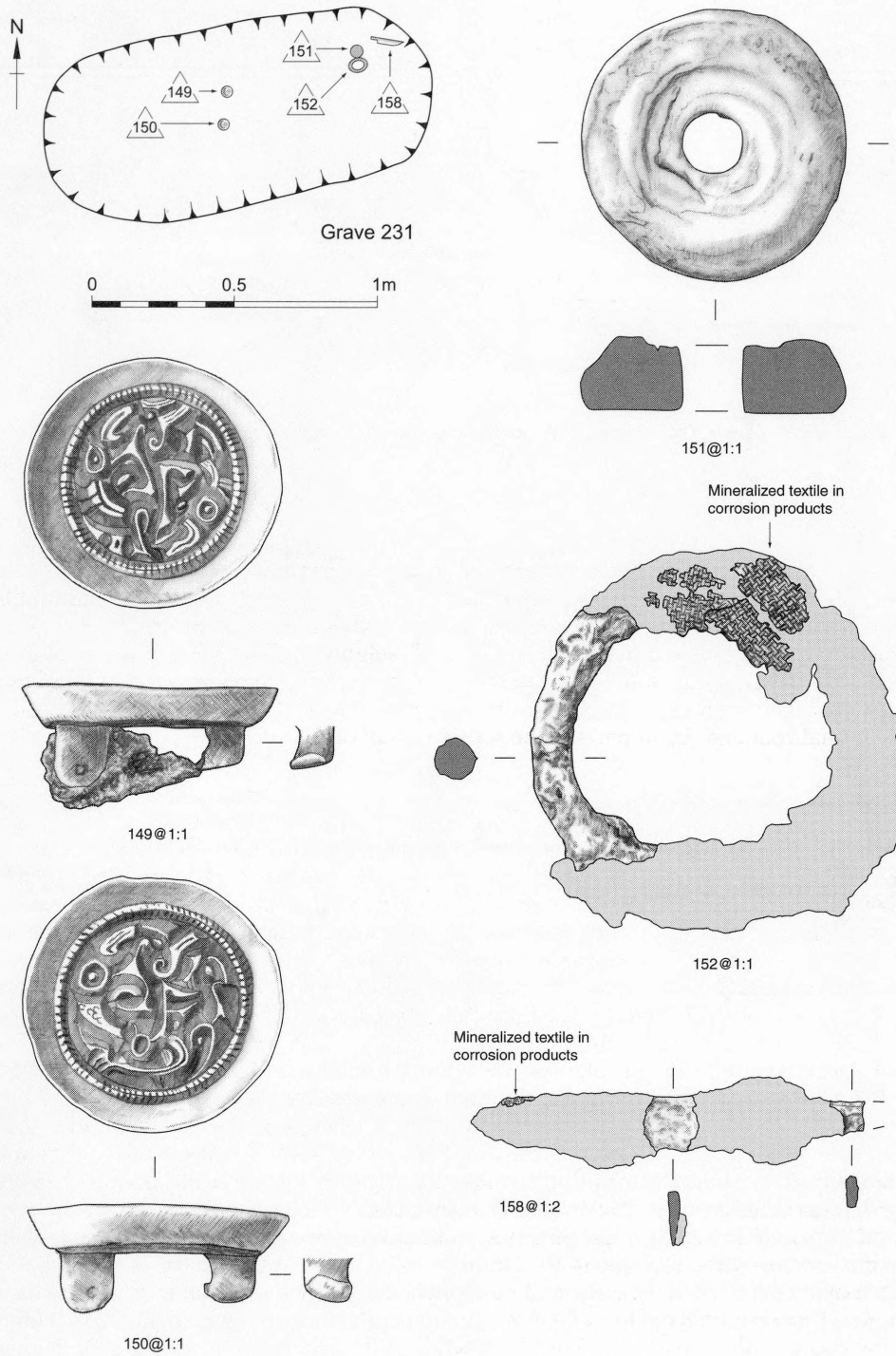

Fig 36 Park Lane, Croydon. Plan of grave 231 with illustrations of associated grave goods. (Key: see fig 4).

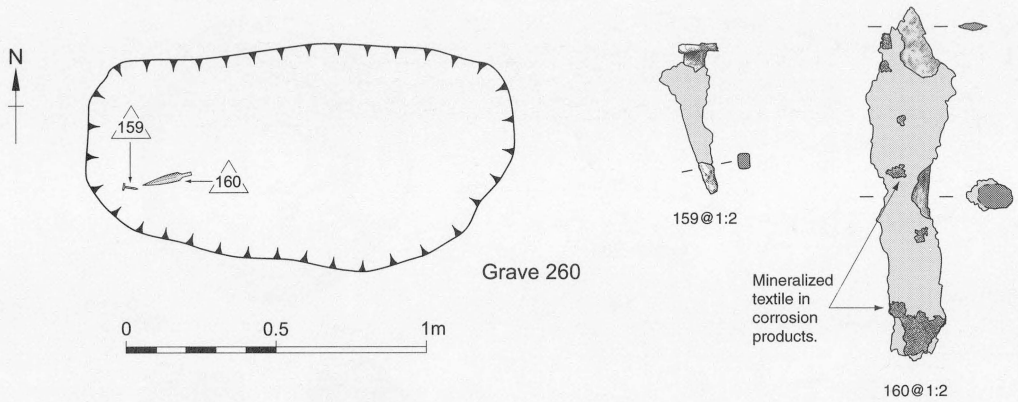

Fig 37 Park Lane, Croydon. Plan of grave 260 with illustrations of associated grave goods. (Key: see fig 4).

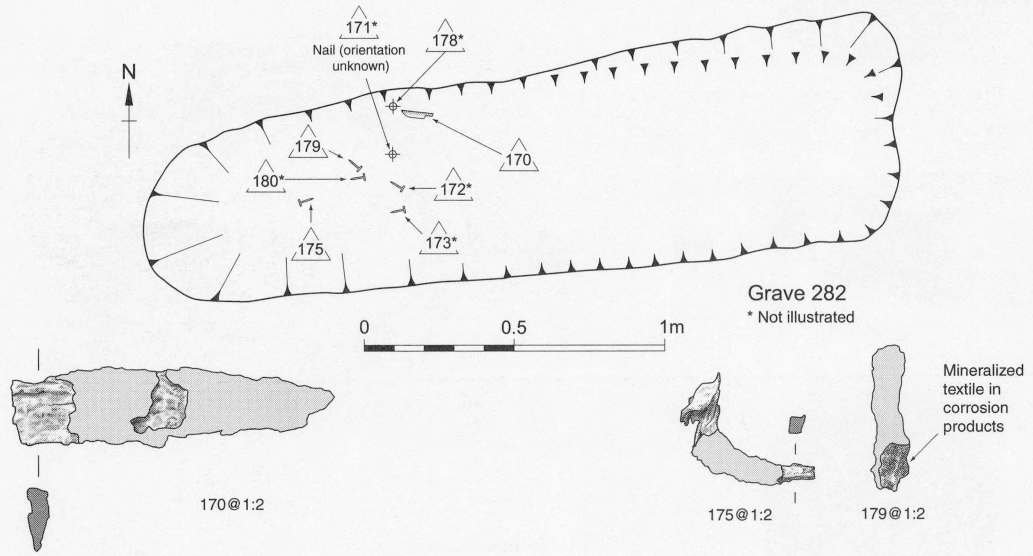

Fig 38 Park Lane, Croydon. Plan of grave 282 with illustrations of associated grave goods. (Key: see fig 4).

maximum of *c* 45% skeletal survival in two graves. Most of the surviving bone is heavily degraded/eroded; trabecular bone (articular surfaces, vertebrae and pelvic bone) was recovered from only five graves, and the most commonly represented fragments include skull vault and the dense compact bone of the femurs.

The surviving depth of the grave was of no significance to bone survival; those from which no bone was recovered ranged from 0.12 to 0.5m in depth compared with the 0.22 to 0.66m range for those with maximum skeletal survival. Although bone survived in a higher percentage of the graves containing grave goods (fig 51) than in those which did not, there was no direct link between the location of items within the grave and the bone fragments which survived (figs 7–41). The proximity of items within the grave had impinged on the bone in only two instances. In grave 189, the surviving tooth crowns were stained green,

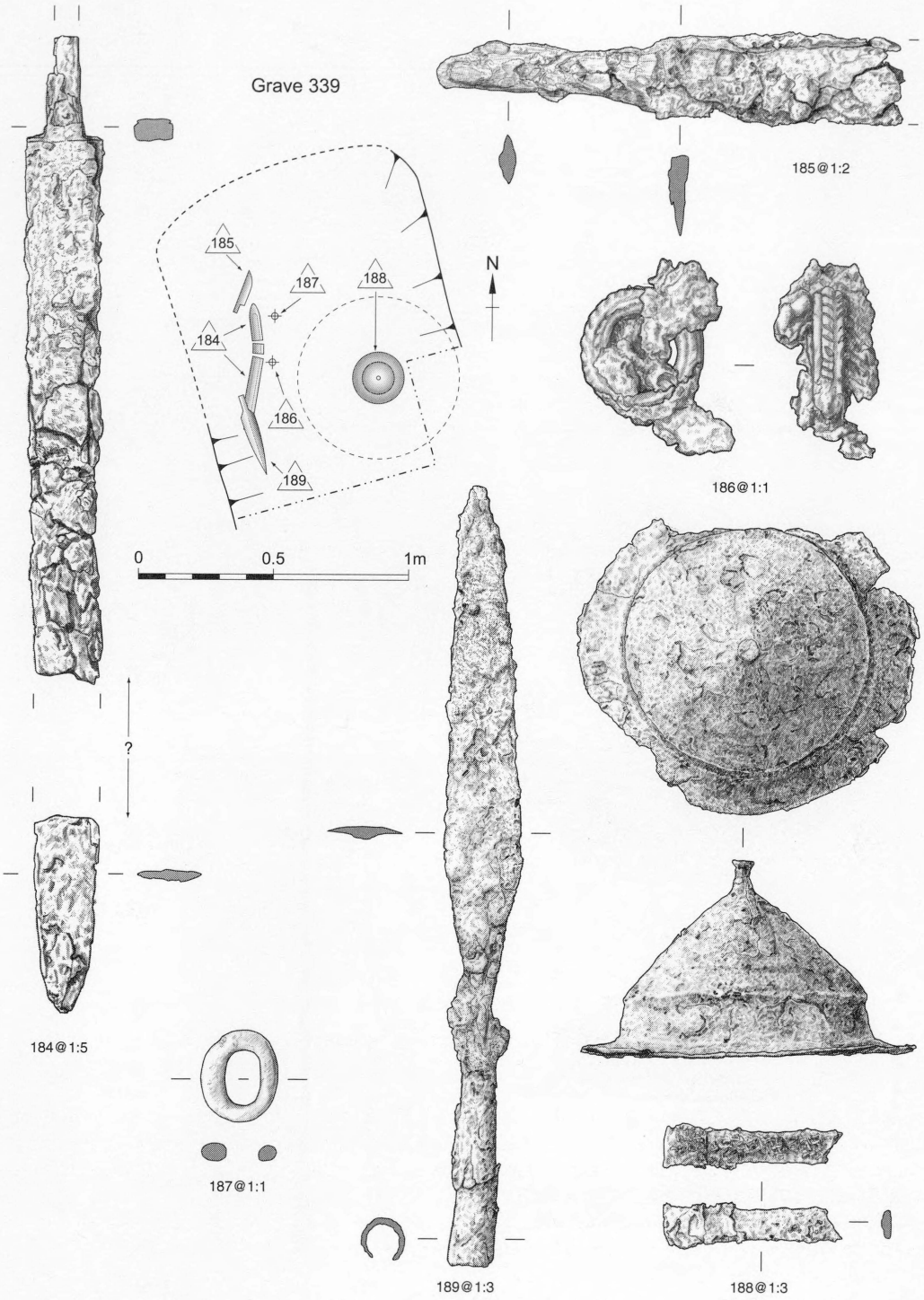

Fig 39 Park Lane, Croydon. Plan of grave 339 with illustrations of associated grave goods. (Key: see fig 4).

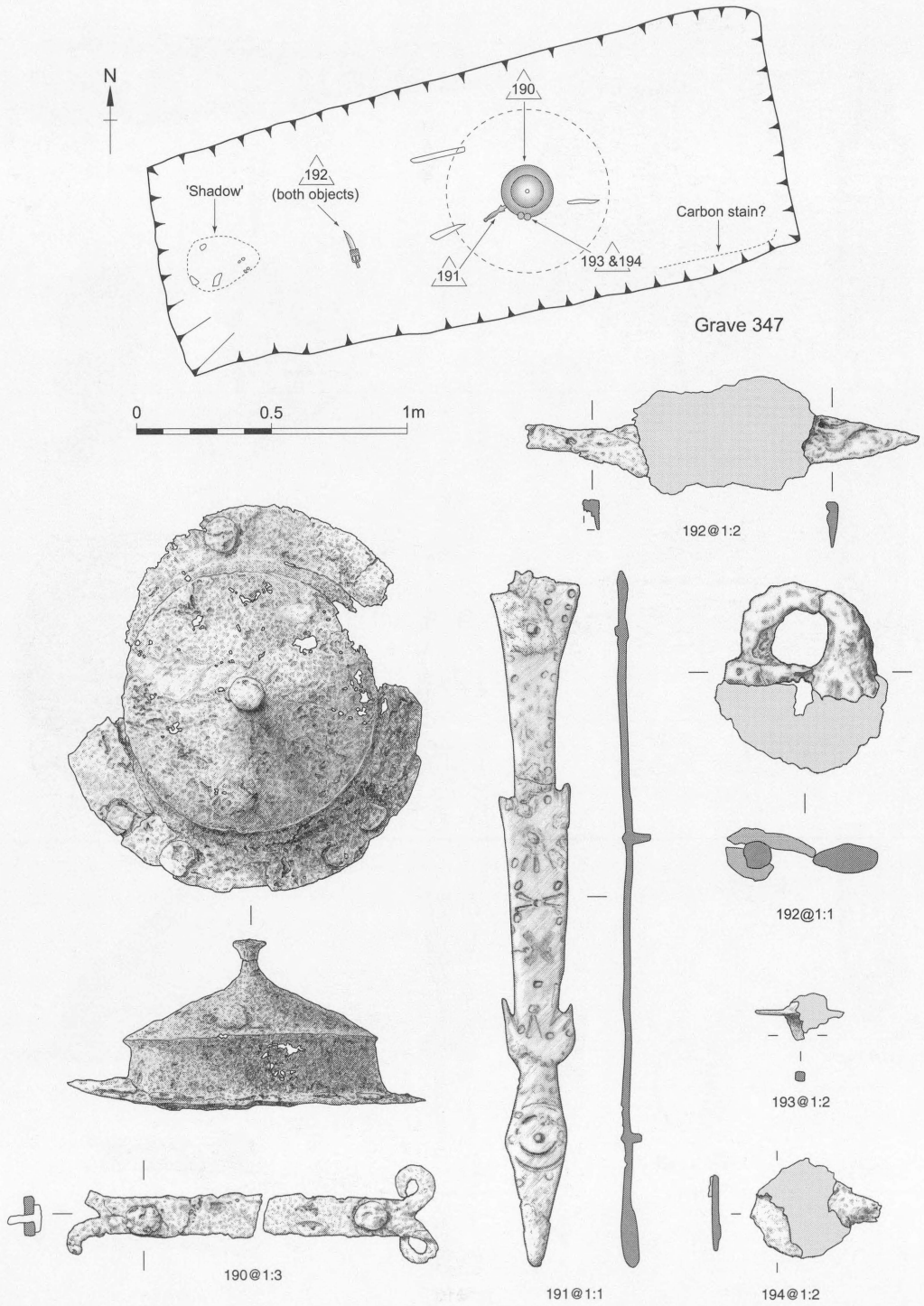

Fig 40 Park Lane, Croydon. Plan of grave 347 with illustrations of associated grave goods. (Key: see fig 4).

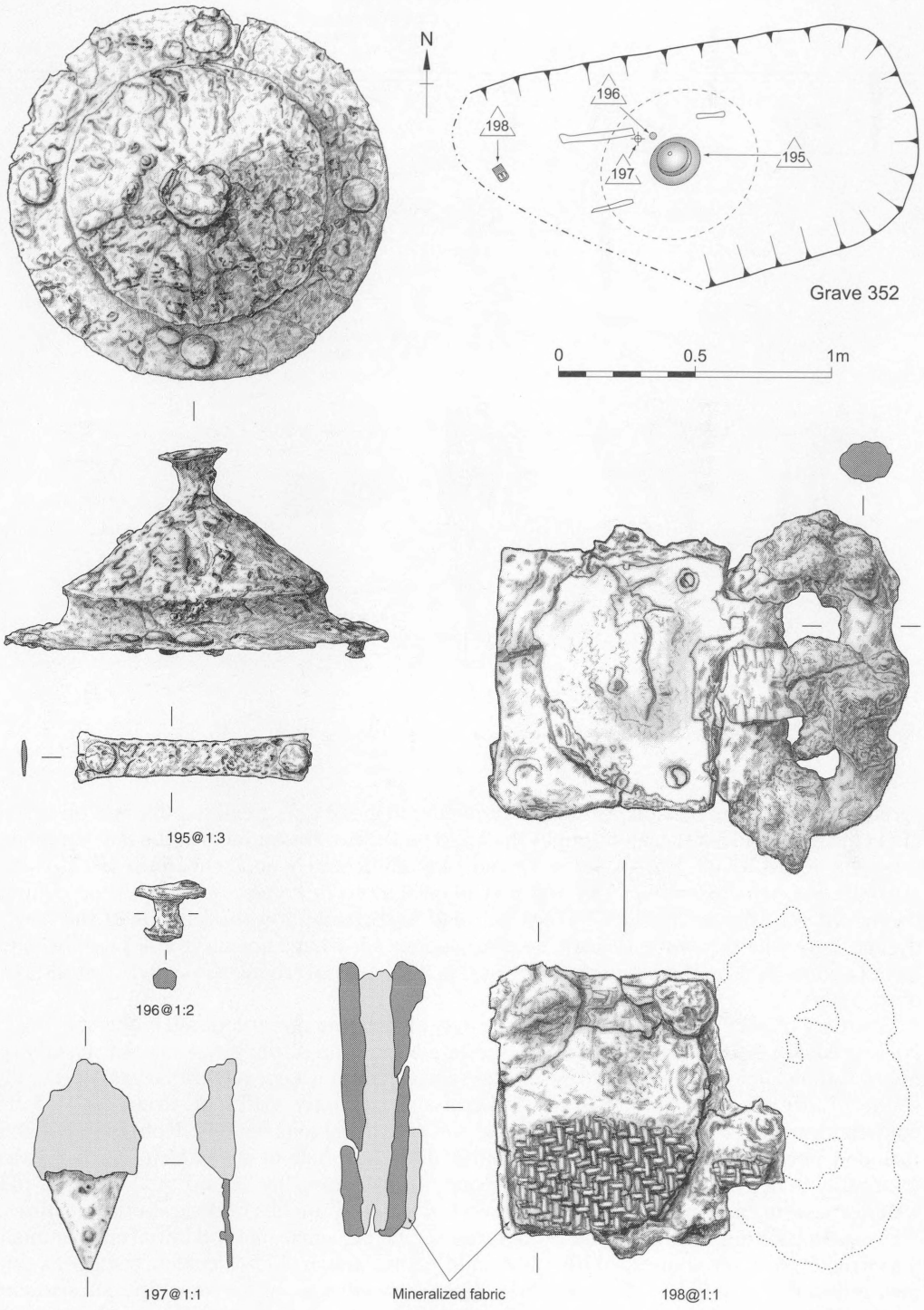

Fig 41 Park Lane, Croydon. Plan of grave 352 with illustrations of associated grave goods. (Key: see fig 4).

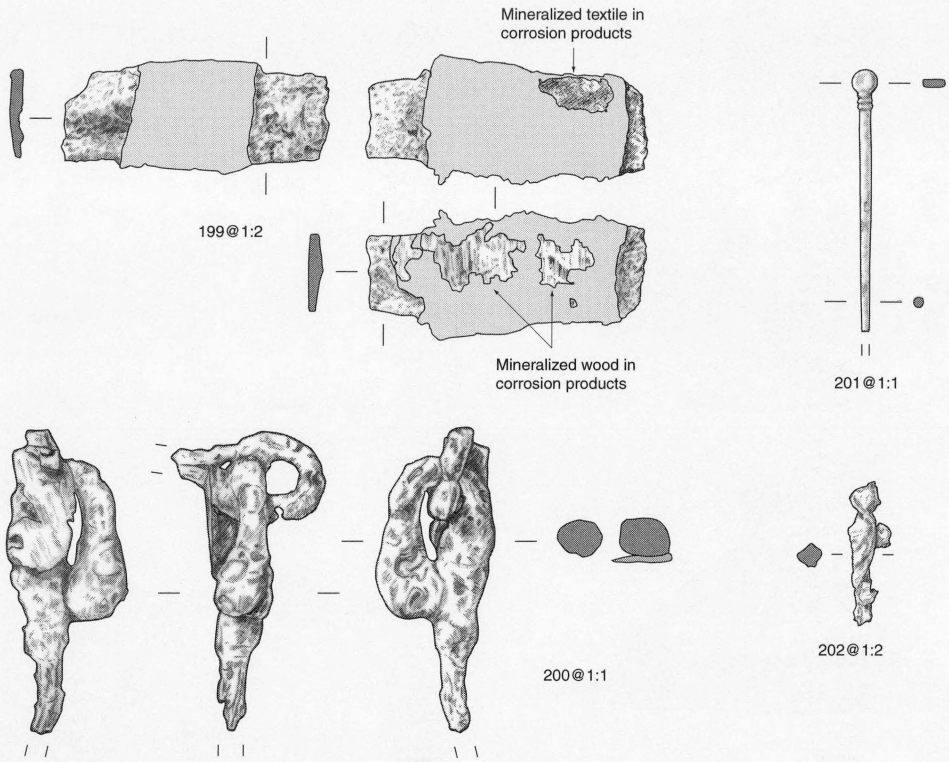

Fig 42 Park Lane, Croydon. Grave goods from grave 362. (Key: see fig 4).

presumably by one of the adjacent saucer brooches. In grave 147, green staining was observed along the dorsal side of the left humerus shaft and on the exterior surfaces of the four surviving fragments of rib shaft. No copper-alloy items lay immediately adjacent to the back of the arm, the closest items being ONs 146 and 147, believed to be associated with the baldric connected with the sword (ON 144), which had partly rested on the left side of the body, though it may be that some delicate items of copper-alloy have not survived. The ribs may have been stained by the copper-alloy tweezers (ON 142) overlying the upper-central area of the chest.

A variety of intrinsic and extrinsic factors may affect bone preservation (Henderson 1987; Nielsen-Marsh *et al* 2000), and in this case the composition of the grave fills was clearly of major significance. There was <8% skeletal survival in all except two of the graves: the fill of the Early Saxon grave 147 was visually significantly different from that of its contemporaries (see *Archaeological features and deposits*, above) and the post-Roman grave 369 included puddled chalk immediately around the lower half of the skeleton, which was noticeably better preserved than the other bone in this grave (figs 4 and 5). A series of pH samples was taken from every grave, the worked soil and the fills of several other features. The readings throughout fell in the 7–7.4 range indicating a near-neutral burial environment and insignificant variation in pH between and within graves. Other evidence suggests this may reflect the current burial environment rather than that at, or for some time subsequent to, burial (see *Archaeological features and deposits*, above).

The cremated bone is in very good condition. Cremated bone, being oxidized to the mineral component, is not susceptible to the burial environment in the same way as is unburnt bone. The bone from the two urned burials had the additional protection of the vessel and,

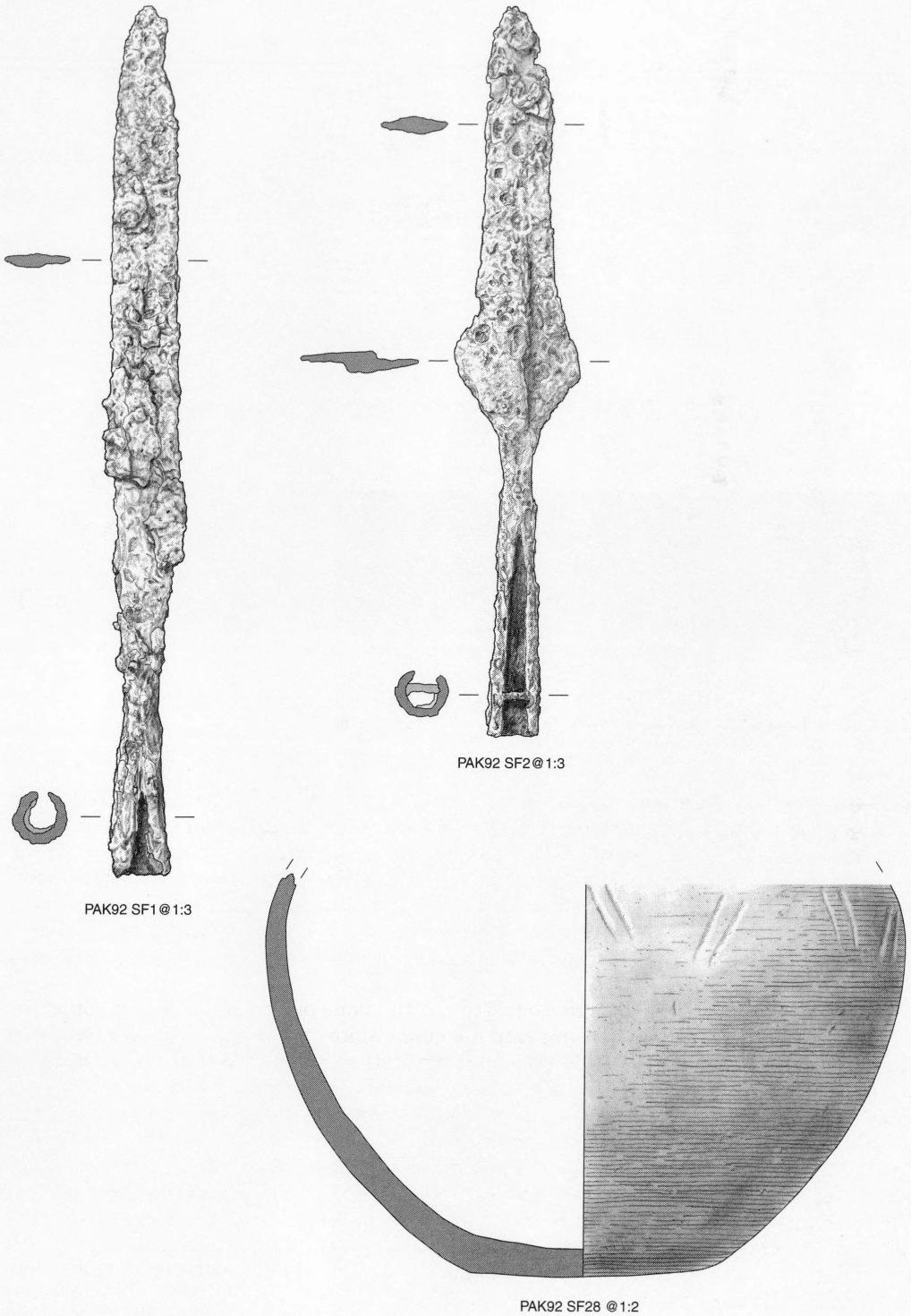

Fig 43 Park Lane, Croydon. a) spearheads from PAK92 graves 31 (SF1) and 64 (SF2); b) vessel 28 from PAK92 cut 30.

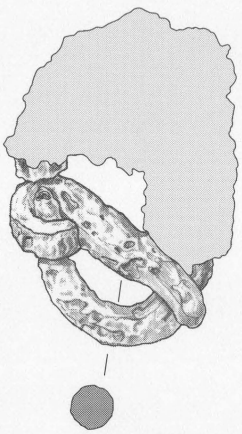

Fig 44 Park Lane, Croydon. Iron buckle from cremation grave 29.

Fig 45 Park Lane, Croydon. View of grave 103 from east showing flint nodule lining, poor bone preservation (skull) and brooches 105 and 106 *in situ*.

Fig 46 Park Lane, Croydon. View of grave 147 from above showing skeleton 226 and grave goods *in situ* (visible flint lining relates to earlier, underlying grave 197).

as they were from a different part of the cemetery, may have been deposited within a slightly different burial environment. The unurned burial was made with a substantial deposit of fuel ash which would also have affected the microenvironment.

Demographic data

The quantity, detail and integrity of retrievable demographic data has been severely limited by the poor levels of skeletal recovery and condition of the surviving bone from the inhumation burials.

The *in-situ* remains of twenty individuals (nineteen Anglo-Saxon, one post-Roman) were recovered from the inhumation burials. Bone, probably from two graves in which none survived *in situ*, was also recovered from two features cutting earlier graves (146 cutting grave 260, 188 cutting 236; fig 3). A minimum of three individuals was represented among the cremated remains. Each of the two urned burials from Edridge Road contained the remains of a single individual. The small quantity of redeposited bone, most of which was recovered from a variety of contexts within a 10 × 5m area of the site (fig 50), may all represent remains from the same individual; there was no duplication of skeletal elements within this material

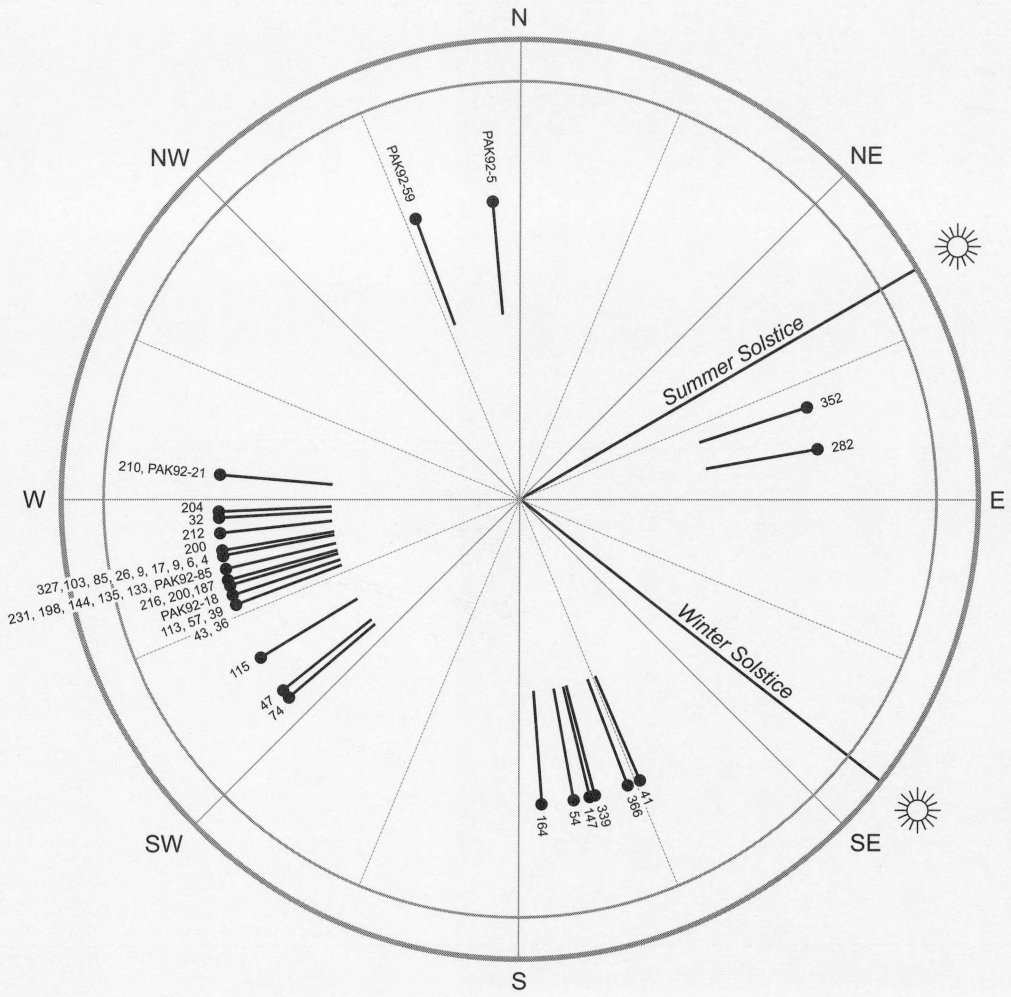

Fig 47 Park Lane, Croydon. Diagram of grave orientations; head position distal from centre.

nor between it and the very small proportion (*c* 1%) of the bone from cremation burial 30 identified as human.

No infant or juvenile remains were observed. The definition of age ranges for the inhumed individuals was very poor, with most falling into the subadult–adult (>13 years) or adult (>18 years) ranges. Closer definition was possible in only seven cases, with two females in the older subadult–young adult range (16–25/30 years), one female in the young adult range (18–30 years), one female in the mature adult range (30–45 years) and three individuals (two males and one female) in the older adult range (>45 years) including the post-Roman individual. It was possible to suggest the sex of only twelve (54%) inhumed individuals with varying degrees of reliability: seven females including two probable and three 'most likely', and five males including one probable and three 'most likely'. The cremated remains included both male and female adults.

These limited results preclude much meaningful demographic discussion. The apparent absence of immature individuals could be misleading. The small, thin bones of young immature individuals would have been more susceptible to destruction in the hostile burial

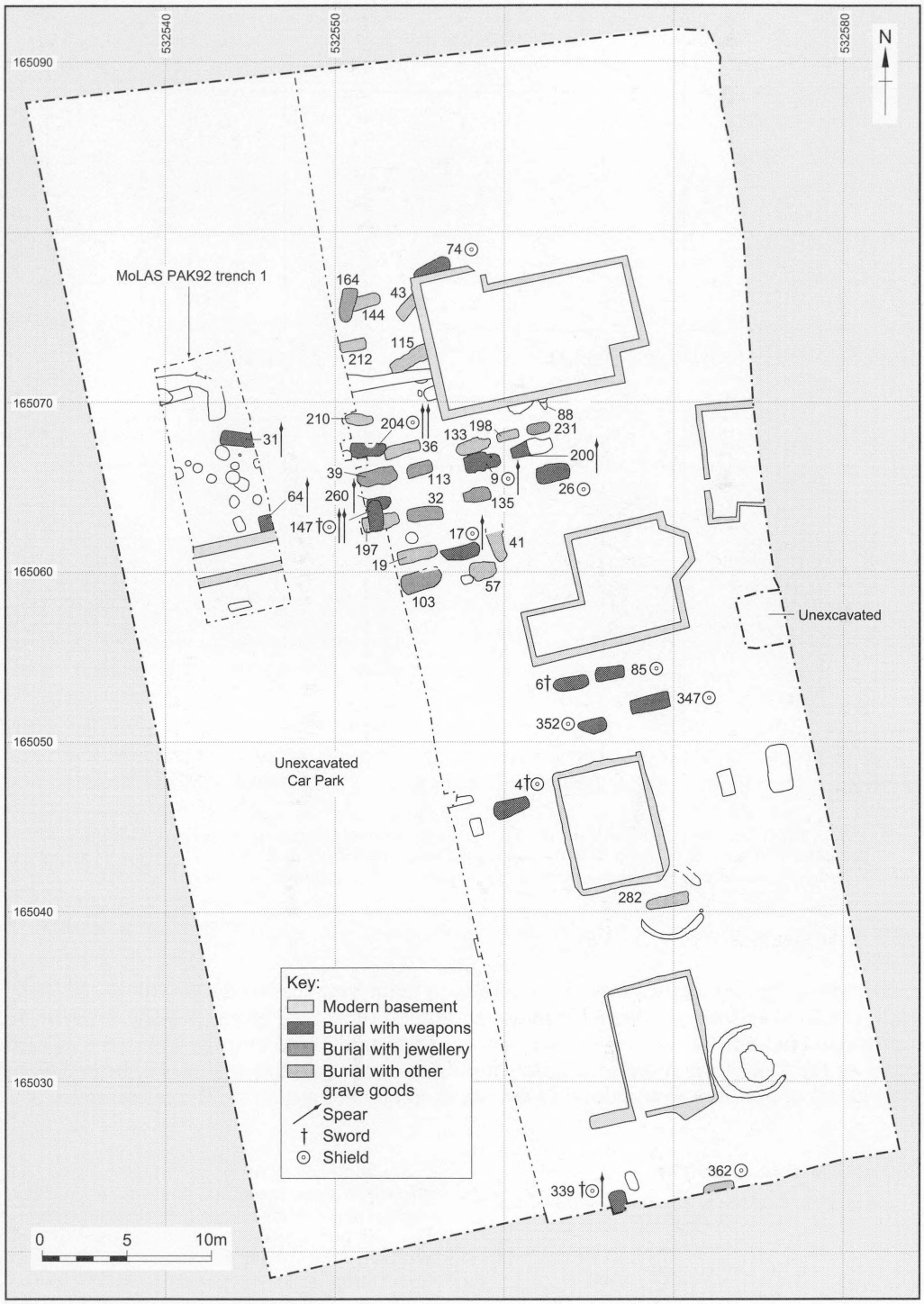

Fig 48 Park Lane, Croydon. Site plan showing distribution of different grave good types.

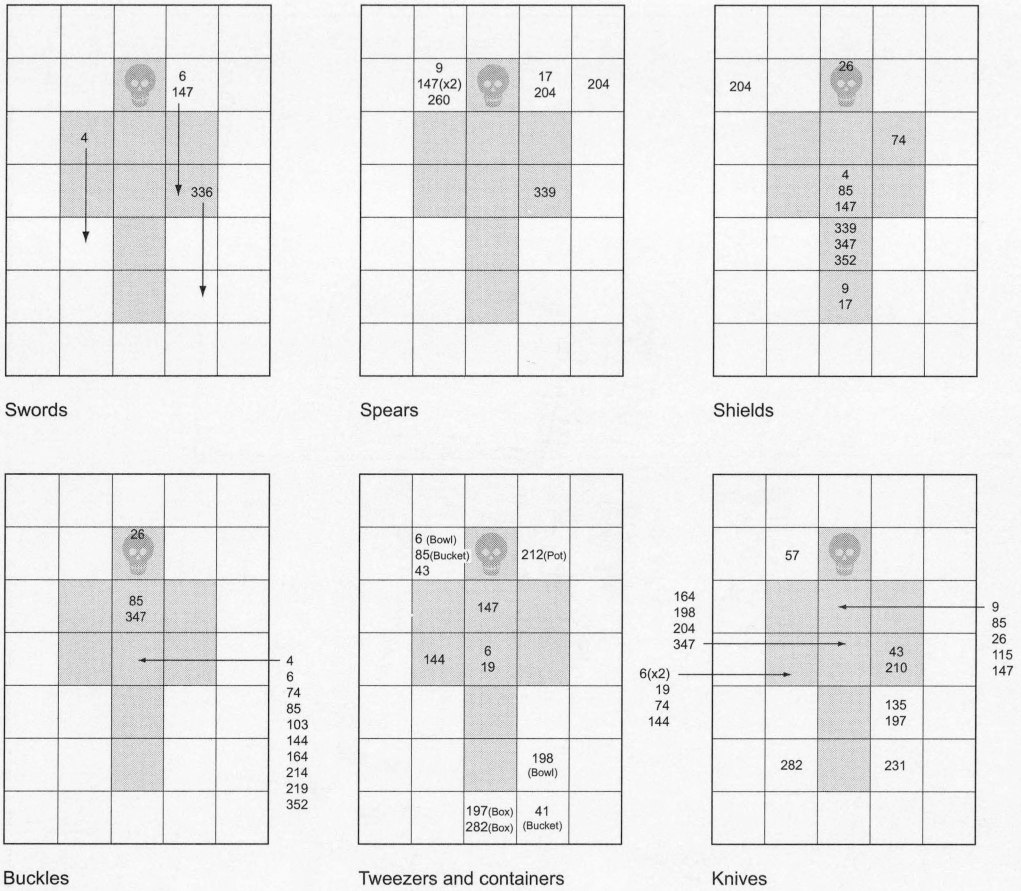

Fig 49 Park Lane, Croydon. Schematic diagram demonstrating distribution of main categories of objects within the grave in relation to deduced body position (based on Dickinson & Härke 1993, 65, for shield bosses); body position highlighted, grave numbers shown (swords hilt to tip with number at hilt end).

environment. Several of the graves from which no bone was recovered were small, and while some could have held the flexed remains of adults, they may have contained immature individuals. In addition, as it is known that the excavated area comprised only the eastern edges of the cemetery, more immature burials may be/have been situated further west. Individuals of both sex were buried in the cemetery, apparently in similar proportions.

Indices and dimorphism

It was possible to estimate the stature of only one individual (from the femur), the adult male 226 (grave 147), at 1.74m (5 ft 8½ inches), which corresponds with the mean from the Early Anglo-Saxon cemetery at Apple Down, West Sussex (Harman 1990), is close to that of 1.73m from Edix Hill, Cambridgeshire (Duhig 1998), and is above the range (1.61–1.70m, mean 1.67m) recorded from Alton, Hampshire (Powers 1988).

The morphology of the surviving bones was not particularly clear, rendering comment on the degree of sexual dimorphism difficult and of limited reliability. The long bones of those individuals sexed as male were large and robust. The female skulls generally appeared gracile, but the male skulls did not have very strong male characteristics. The molar teeth survived in five dentitions, four female and one male. In all cases the teeth were noticeably small; where it was possible to make measurements the male mandibular M2, at 9.6 × 8.7mm, was smaller than those of two

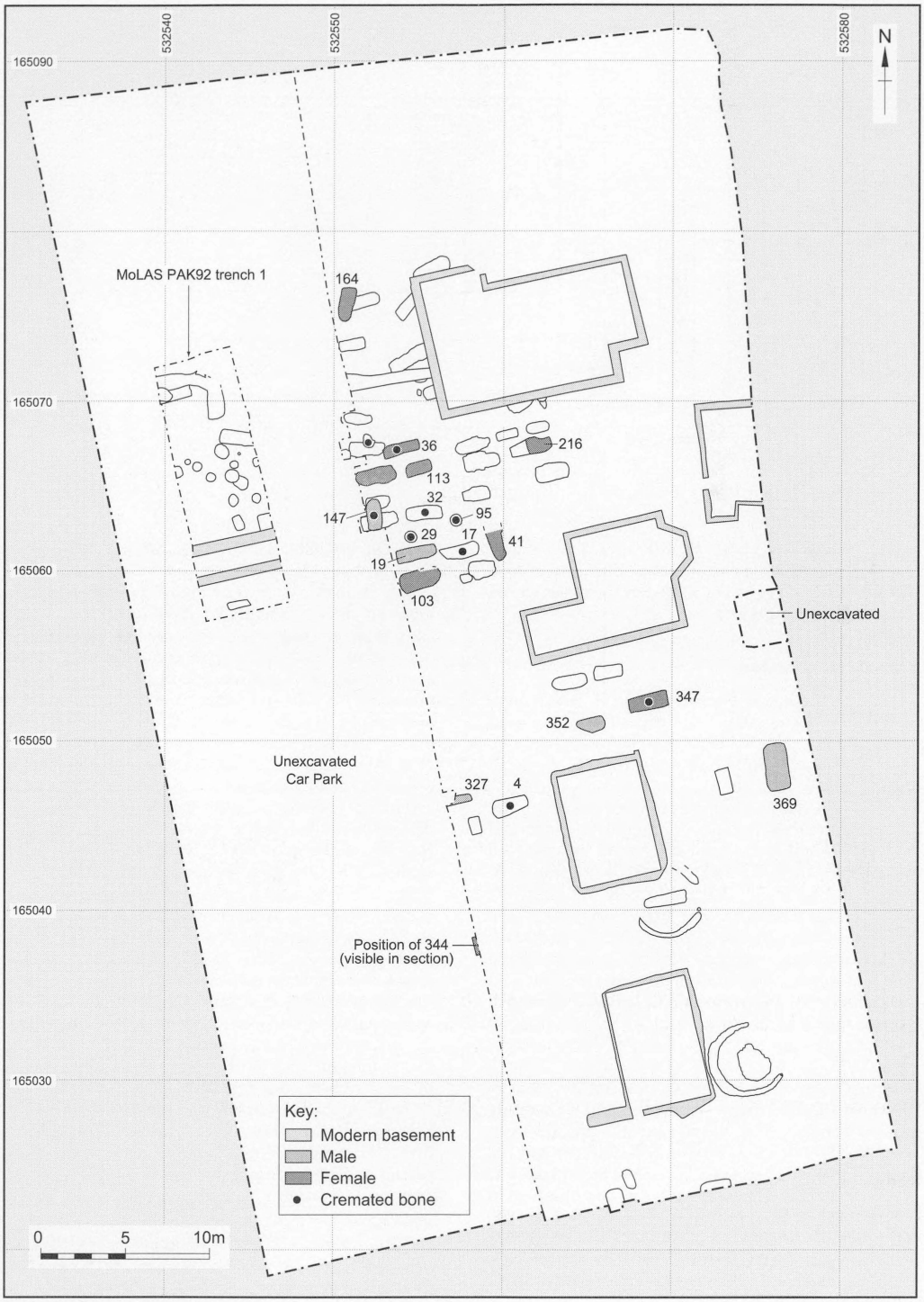

Fig 50 Park Lane, Croydon. Site plan showing distribution of sexes (from osteological evidence) and features from which cremated bone was recovered.

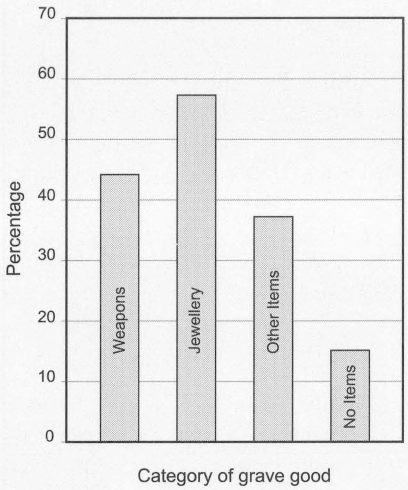

Fig 51 Park Lane, Croydon. Graph showing percentage of graves with grave good categories in which bone survived.

females which were both 10 × 0.6mm. It would be inappropriate to suggest whether this was a trait specific to this individual or shared by the males within the population in general.

Pathological lesions

Other than in the post-Roman burial 371, where there was better preservation of articular surfaces and trabecular bone, pathological lesions among the bone from the inhumation burials was limited to the teeth and supportive structures.

Parts of seven dentitions were recovered from the Saxon inhumation burials including five female and two male. There was a total of 57 teeth including 39 female and 18 male, and 25 sockets including 10 female and 15 male. Dental attrition was relatively low, showing a tendency for higher attrition of the anterior teeth in at least some individuals. Slight–moderate calculus deposits (tartar) were observed in two older adult dentitions, one male and one female. No *ante mortem* tooth loss was observed. The overall caries rate was 5%: 5% for females (2/39 teeth) and 6% for males (1/18 teeth). The lesions in the female (16–30 years) dentition comprised small, 'pin-hole'-size lesions in the occlusal surfaces; that in the male (35–50 years) was larger and apparently cervical in origin. The overall rate of dental abscesses was 12%: 20% for the females (2/10 sockets) and 7% for the males (2/15 sockets). No dental hypoplasia was observed. A single dental abscess was also observed in one of seven sockets from two dentitions among the cremated remains (14% overall, 17% female). Three teeth (two with carious lesions) and three sockets were present in the dentition of the post-Roman 371, with moderate periodontal disease.

The overall caries rate from the remains of the Saxon inhumations is lower than that from Apple Down (10%, Harman 1990), but slightly higher than the *c* 3% from Berinsfield (Harman 1995) and Edix Hill (Duhig 1998). The overall abscess rate is higher than at both Apple Down (7.2%) and Berinsfield (*c* 3%), though in view of the very small numbers involved these observations should be viewed with caution as they may not be indicative of the cemetery population as a whole. The relatively light molar attrition suggests a diet which excluded or was light in unrefined cereals and other coarse foods, and the absence of grits entering foodstuffs during preparation. The generally low rates of caries suggests a diet not over-dependent on carbohydrates and including a good level of meat-based proteins (Hillson 1990, 283).

Lesions associated with various forms of joint disease were observed in the remains from the post-Roman inhumation burial 371 and in cremation burial 43/3 (1897 find; see *Endnote* (grave catalogue), below). Lesions indicative of osteoarthritis (Rogers *et al* 1987; Rogers & Waldron 1995, 32–46) were noted in 3/35 extra-spinal joint surfaces and 4/14 spinal joint surfaces in skeleton 371. Degenerative disc disease – a condition resulting from the breakdown of the intervertebral disc largely related to age and reflecting 'wear-and-tear' (Rogers & Waldron 1995, 27) – was observed in 2/4 vertebral bodies from the same individual. Schmorl's nodes – destructive lesions in the vertebral body indicative of disc damage (*ibid*) – were recorded in 4/6 vertebrae from one of the Edridge Road cremation burials. Osteophytes (irregular growths of new bone along joint margins), pitting and other destructive lesions may develop in response to a number of conditions and it is not always possible to ascertain the specific cause of individual lesions (Rogers & Waldron 1995, 20–5). Osteophytes were observed in three joints in skeleton 371. Similarly, it is not always possible to be conclusive with respect to the aetiology of exostoses – bony growths which may develop at tendon and ligament insertions on the bone. Causative factors include advancing age, traumatic stress, or various diseases.

Pyre technology and cremation ritual

The cremated bone was almost uniformly white in colour, indicative of full oxidation of the organic components of the bone (Holden *et al* 1995a and b). One of the Edridge Road burials (44/2) included one fragment of skull vault with the classic 'sandwich' effect (white cortical bone and blue diplöe) and one fragment of mid-proximal femur (thigh) with similar colour divisions. Numerous factors may affect the efficiency of oxidation (McKinley 1994a, 77–84). In this instance the small number of fragments affected suggests a shortfall late in the cremation process when the bone had already fragmented in response to dehydration fissures, the affected fragment either suffering from oxygen deprivation (possibly buried in the fuel ash) or falling away from the heat of the pyre.

The weight of bone recovered from the two surviving Edridge Road burials probably does not represent the full weight of bone at the time of recovery. The proportion of bone <4mm in size was very low at *c* 4% of the total weight, where one would normally expect 30–50% given the condition of the rest of the bone (McKinley 1994a and b), which strongly suggests that only the larger fragments were retained. The only other intact remains of a burial (30) mainly comprised animal bone (large ungulate), and in this instance *c* 30% of the bone was <4mm. Consequently, no reliable information on the quantity of human bone included in the burials is available. The inclusion of only a proportion of the cremated bone in the burial is a recognized part of the rite and there is commonly a wide variation. The average weight of bone from similarly dated, undisturbed adult burials from the Anglian regions, for example Sancton, Yorkshire (McKinley 1993b, 296) and Spong Hill, Norfolk (McKinley 1994a, 85) is *c* 850–900g. It has been observed, however, that the range and average weights from some of the southern cemeteries appears consistently lower, as, for example at St Mary's, Southampton (undisturbed adult burial range 204–697.3g; McKinley forthcoming b), with a maximum range of 400–500g from Portway, Andover, Hampshire (Henderson 1985; no weights given, no distinction between disturbed and undisturbed deposits) and at Apple Down 73% of the 'burials' included less than 100g of bone, with only 12% including more than 300g (Down & Welch 1990; all ages and levels of disturbance).

The maximum fragment sizes from the two adult burials were 61mm and 73mm, which are commensurate with similar burials of this period. There are a number of factors which may affect the size of cremated bone fragments (McKinley 1994b) the majority of which are exclusive of any deliberate human action other than that of cremation itself, and there is no evidence in this instance to suggest any deliberate fragmentation prior to burial. Bone fragments from each skeletal area were identified in both burials. The absence of tooth roots (commonly recovered) and relative paucity of the small bones of the hands and feet is likely to reflect the discarding of the smaller bone fragments following the discovery of the burials in the 19th century, as discussed above.

The unurned burial 30 contained only a small quantity (*c* 6g) of human bone, the remainder comprising well-oxidized animal bone identified as horse/cattle size but including one positive identification of horse (a pedal sesamoid); fragments of rib, vertebral centra, limb shaft and epiphyseal surfaces were observed but no teeth (species and element identifications by Sheila Hamilton-Dyer). The burial has similarities with several which have been excavated from contemporaneous Anglian cemeteries and elsewhere in Migration period continental Europe (Wahl 1982). At Baston, Lincolnshire (Manchester 1976) and Newark, Nottinghamshire (Harman 1989), for example, several urned burials containing all or mostly animal bone (generally horse) were found, some adjacent to those of humans. At Spong Hill, 1.3% of the burials were designated 'animal accessory burials' (McKinley 1994a, 92–3), as were at least two of those from Sancton (McKinley 1993b). Such deposits comprised burials made simultaneously within the same grave; one burial contained mostly human bone with a small amount of animal remains, the other mostly animal bone with a few fragments of human, the human and animal deriving from the same individuals in each case. The animal remains are generally those of a horse or a dog, and the entire animal had been cremated. Although burial 30 was alone within

the grave (29), the presence of at least some human bone suggests it may have had a human counterpart in the immediate vicinity. A cut (95) of similar size and appearance was excavated *c* 2m to the east of grave 29, from which a small quantity of human bone was recovered (96) together with very small fragments of glass and copper alloy. Small fragments of redeposited cremated human were found in several features within the vicinity suggesting that at least one cremation burial had been disturbed by the insertion of the inhumation graves (fig 50). There is currently no evidence for this tradition of animal cremation burials in the south of England, with no cremated animal bone at all having been identified from the burials at Christchurch, Dorset (Jarvis 1983), Portway (Cook & Dacre 1985) or Alton (Evison 1988), though small quantities of cremated animal bone (pyre goods) have been recovered from some southern cremation burials, eg St Mary's Stadium, Southampton (McKinley forthcoming b).

The cremated bone in burial 30 was concentrated (90%) in the eastern half of the cut, mainly towards the edges, with the greatest proportion (72%) in the upper 0.14m. The associated matrix was dark brown and rich in fuel ash (see *Charcoal,* below), presumably representing redeposited pyre debris added to the grave fill both before and after the burial was made. The inclusion of pyre debris in grave fills is a common characteristic of the rite throughout its use and reflects the proximity of the pyre site to the place of burial (McKinley 1998; 2000b). The temporal exception to this part of the rite has appeared to be the Anglo-Saxon period, as represented by the cremation cemeteries in the Anglian regions (*ibid*). In the south, however, fuel ash in grave fills and possibly even deliberate deposits of pyre debris has been observed at several cemeteries, for example at Alton (Evison 1988) and Portway (Cook & Dacre 1985). The evidence for all the deposits from Alton representing burials is not conclusive and some may have been scattered material or, as with 'cremation 7', deposits of pyre debris. The 'dark earth' recorded in association with burials at Portway may have included small-fraction charcoal (*ibid*).

FINDS

Weaponry and associated material, by Paul Hill and Logan Thompson, with a contribution by Nick Stoodley

> Where is the horse now, where the hero gone?
> Where is the bounteous lord, and where the benches
> For feasting? Where are all the joys of hall?
> Alas for the bright cup, the armoured warrior,
> The glory of the prince. That time is over.
>
> (From the Anglo-Saxon poem *The Wanderer*)

The Anglo-Saxon weaponry excavated in 1999 and 2000 (table 2) includes: four swords, one seax, twelve spearheads (including two from PAK92 evaluation trench 1) plus associated fittings such as butt ferrules, and eleven shield bosses with associated grip fragments and other shield board fittings. Where relevant, reference has been made to surviving material from earlier archaeological activity at Croydon, for example the two surviving swords from Edridge Road, and at sites of neighbouring pagan Saxon cemeteries.

The weapons recovered from Park Lane have added to the volume of material already known from the Croydon cemetery (table 1; Griffith 1897; Morris 1959; Shaw 1970, 96). The surviving material from Edridge Road covers much the same range of dates as the Park Lane material, with a slight leaning towards earlier forms of weaponry and bosses; the *franciscas* (throwing axes) and angon (spear) may indicate an early date, although there is a sugar-loaf shield boss from the 6th–7th centuries and a number of Group 3 shield bosses which run through much of the 6th century. The presence of the angon and *franciscas*, and the lack of similar material in the neighbouring cemeteries at Mitcham and Beddington (Bidder & Morris 1959) led Shaw (1970) to stress Frankish connections within the Croydon Saxon community.

TABLE 1 Summary of objects recovered in 1893–4

	Human bone	No. of objects	Knife	Sword	Spearhead	Shield boss	Axe head	Buckle	Brooch	Others
1897 record		min 104	9†	3/?4	26 + angon	12	3 *franciscas*	1 Fe	2 saucer, 2 square-headed, 1 circular, 1 long, 2 annular	RB: 4 ceramic vessels, 2 Cu needles, Cu armlet, ?bar with disc, tweezers Cu bowl, 2 circular ornaments, 2 double attachment plates, a strap distributor, buckle plates, 2 glass vessels; 16 urns; & a ceramic cup, hone stone, 2 buckets; Fe prick-spur; drinking horn; + 'several small bronze objects, including fibulae [...] not [...] available for description.'
1970 record		104	9	4 (1 BM)	26 + angon (12 BM)	12 (6 BM)	3 *franciscas* (1 BM)	1 Fe	3 saucer (BM 2, CM 1); 2 ring (BM 1, CM 1); 4 square-headed/ fibulae (CM); brooch pin (CM)	RB: bracelet, 2 needles, 2 vessels, tweezers Cu belt plate (CM), 2 discs (1 BM, 1 CM), 3 belt fittings, 2 strap ends, Cu medallion, strap distributor, 2 glass vessels (CM), Cu bowl (CM), 2 buckets (CM), 17 urns (9 BM)
currently in Croydon Museum	parts of 2 crem burials	41	2	1	1 + 2 ferrules	3	1	1 Cu	4 square-headed/ long, 1 saucer, 1 penannular/ring	RB: bottle 4 urns, 2 glass vessels, hone stone, *Cu bracelet, *2 Cu needles, *miniature tweezers, 2 Cu pins, belt plate, belt fitting, 3 strap ends, Cu trefoil object, Cu bowl, 2 buckets; Fe loop, Fe miniature shears
currently in British Museum		46	4	2	13 + angon	6	2	1 Fe	2 saucer, 1 ring/ annular	?RB: prick spur 9 urns, Cu belt fitting, Cu ?strap distributor, glass vessel, drinking horn

KEY: 1897 record from Griffith (1897) with †Morris 1959 (also gives the location at that date, BM having one more sword and spear and three more bosses than recorded in 1970; other objects at Thornton Heath Museum, bombed in the Second World War); 1970 record from Shaw (1970), with given location at time (BM: British Museum, CM: Croydon Museum); current location of items recorded during visits to Croydon Museum (* catalogued as Saxon, previously recorded as Roman) and from both museum catalogues.

TABLE 2 Saxon inhumation grave list

NB Main excavation only. Nails not counted as grave goods; shield grips, studs and rivets counted under 'shield'; spear ferrules counted with spear; bead groups (necklaces) and purse collections are each counted as one object (see *Endnote* (grave catalogue) for details).

Grave no.	Skeletal data		Weapons			Personal adornment				Personal equipment		Container	Other misc objects	Total grave goods	Nail
	Sex	Age	Sword	Spear	Shield	Brooch	Bead	Buckle	Other	Knife	Other			no. objects	
4	?	>13yr	1^	1	1*^	–	–	1	–	–	–	–	Fe disc; *textile, ^mineralized organics	5	–
6	–	–	1^	–	–	–	–	1*	–	2	shears tweezers	Cu alloy vessel	*textile, ^mineralized organics	7	–
9	?	>15yr	–	1	1^	–	–	–	–	1	–	–	Cu alloy frags; ^mineralized organics	3	–
17	?	>15yr	–	1*	1	–	–	–	–	–	purse-mount	–	Fe frag; *textile; ?redep. flint arrowhead	4	–
19	?M	>45yr	–	–	–	–	–	–	–	1	tweezers	?vessel repair	–	3	–
26	–	–	–	1*^	1	–	–	–	–	1		–	*textile, ^mineralized organics	3	–
32	?	>13yr	–	–	–	–	–	–	–	–	pin/nail	–	1 Fe stud *[redep. pottery; 1 slag]*	?1	1
36	?F	>45yr	–	–	–	–	–	–	–	–	–	–	–	0	1
39	?	>30yr	–	–	–	2	17 glass	–	pin	–	–	–	–	4	2
41	?F	30–45yr	–	–	–	–	–	–	–	–	–	bucket	–	1	–
43	?	>13yr	–	–	–	–	–	–	–	1	tweezers	–	–	2	–
?47	–	–	–	–	–	–	–	–	–	–	–	–	–	0	–
?54	–	–	–	–	–	–	–	–	–	–	–	–	–	0	–
57	–	–	–	–	–	–	–	–	–	1	–	–	–	1	1
74	–	–	–	–	1^	–	–	1	–	1	–	–	3 rivets (with buckle); ^mineralized organics	3	3
?79	–	–	–	–	–	–	–	–	–	–	–	–	–	0	–
85	–	–	–	–	1*	–	–	2*	–	1	–	bucket	*textile	5	–
?93	–	–	–	–	–	–	–	–	–	–	–	–	–	0	–
103	F	16–25yr	–	–	–	2	–	1	ring	–	–	–	–	4	1
113	–	–	–	–	–	–	–	–	–	–	–	–	–	0	–
115	–	>13yr	–	–	–	–	–	–	pin	1	toilet implements	Fe ?vessel binding	Cu/a sheet (?bucket fittings) with textile	5	–
?133	–	–	–	–	–	–	–	–	pin	1	–	–	RB coin; Cu/a sheet frags	4	1
135	–	–	–	–	–	3	–	–	–	–	purse collection*	–	RB coin; Cu/a + Fe rings; *textile	7+	–
144	–	–	–	–	–	–	–	1	–	1^	tweezers	–	^mineralized organics	3	–

TABLE 2 (continued)

Grave no.	Skeletal data		Weapons			Personal adornment				Personal equipment		Container	Other misc objects	Total grave goods	Nail
	Sex	Age	Sword	Spear	Shield	Brooch	Bead	Buckle	Other	Knife	Other			no. objects	
147	?M	35–50yr	1^	2	1	–	–	–	–	1^	tweezers	–	2 ?baldric attachments; 2 Fe mounts; Fe strap; ^mineralized organics	14	1
164	?F	18–30yr	–	–	–	2*	5 amber 1 chalk	1	–	1**	–	–	Cu/a frags & Cu gilt disc (assoc with necklace) *textile + animal pelt	10	–
197	?	>13yr	–	–	–	–	–	–	–	1	–	bucket mount ?wooden box*	*textile	2/3	13
198	–	–	–	–	–	–	–	–	–	1	–	Cu/a ?wooden vessel fitting	Fe ring	3	1
200	–	–	–	1	–	–	–	–	–	–	–	–	–	1	–
204	–	–	–	2^	1^	–	–	1	–	1	–	–	^mineralized organics	5	–
208	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
210	?	>13yr	–	–	–	–	–	1	–	1			–	2	–
212	–	–	–	–	–	–	–	–	–	–	?purse	pottery vessel collection	–	2	–
216	?F	18–30yr	–	–	–	–	–	–	–	–	–	–	–	–	–
231	–	–	–	–	–	2*	–	–	–	1	–	–	spindlewhorl; Fe ring; *textile	5	–
?236	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
260	?	>13yr	–	1	–	–	–	–	–	–	–	–	–	1	1
274	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
282	–	–	–	–	–	–	–	–	–	1	–	?	Cu/a sheet frags; *textile	2	6*
327	?M	>18yr	–	–	–	–	–	–	–	–	–	–	–	–	–
339	–	–	1*^	1*^	1	–	–	–	–	*seax*^	–	–	Cu/a ring; Cu/a sword ring *textile, ^mineralized organics	5/6	–
?344	?F	>15yr	–	–	–	–	–	–	–	–	–	–	–	–	–
347	?F	16–30yr	–	–	1^	–	–	1	–	1	–	–	^mineralized organics	3	1
352	?M	>18yr	–	–	1*^	–	–	1	–	–	–	–	*textile, ^mineralized organics	2	–
362	–	–	–	–	grip*	–	–	–	pin	–	–	–	Fe rods; *textile	3	1
?366	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Totals			4	11	12 (1 grip only)	11 (5 pairs)	2 sets +1 bead	12 seax		21 +				125/128	34

The Edridge Road angon is of Swanton's A2 (1974, 6) category (usually associated with Frankish material culture), but the rest of the spears comprise a corpus similar to that from Park Lane. Weaponry alone, however, is not a firm enough basis for the establishment of such cultural affinities.

The typologies used for assessing the Park Lane material are as follows: spears (Swanton 1974), swords (Behmer 1939), shield bosses and shield grip-fittings (Dickinson & Härke 1992). These typologies place much of the Park Lane material in the early–mid 6th century with a continuation of deposition in the late 6th and in all probability early 7th centuries. In the case of three of the swords (ONs 13, 15 and 144) and four of the shield bosses (ONs 25, 148, 190 and 195), this may very well mean a production date in the 5th century.

Much has been written on the nature of the weapon burial rite in Early Saxon England as well as the contemporary continental evidence (Härke 1989, 49–59). The phenomenon is associated with a great degree of symbolism, some of which is still being assessed. It also appears to have been at its peak in England during the early 6th century when a period of peace after the battle of Badon may have made weapon deposition a more comfortable option for Germanic communities than before. The battle, which took place in the 490s, or at least 43 years before the historian Gildas wrote of it in the mid-6th century, represented the high-water mark of native Celtic military achievement against the invading Saxon and resulted in the checking of the English westward migration across southern Britain for up to two generations.

The combinations of weapons and shield depositions in graves across the pagan Saxon cemeteries of England do not always reflect the fighting preferences of the warriors who were buried with their weapons. For example, there is little practical usage in just wielding a shield in battle and yet many burials are found with only this one piece of military equipment. However, it is clear from a closer examination of the weapons that were buried with the Germanic males in the 5th and 6th centuries in England, that although their deposition was an overtly symbolic act, they were perfectly functional weapons. Weapons acquire their symbolism through their effectiveness.

The weapon set combinations from Park Lane are outlined in table 3. The appropriate weapon typologies are also listed. Sword, spear and shield combinations occurred in three

TABLE 3 Weapon set combinations

Sword, spear and shield boss	
Grave 4	Sword (Type IV), spear butt ferrule, shield boss (Group 3)
Grave 147	Sword (Type IV), two spears (H1 and C2), shield boss (Group 3)
Grave 339	Sword (Type IV), spearhead (C2), shield boss (Group 3),
Sword only	
Grave 6	Sword (Type IV)
Shield boss and spearhead	
Grave 9	Shield boss (Group 3), spearhead (C2) (spear butt ferrule 20)
Grave 17	Shield boss (Group 1.1), spearhead (?) and spear butt ferrule
Grave 204	Shield boss (Group 1.2), two spearheads (H2) and (C1)
Spearhead only	
Grave 200	Spearhead (C4)
Grave 260	Spearhead (C1)
Shield boss only	
Grave 26	Shield boss (Group 3)
Grave 74	Shield boss (Group 6) (grave damaged by 20th century building)
Grave 85	Shield boss (Group 3)
Grave 347	Shield boss (Group 1.1)
Grave 352	Shield boss (Group 1.1) (grave damaged by 19th century building)

TABLE 4 Shield boss and spearhead combinations.

Grave	Shield boss Group type	Spearhead type
9	3	C2
17	1.1	C2
204	1.2	H2
339	3	C2

graves and a lone sword in one other (fig 48). This compares interestingly with the spear combinations. One would expect spears on their own to constitute the bulk of the weapon burials (Härke 1989, 52), but they do not, amounting to only two. Instead, there is a tendency towards sword and shield combinations with spears included. The weapon burial rite at Park Lane therefore tends towards the 'richer' end of the weapon burial spectrum.

It was only possible to draw a comparison between shield boss types and spearhead types in four of the graves (table 4). In each case the combination points to a date of interment in the early to mid-6th century, but no closer dating could be ascertained on this basis. The H2 spearheads never occur with later boss types and although the C2 spearheads have a date range throughout the 6th century, they occur in association with earlier bosses and are on the smaller side, leaning towards the cusp of C1/C2 definitions in some cases.

The approach used here for measuring and recording each type of weapon is outlined under each section and demonstrated in diagrammatic form together with an explanation of terms used to describe various features (fig 52).

Swords

> Your Fraternity has chosen for us swords capable even of cutting through armour, which I prize more for their iron than for the gold upon them [...] The central part of their blade, so cunningly hollowed out, appears to be grained with tiny snakes [...] Such swords by their beauty might be deemed the work of Vulcan.
>
> (Letter of Cassiodorus, Secretary of Theodoric the Great, King of the Ostrogoths (b. *c*AD441–d. AD526), expressing the king's thanks for the receipt of a gift of several swords from another Dark Age king (trans. Davidson 1962, 106))

The fighting and handling properties of the double-edged swords of the Migration period are characterized by a number of factors. Their blades are generally very long at around 813mm (32 inches), although lengths vary from sword to sword. They were essentially overarm slashing weapons, some with broad blades with parallel sides, others with slightly tapering blades depending upon the preference of the user. At Croydon (Park Lane and Edridge Road), two swords were of the parallel-sided type, two of a broad but tapering variety and two of a narrower tapering variety, all of which fall under the general classification of Ellis Behmer Type IV swords. This compares to the four tapering and three parallel-sided blades surviving from the Mitcham cemetery. Recent examination of 25 Migration period swords from cemeteries across the south of England found that thirteen had tapering blades, eleven were parallel sided and one was possibly transitional. The morphology of blades on swords of this period is an area for further analysis since the handling properties of the weapon are to a great extent governed by blade shape. The notion that all swords of this period in English pagan Saxon cemeteries fall under the Ellis Behmer Type IV classification is expressed by Oakeshott (Behmer 1939; Oakeshott 1960, 113). This type is defined, among other things, by the rise to prominence of the 'cocked-hat' pommel type (fig 53). Although some of the swords from Mitcham and Croydon have such pommels, others from the same cemeteries do not. The four Park Lane swords do not possess such pommels and in the case of swords 13 and 15 the tang must have passed through the pommel and been hammered over.

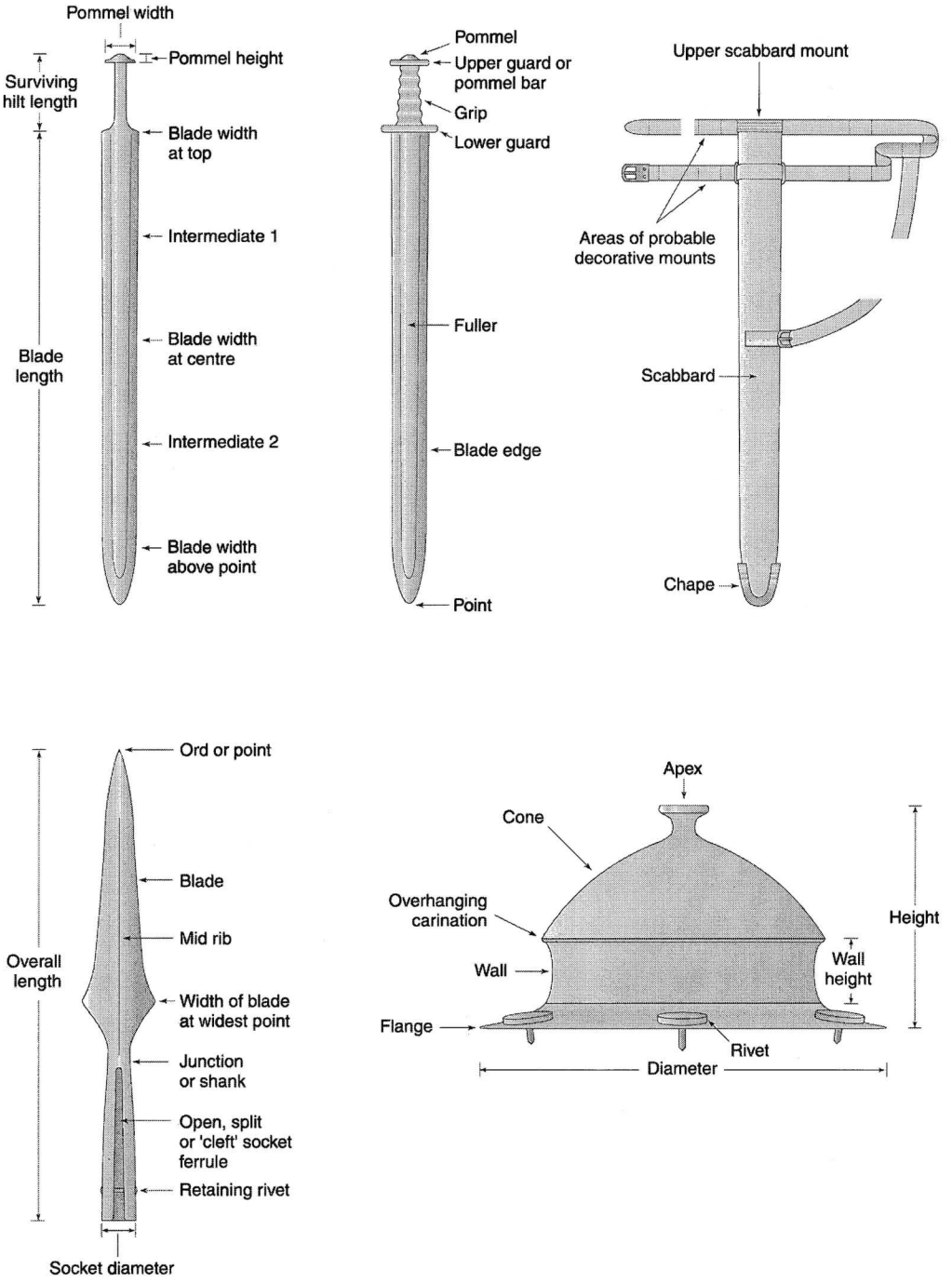

Fig 52 Park Lane, Croydon. Schematic diagrams of swords, spearhead and shield boss (after Dickinson & Härke 1993, 5) showing term, features and measurement points.

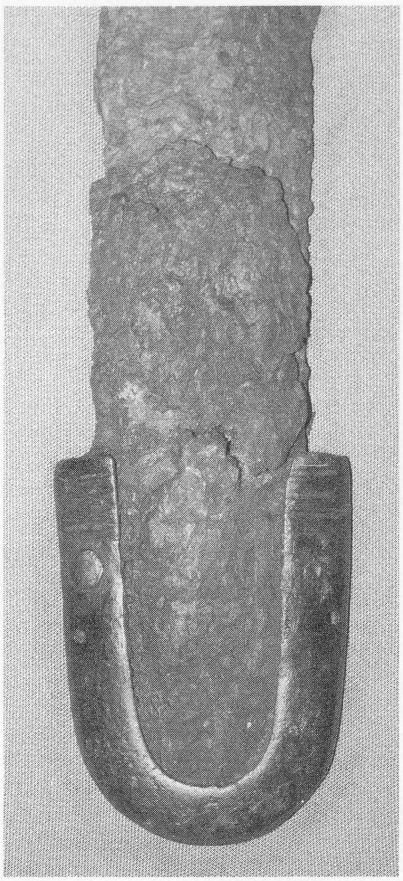

Fig 53 Park Lane, Croydon. Photograph of Croydon sword held in Croydon Museum (no M1992) showing gilded copper-alloy chape at point end of scabbard. Reproduced by kind permission of Croydon Museum and Heritage Service.

The longest Croydon swords possessed parallel-sided blade edges (ON 15 and BM 1895 3-12 10). Sword points of balance are generally low on blades of this period, particularly on the parallel-sided ones, enhancing the power of above-shoulder slashing strokes. Such weapons were rather clumsy and unwieldy making it difficult to recover the sword to a defensive posture after a hacking stroke was delivered. The sword could deliver some slicing horizontal strokes, but otherwise its stroke range was limited. The tapering variety (eg ON 13) offered a wider range which included straight thrusting strokes and a quicker recovery to a defensive posture. A hilt arrangement that facilitated a tight fitting grip so that the hand would not slip on impact was therefore essential.

All four Park Lane swords had a pattern-welded blade construction using between two and four rods (see *Metallurgical analysis of the swords*, below, for full discussion). One of the Edridge Road swords (Croydon Museum M1992, fig 56) showed evidence for two rods and another (British Museum 1895 3-13 10) showed no evidence at all for any pattern welding (Lang & Ager 1989, 118). Swords with over four rods welded together side by side to form the pattern-welded appearance on a blade are relatively rare with the Acklam, North Yorkshire and Loveden Hill, Lincolnshire, swords of *c* AD600 being examples (Ager & Gilmour 1988, 22). The Croydon set comprises simpler constructions than these rare examples and in all probability pre-dates them.

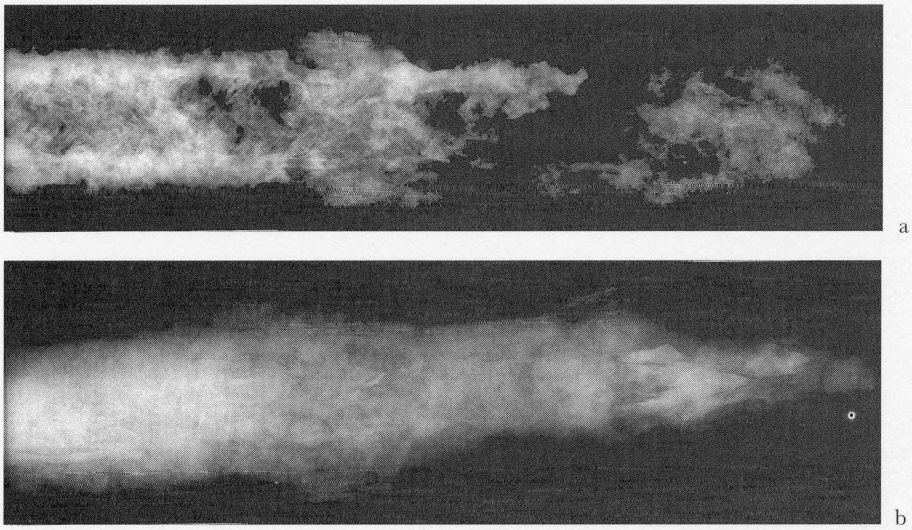

Fig 54 Park Lane, Croydon. X-radiographs: a) sword 144 showing point end and faint impression of possible chape; b) sword 13 showing chape end of blade with faint evidence for protruding finial at point.

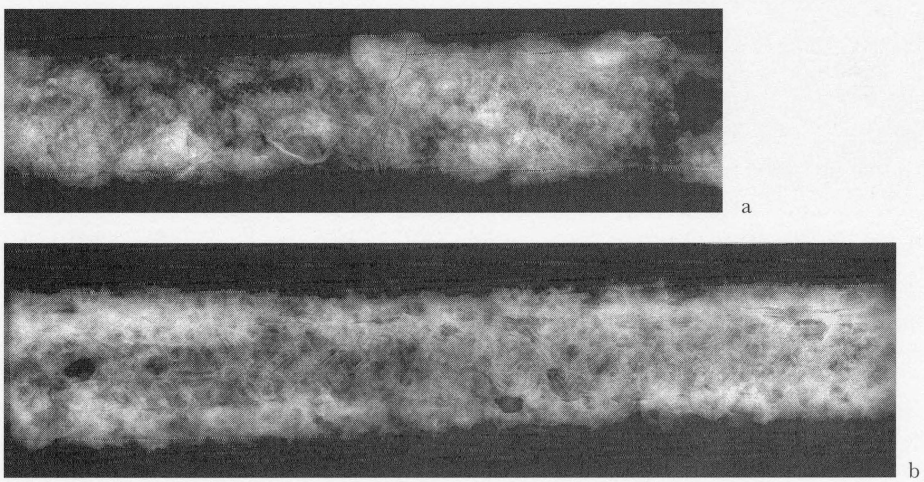

Fig 55 Park Lane, Croydon. X-radiographs: a) sword 15 showing pattern-welded blade construction of four twisted rods; b) sword 144 with evidence for pattern-welded structure and area where the edge strip welded to the centre part of the blade has come away.

Sword 13 and sword belt ON 11, with a contribution by Nick Stoodley (figs 9 and 54b)

This long tapering sword is of a narrow type and will have had different weapon handling characteristics than the broader parallel-sided sword 15 (fig 8), being capable of performing thrusting as well as slashing strokes. Much of the organic scabbard material still remains (see *Mineralized organics*, below) and there are two features preserved on the scabbard itself. The first of these is the upper scabbard mount which surrounds the mouth of the scabbard at both the front and back of the opening. Although the remnants of the mount constituted little more than an impression in places, one rivet hole for retaining the mount to the scabbard could be seen, indicating that this was the back and not the front of the scabbard. The other attachment to the scabbard survives in the form of a buckle half-way down its length, to which a strap would have been

attached, linking up to the main baldric at the waist. The effect of this strap would have been to facilitate the suspension of the weapon from the waist at an angle to keep it from interfering with the wearer's legs when he walked. X-ray examination revealed faint evidence for what appears to represent a chape of an elongated U shape, with a protruding boss or finial at its point.

A decorated copper-alloy band (ON 11), with a motif of ring-and-dot stamps, was set adjacent to the sword about half-way along its length (fig 9). Belts consisting of buckles attached to similar plates have been discussed by Evison (1988, 20–2); most have an iron plate riveted to a bone or horn backing and a buckle is also attached. The closest parallel to this example is an unstratified find from Ford, Wiltshire, which was undecorated and represented by the bronze top plate (*ibid*, fig 6a). The lack of a buckle in the grave does not rule out its identification as part of a belt set – the buckle could have been lost before burial and the belt laid in the grave – however, the position of the band probably demonstrates that it was part of the sword belt. The copper-alloy bowl (ON 2) interred in this grave may indicate that the individual was of high social status and the sword and its belt set is not out of step with such a hypothesis.

Sword 15 (figs 8 and 55b)

This sword has lost a few centimetres from its point section but, at 883mm, remains the longest sword from Park Lane. There is no cocked-hat pommel as such, although the tang is flattened slightly at its tip, indicating that it probably passed through the pommel and was hammered over at the end. Evidence of the horn grip survives on the tang (see *Mineralized organics,* below) and there are traces of the lower guard just above the space left by an upper scabbard mount.

Sword 144 (figs 27, 54a and 55b)

This long sword, of a very slightly tapering form, survives almost complete and retains one half of its pommel. The pommel is very flat and from what survives it is possible to deduce that it may be of early cocked-hat type. At the point end, X-ray revealed the presence of a chape of relatively simple U-shaped form, extending 152mm up both sides of the scabbard. There was also some evidence in the form of parallel darker lines on the X-radiograph which may indicate the width of a broad central fuller running down the blade, although these lines might equally represent the link between the termination of the pattern-welded central section at its junction with the cutting edges.

Grave 147 also contained two spearheads and a shield boss and must be considered a rich warrior burial. Two small items of interest found to the left of the sword were a small iron rod with curved terminals (ON 147) and near it, a copper-alloy plate with one perforation for a rivet (ON 146). These two items, although in poor condition, survive sufficiently well to be interpreted as a sword strap decorative plate (ON 146) and one of a pair of scabbard attachments which should be mounted about 102mm from the mouth of the scabbard so that the baldric could be passed through these two iron loops at that point, thus securing it to the scabbard (fig 52).

Sword 184 (fig 39)

This broad-bladed sword was damaged, possibly partly in excavation, and survives in three separate pieces. The upper part of the weapon repays close examination. The scabbard remains are clearly visible to the naked eye including: some remains of animal pelt (see *Textiles,* below); an indentation where the upper scabbard mount should have been; remains of the lower guard where it crosses the tang (horn; see *Mineralized organics,* below) and, completely encasing the tang, the organic remains of a horn grip indicating that it was made of one single piece and tapped onto the tang down to the lower guard. A type C2 spearhead considered to be of general 6th century date was also recovered from the grave and a Group 3 shield boss indicating a 6th century date for interment.

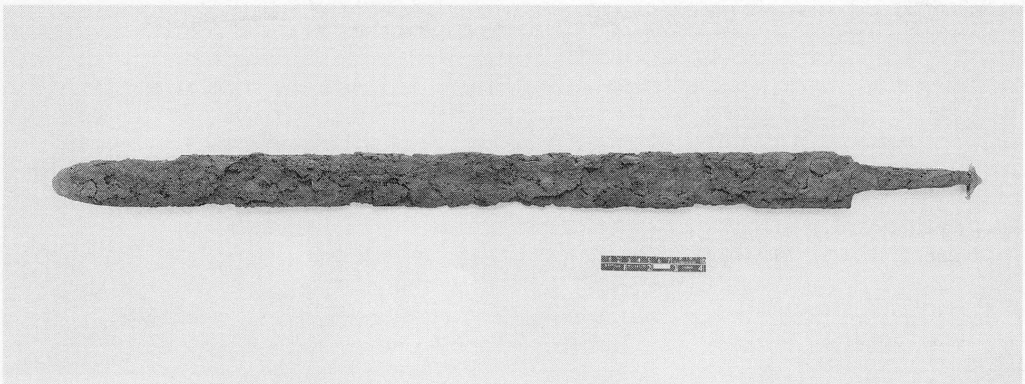

Fig 56 Park Lane, Croydon. Croydon sword held in the British Museum (no 1895 3-13 10), showing classic broad bladed parallel sided features and cocked-hat pommel form of Behmer type IV.

Only the northern portion of this grave was accessible for excavation and there was slight disturbance to some items during its discovery. The presence of a copper-alloy decorative ring (ON 186; fig 39) found a short distance from the sword is still of note, however. Sword rings in England outside Kent are extremely rare, with the best Kentish examples coming from Bifrons, Gilton and Faversham. The Bifrons and Gilton rings were found attached to the pommel, while the Faversham one was found with its ring and holding ring (resembling a picture hook) divorced from the hilt. The significance of ring swords is debatable. It was once thought that the ring was used to attach 'peace strings' whereby the sword was tied to the scabbard to hinder hasty withdrawal (one should never draw a sword if one does not intend to use it), but it seems that the weight of the argument based on references in literature has shifted to the use of rings in oath swearing, particularly in acts of fealty (Oakeshott 1960, 115–16). The Park Lane ring has two lines of incised decoration running around its rim and has become detached, although it is still partially encased in the corrosion products of what may have been its holding ring. The presence of the sword ring indicates a high social status, the owner commanding a high enough social position for acts of ring-oaths to be sworn on his weapon. Although there is no surviving complete pommel arrangement, it is tempting to see this ring as a detached sword ring.

Edridge Road swords

Two other swords the from the cemetery survive among the material recovered from Edridge Road (table 1). These are worth mentioning since their form and features compare interestingly with the material from Park Lane. The Croydon Museum sword M1992 is relatively shorter at only 836mm to the chape base from the tang tip and it is very well preserved. There are diagnostic features at both ends of the scabbard. The gilded copper-alloy upper scabbard mount is still attached at the mouth of the scabbard and is decorated with incised lines in keeping with the Mitcham-Kempston type outlined by Menghin (1983), two classic examples of which exist on two of the swords from the Mitcham cemetery now in Kingston Museum (Hill & Thompson 2003, this volume, 147–61). At the point end of the scabbard exists a simple formed short U-shaped copper-alloy chape in excellent condition (fig 53) with incised lines near to the top of each arm of the U. The British Museum sword (1895 3-13 10) is much longer at 908mm. The only surviving sword furniture is the copper-alloy cocked-hat pommel on the top of the tang. It was clearly a broad parallel-sided slashing weapon and is one of the longest encountered in any of the local cemeteries.

The high proportion of pattern-welded swords at Croydon (five out of six) must indicate the high status of those who were buried with these swords. The weapons vary in length, width and blade form indicating that each one was made with its fighting and handling properties in mind.

Spearheads, ferrules and spear fittings

> Because of this, many a spear, cold in the morning air
> Shall be grasped and raised in the hand
>
> (*Beowulf*, 3021, Garmonsway & Simpson 1968, 79)

In the immediate post-Roman period the spear was perhaps more widely used throughout Europe than at any other period during its long history. This was particularly the case in England. It was the right of every freeman to bear arms in many early medieval societies and many chose the simple spear as their main arm. The spear is not, however, as simple as it might appear. Much work has been undertaken to differentiate between types. There is clearly a difference between javelins designed for throwing and weapons designed to be retained in both hands during combat (fig 57; Hill 2000, 276). These differences can be ascertained not so much from the aerodynamics of the weapon head but more from the width of the shaft as indicated by the surviving socket ferrule aperture (fig 52). Spears in the early

Fig 57 Park Lane, Croydon. Spearheads (left to right): ONs 107, 6, 157, 189, 108, 1, 137.

medieval period range from light throwing weapons to large two-handed spears which have a wide enough haft to accommodate some lateral stresses. The latter type is not unknown in the Migration period, but it is generally true to say that only in the middle to later Anglo-Saxon period in England do such two-handed long thrusting weapons become part of the established weapon set as the Anglo-Saxon armies switched dramatically to a defensive posture in later centuries.

Anglo-Saxon spearheads of the early period are nearly always constructed with a split, cleft or open socket (fig 52). This method of ferrule construction (the simplest method) continued in England long after it was discontinued on the Continent. Frankish smiths switched to closing and welding the socket during the Merovingian period and this became the norm for Continental spears throughout the Viking era. The mechanism by which the iron ferrule was attached to the wooden shaft involved a retaining rivet hammered through the side of the ferrule into the wood. Usually, these rivets remain inside the socket ferrule surrounded by the organic remains of the wood. Sometimes there is just one, but occasionally there are sets of two (as in the case of PAK92 SF 2; fig 43a), or even three rivets. The Park Lane spears mainly show a familiar simple arrangement of single rivets through the shaft. Spear 108 (fig 27a) shows the rivet standing several millimetres proud of the socket ferrule which must have

given the appearance of the crossed line often seen at the base of spearhead illustrations in early medieval manuscripts (Hill 2000, 274). It is rare to find this without the rivet either being broken off or being deliberately encased in a rivet cap of some sort.

Cultural affinities are difficult to establish from the available material. There was certainly a type B2 spearhead in the material recovered in the 1890s. This piece, with a welded socket and proud mid-rib, indicates possible native manufacture and is generally thought to be early. The absence of Swanton types D1, D2 and D3 from Park Lane favours the assumption that the cemetery is not Frankish, although this would have to be weighed against the presence of the angon and *franciscas* from the Edridge Road material mentioned above.

The relative position of a spearhead (ON 32) in relation to a spear butt ferrule (ON 26) in grave 17 (fig 11) allows the probable length of the weapon and when it was deposited in the grave, to be ascertained. The distance between the end of the butt and the tip of the spearhead is 1.83m or exactly 6 feet. The relative position of the spearheads and butt ferrules at Sutton Hoo (7th century; Evans 1989, 34–5) suggested weapons of between 6 and 8 feet (1.83 and 2.44m) in length. Generally this length represents the ideal for a spear capable of being both retained in the hand for spear play or hurled at close range.

Shield bosses and associated shield fittings

The serried ranks of armoured warriors standing behind the famous Anglo-Saxon shield as depicted in the Bayeux Tapestry is not the way one should view the usage of the smaller earlier shields of the Migration period. Shields in the pagan Saxon period were generally smaller than those of later periods, comprising a flat round board probably of plank construction with a central aperture over which an iron boss and grip arrangement was riveted. Shield bosses of the earliest type (Dickinson & Härke 1992, Group 4) have a tall, straight-sided cone rising to a sharp apex rod. These early bosses indicate that the shields may have been used

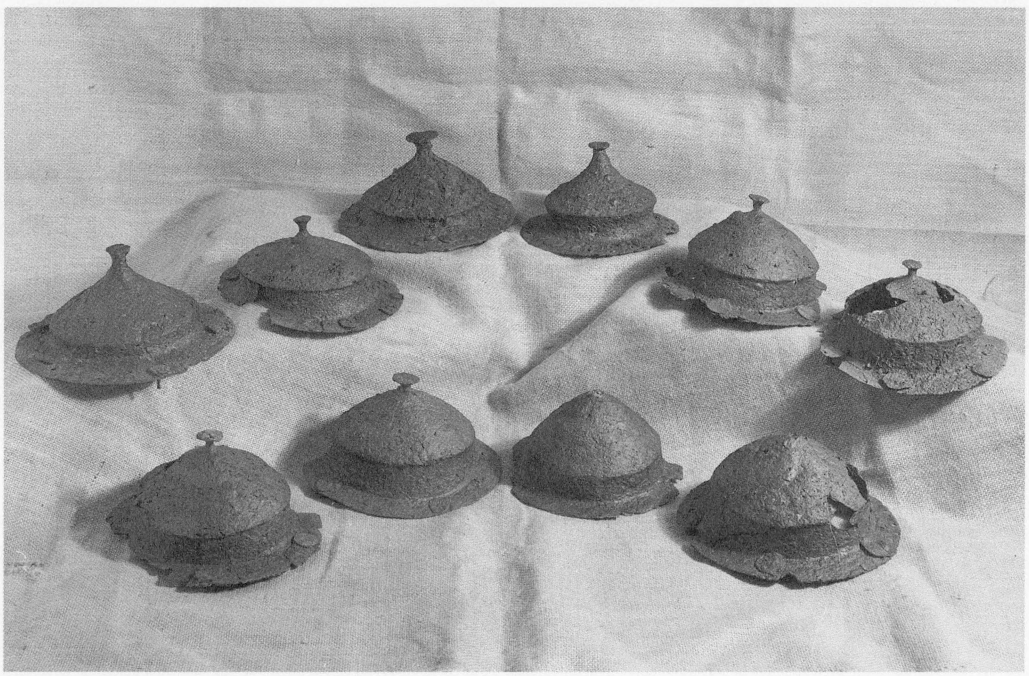

Fig 58 Park Lane, Croydon. Shield bosses (clockwise from top left): ONs 25, 190, 195, 148, 7, 37, 52, 188, 140 and 62.

offensively, the whole shield being employed as a buckler, the hand protected or enclosed by what literally amounted to a spiked iron fist. Boss forms of the later 5th and 6th centuries are not as high sided as the earlier ones (at least not until the later 6th century when the conspicuous sugar-loaf variety makes an appearance) and many have domed or convex cones indicating a possible switch to defensive fighting styles. They frequently have a small disc at the tip of the apex (figs 52 and 58).

Group 1 comprises generally low bosses of the 5th–6th centuries with overhanging carinations, concave walls and either straight (Group 1.1) or convex cones (Group 1.2). Group 2, which runs throughout the 6th century, shares elements with both Groups 1 and 3, and is characterized by straight-sided walls, and is more common in East Anglia and the West Midlands than in areas south of the Thames. Group 3, a popular group, is narrower and taller than its forebears, and has a date range running through the whole of the 6th century and probably into the 7th century. This group retains the overhanging carination but has a convex cone with straight-sided walls and examples are frequently found with five flange rivets. Group 3 bosses are thought to be the influence for the later low-curved cone varieties, of which Park Lane has one example (ON 52, grave 74; figs 19 and 58) with no apex stud and which is probably of later 6th to early 7th century date.

Shield grips of this period fall into three main types – Short, Medium and Long. Each type can either have a flat or flanged appearance (where the metal grip cover partially encloses the wood). Most of the Park Lane set were of Type I (Short, with either expanded or straight-ended terminals; table 5), although a broken longer flanged grip fragment probably of Type IIIb (ON 141) was found with a Group 3 boss (ON 140) in grave 147 (fig 27a). Group 3 bosses in Kent are often associated with longer flanged grips whereas in the upper Thames Valley this not the case.

The Group 3 shield boss ON 140 from grave 147 exhibits two clear damage marks on the cone – two straight cuts, 59mm and 42mm long (fig 27a) – which were probably made by a sword since a spear would have produced a perforation. This damage supports the notion that Group 3 bosses were used in a more defensive manner than the earliest types of shields, their curved sides helping to deflect such blows. Such marks are rare in bosses of this period. Dickinson & Härke (1992, 64) suggest that the boss from Swaffham, Norfolk, grave 18, which exhibits impressive dents in the cone, may have resulted from use in combat, although there are thought to be ritual associations with this grave. They also suggest that most damage marks come in the form of dents or punctures to the cone, wall and flange of a boss with Group 1 bosses suffering more damage to the flange (lateral impact) and Group 3 more damage to the cone (vertical impact). The Park Lane damage marks constitute vertical slashing impact to the cone and fit in with the contention that the Group 3 bosses reflect a change in usage over time.

Mineralized organics from five graves provided evidence of shield board thickness and form (see *Mineralized organics,* below). In addition, the long grip fragment (ON 141) associated with boss 140 in grave 147 (fig 27a) had at its rounded terminal a rivet, the measurements of which indicated a board thickness of just 8mm. A diamond-shaped plate (ON 197) from grave 352 (fig 41) is conceivably a shield board fitting (identification by N Stoodley). The use of both simple iron and bronze strips to decorate the shield board has been reported (Dickinson & Härke 1992, 27–9). A copper-alloy mount or strap-end (ON 191) from grave 347 was found

TABLE 5 Shield boss and grip types

	Shield boss type			
Grip type	1.1	1.2	3	6
Ia (i) Short flat grip with expanded terminals	2	1	1	1
Ia (ii) Short flat grip with straight-sided terminals	1	–	2	–
Ib Short flanged grip	–	–	1	–
IIIb Long flanged grip	–	–	1	–

in direct association with the shield boss (ON 190) and it is tempting to interpret it as a stylized figural appliqué (identification by N Stoodley). However, such fittings are usually more elaborate, taking the appearance of land and sea creatures (*ibid*). Alternatively, given its position in the area of the right knee, it may have served as a strap-end for a long dangling belt, though the decorative end would have been pointing the wrong way. In addition, strap-ends are relatively rare in Anglo-Saxon England and when they do occur they are usually small objects cut from copper-alloy sheet metal (S Marzinzik, pers comm). On balance, it is probably safer to regard it so far as a unique shield fitting.

Great care had been taken with the position of the shield on deposition (fig 49). The presence of a coffin in a grave often meant that a shield could only be placed vertically down between the sides of the coffin and the grave, because of the limited width of the grave itself. The evidence presented in figure 49 tends to support the notion that in Saxon regions of England, shield deposition favours the area of the abdomen and thighs: the majority of the Park Lane bosses were found in the region of the femora and tibiae. Dickinson & Härke's survey (1992, 65–7) reports that in Anglian regions, there is a 67% preference for shield deposition on the head or chest areas indicating that the entire shield covered the face, whereas in the Saxon region represented by the Park Lane material there is a 61% preference for the lower part of the body as outlined above. Kent has the highest proportion of vertically deposited shields, perhaps indicating the more frequent use of coffins or other internal structures cut into the chalky strata (Hogarth 1973, 104–19).

Seax, by Nick Stoodley

The fragmentary remains of blade and tang of a narrow seax (ON 185) were recovered from Grave 339. The estimated length of *c* 300mm takes the object out of the knife category and firmly identifies it as a seax. Seaxes were classified by Dickinson (1976), and grouped into three principal classes of either narrow (type A), broad (type B) or long (type C). Type A was subdivided according to length: A.2, small narrow seaxes, encompasses those weapons which have an overall length of 280–300mm, while A.3 covers those with a length of 300–400mm. Since ON 185 measures *c* 300mm in its present state it must have originally been longer and would therefore belong to the A.3 type. On the Continent, seaxes are known from the second half of the 5th century but in England they rarely make an appearance until the 7th century when they start replacing long double-edged swords in the burial rite. From a sample of 113 weapon burials from the 7th and early 8th centuries, seventeen seaxes as opposed to only five swords were found. A good comparison can be made with the seax from Polhill, Kent, grave 9, which has a total length of 295mm (Philp 1973, 189).

Summary

The weaponry from the Park Lane cemetery has afforded a rare opportunity to examine a substantial amount of material excavated with modern techniques. The nature of the retrieval of the material and of its subsequent care and treatment has allowed the examination of things which ordinarily cannot be seen on material recovered in the 19th and early 20th centuries. Principal among these features were the surviving guard remains on sword 13 (fig 9), the organic grip remains on sword 184, and a probable sword ring from grave 339 (fig 39). The surviving rivet on spear 108 (fig 27) was also of note and the damage marks on shield boss 140 (fig 27) are remarkably rare.

The high percentage of sword and shield combinations (table 3) indicates that a great significance was placed on warrior symbolism in the inhumation burial rite. Despite the presence of a type C1 spearhead in grave 260 – a type usually associated with poorer burials – the weapon burials seem to be associated with status in many cases. The combinations tend towards sword and shield variants and not to the spear combinations or spear only dominance that one would expect. Like Mitcham (Bidder & Morris 1959, 51–131) there is a lot of

weaponry at Croydon and its presence cannot be entirely due to cultural regional preference. Somebody made these weapons and their main function was for fighting. One cannot be certain that the weapons were those of the 5th century mercenaries or their descendants who came to Britain, or even that the individuals with whom the weapons were buried were actually their owners, such is the high degree of symbolism and selection surrounding the weapon burial rite. However, the strategic location of the Croydon and Mitcham cemeteries in relation to London and the comparison of their material culture with those of similar cemeteries to the north of London, has led some to argue for the controlled and deliberate settlement of these communities, with late Romano-British London playing a key role in keeping these groups from any significant contact with Kent (Morris 1973, 109). The weaponry and associated material at Park Lane neither confirm nor deny this thesis, although the absence of Group 2 shield bosses perhaps suggests a lack of contact with Anglian communities in the north. The presence of Group 3 bosses (representing just over 50% of the collection) might equally argue for Kentish connections where the preponderance of Group 3 bosses is put down to a strong Merovingian influence (Dickinson & Härke 1992, 15). The fact that one Group 3 boss was associated (in the Kentish manner) with a long type IIIb grip may also be deemed significant but it has to be set against the fact that the other Group 3 bosses were found with grip types 1a (i) and (ii) and 1b (table 5).

Whatever the reason for the preponderance of weaponry at Croydon and the tendency towards a demonstration of warrior status in the graves, the material recovered at Park Lane remains of interest in its own right. The material is clearly adding to the understanding of weapon types of this period.

Personal adornments, by Nick Stoodley, with a contribution by Lorraine Mepham

Brooches

Ten brooches were recovered from five graves, with each burial accompanied by brooches of matching type: four saucer, four applied and two S-shaped brooches (table 2; colour plate 1). While two brooch types that are represented at Park Lane (saucer and applied) were found at Edridge Road, four small-long brooches were also recovered from the latter (table 1). Although small-long brooches were more popular as dress fasteners in Anglian areas, their presence at Edridge Road need not elicit any surprise as they regularly turn up in Saxon cemeteries, often in quite large numbers. The typological development and chronology of these brooches remains problematic. However, it seems that many examples were deposited during the 6th century.

Saucer brooches, with a contribution by Tania Dickinson

Saucer brooches were one of the main types of fasteners used by women in the Saxon provinces of England. A close inspection of the range of brooch types found in two upper Thames Valley cemeteries, a region which saw early and dense settlement by Germanic groups from between the Elbe and Weser rivers (Hawkes 1986), will serve to illustrate this. At both Abingdon I, Oxfordshire (Leeds & Harden 1936) and Berinsfield (Boyle *et al* 1995), these are the second most popular type of fastener: 24% (total 17) and 27% (total 13) respectively.

At Park Lane, a pair of matching five spiral saucer brooches (ONs 105 and 106, the latter gilded; fig 21 and colour plate 1) were recovered from grave 103. Spiral decorated saucer brooches were well established on the Continent before the migration and continued in use in England for about a century, with the number of spirals increasing from six to ten (Evison 1987, 47–8). Overall, the design of the saucer brooch is reasonably simple in form, utilizing two separate concentric fields. In England, these brooches can be divided into two principal groups: those displaying geometric motifs and those with zoomorphic motifs. Dickinson (1993,

17) has demonstrated that the five running spiral design is numerically the most important of the geometric motifs, being found on 25% of her sample. The main group of English brooches has been divided by formal analysis into four main subsidiary series (A–D) based on the design format of their spirals, and these have in turn been subdivided according to the finer details of their attributes (Dickinson 1991, 40–52). The Park Lane brooches can be placed in the IIA type, along with other south-of-Thames Saxon types (T Dickinson, pers comm) such as at Andover, Hampshire (Cook & Dacre 1985, grave 41) and Orpington, Kent (grave 75). However, the Park Lane brooches are not exact matches for any of the IIA sub-types.

The pair of five spiral saucer brooches (ONs 105 and 106; fig 21 and colour plate 1) are of considerable interest because the spiral motif is one of several designs copied from the corpus of motifs employed in the decoration of late Roman chip-carved metalwork at the end of the 4th century and in the early 5th (Dickinson 1991, 41). The five running spiral design was used entirely on cast appliqués for a sheet metal base – an intermediary form between applied and cast saucer brooches. Examples of these rare brooches are found in England and Lower Saxony, and it was from these brooches that the design was transferred to the cast versions probably in about the middle decades of the 5th century (Dickinson 1993, 17). However, relatively few English brooches of the main series can be confidently placed in the second half of the 5th century (Dickinson 1991, 55), although there are numerous brooches that must have been deposited in burials at some time between the late 5th and mid-6th centuries. At Park Lane, the copper-alloy D-shaped buckle (ON 104; figs 21 and 59) associated with these brooches suggests a 6th rather than a 5th century date for deposition (see *Copper-alloy buckles,* below).

A pair of gilded saucer brooches decorated with a single field of Salin's Style I zoomorphic decoration was retrieved from grave 231 (ONs 149 and 150; fig 36 and colour plate 1). The design can be compared with the large number of saucer brooches with two chasing animals in Style I and to a lesser extent with those incorporating three chasing animals, though none provides an exact parallel (Dickinson 1993, 25–6; Dickinson forthcoming). Most of these use versions of Haseloff's 'Style Phase D' (triple-strand bodies) or Leigh's 'thick and thin' carving technique, with coarse versions, such as on the Park Lane pair, notable, for example, on the large series of two chasing bird-headed creatures. The stylistic affinities of these general parallels and such dating of associated grave goods as are available for them (especially great square-headed brooches; Hines 1997, 239–40) and beads of Brugmann's Phase A2 (Brugmann, in prep) suggest a *floruit* in the second and probably third quarters of the 6th century. The arrangement of two animals without a central boss/field is found on two other pieces: a saucer brooch from Duston, Northamptonshire (Northampton Museum D.197/1956-70) and a design-similar disc, re-used as a brooch, from Bishop's Cleeve, Gloucestershire (grave 13; Holbrook 2000), though their precise animal forms are different from the Park Lane pair.

A cast saucer brooch bearing a floriate cross and mask design survives from Edridge Road. The details consist of four schematic human faces peering out from the arms of the cross. Similar examples have been found at Highdown, West Sussex, and Abingdon, and datable contexts indicate burial in the first half of the 6th century (Welch 1983, 48).

Applied brooches

It is often impossible to determine whether a brooch with no surviving rim ever had one, hence the term 'applied disc or saucer brooch'. Two pairs of applied brooches were recovered from two graves at Park Lane. These brooches are closely related to the cast saucer brooches described above and are also associated with Saxon regions, although they are less common than their cast counterparts, a fact that may to some extent be explained by their weak construction. For example, at Abingdon I and Berinsfield (Boyle *et al* 1995) only 4% (total 3) and 13% (total 6) respectively of the brooches are of this type. Closer to Croydon, at Mitcham

Colour plate 1 Park Lane, Croydon. Brooches: saucer brooches 105 and 106 (top left and right) and 149 and 150 (bottom left and right); S-shaped brooches 94 and 95 (centre top and bottom), and disc brooch 117 (centre).

(Bidder & Morris 1959), they are similarly poorly represented: 15% (total 7). However, at Guildown (Lowther 1931), they are the most popular type of brooch (33%, total 6).

During the early 5th century craftsmen on the Continent started to produce applied brooches exhibiting motifs borrowed from the repertoire of late Roman chip-carved belt fittings (Evison 1978a and b). Similar brooches are found in 5th century contexts in England; for example, brooches with a floriate cross design have been found in the neighbouring cemeteries at Guildown (grave 123) and Mitcham (grave 201). It is impossible to know whether Park Lane originally boasted such early specimens as only one example retained its upper, decorative surface; the other three are represented solely by their back plates. Likewise, only the back plates from a pair of applied brooches survive from Edridge Road. However, the two in grave 39 (ONs 72 and 73; fig 15) both have a central perforation that indicates the prior existence of a central decorative glass setting. A pair with central blue glass studs was found at Highdown (Welch 1983, 41 and fig 110a).

During the 6th century, brooches were produced displaying animal ornament. The fragments of zoomorphic style decoration belonging to Salin's Style I animal art surviving from the brooches in grave 164 (ONs 117 and 118, fig 28a and colour plate 1) indicate a date in the first three-quarters of the 6th century for their manufacture and deposition. A similar zoomorphic type of applied brooch with two major fields of decoration can be cited from Edix Hill, Cambridgeshire (grave 29B, Malim & Hines 1998, 202 and fig 3.45).

S-shaped brooches

Grave 135 contained a pair of cast S-shaped brooches (ONs 94 and 95, fig 25 and colour plate 1). These are rare in England, but are found throughout Continental Europe and are particularly common in early Frankish and Lombard graves. In 1968, Briscoe was able to point to only eleven examples from this country, and, with the exception of the example from Iffley in Oxfordshire, they are restricted to either Anglian or Kentish areas. One brooch was found at Chessell Down on the Isle of Wight but as this is an area with strong Kentish connections, its presence so far west is not surprising. Coming from a Saxon material culture province, the Park Lane examples are an important addition to the corpus. Briscoe (1968, 47–50) drew attention to the fact that five of the corpus are ornate gilt brooches directly comparable to Continental pieces and thus are probably imports, while the simpler brooches may have been native copies. The Park Lane brooch with its simple decoration and lack of gilding clearly belongs to the latter category; however, in terms of form, it has the most in common with the Continental brooch from Chessell Down.

The chronology of these brooches is problematic because most of the corpus' examples are old finds, and their contexts were not recorded. The objects associated with the Park Lane brooches are not very helpful with regard to dating. The Chessell Down brooch was found in a grave that also contained a garnet disc brooch dated to the first half of the 6th century (Arnold 1982, 52). A date for the manufacture and deposition of these brooches in the later 5th and 6th centuries seems reasonable.

The presence of pairs of gilt saucer brooches could be seen to indicate that the occupants of these graves were either of a high social standing, or belonged to kin groups of some importance. However, as is repeatedly found in this cemetery, such seemingly wealthy objects are rarely combined in assemblages containing items of like value. For example, in grave 103 (fig 21) the other objects are a plain copper-alloy buckle (ON 104) and simple finger ring (ON 103). Overall, the modest, almost impoverished, nature of the jewellery burials is notable and clashes with the weapon burials, a number of which could be termed almost aristocratic. One of the most intriguing findings was the general absence of bead necklaces, with only two groups of beads from graves 39 and 164 (see *Amber, glass and chalk beads*, below). In the author's sample of cemeteries from the upper Thames Valley, 52% of 120 jewellery burials with a pair of brooches had a necklace. Moreover, grave 39 is the only burial that could be described as having a typical Early Anglo-Saxon female burial assemblage, though none of the burials has a full feminine 'kit', ie brooch pair, necklace, a girdle object – such as a set of keys – and, in many cases, another piece of jewellery (Stoodley 1999, 78–80). This level of symbolism is usually restricted to just a few adult women in any one community, and the absence of this at Park Lane may be a result of the cemetery not having been fully excavated, loss of material from Edridge Road, or the lack of a distinct social hierarchy in the female population.

The position of the brooches on the skeleton can provide important cultural and social data concerning costume style, and in particular how the individual was attired for burial. Unfortunately the poor preservation of skeletal material from Park Lane means that it is not possible to make any accurate reconstructions of the types of costume, but an idea of dress can be formed from the position of the brooches in the grave. In all cases it seems probable that these fasteners were on the shoulders indicating the wearing of a peplos style dress – the typical folk costume preferred by Anglian and Saxon women during the 5th and 6th centuries.

Pins

Pins are not that common before the 7th century in Anglo-Saxon burials. At the neighbouring cemetery of Guildown (Lowther 1931), only one of the 6th century graves contained a pin. In the upper Thames Valley, out of a sample of 153 jewellery burials, only 24% (total 37) produced these fasteners as opposed to 89% (total 136) with brooches. Almost all these pins (total 33) were found in burials that also had pairs of brooches, thus demonstrating that they

were not substitutes for the brooches. The distribution of pins does not reveal any regional differences and thus cannot shed any light on the cultural influences at Park Lane.

In female burials, pins are found in a variety of locations, though most are recovered from the upper chest or neck area indicating that the most likely function was to fasten an article of costume. There is no evidence to suggest that pins were ever used in the hair (Evison 1987, 82), and it seems probable that in many cases they were fastening an outer garment over the dress or fixing the dress to an undergarment. Because of poor skeletal preservation, it is not possible to be entirely sure about the function of the pins at Park Lane. In grave 115 the facetted head pin (ON 71; figs 23 and 60) appears to have been in the area of the waist, perhaps kept here until required. In grave 39 the expanded head pin (ON 92; figs 15 and 60) may have been used to fasten a cloak at the shoulder, or even to secure a head scarf under the chin.

Pins could be of copper alloy or iron, though the former was the preferred material. They are usually found in female burials, and when they occur in male burials are usually iron and appear to have been used to hold a textile wrapping around an object, such as a spear (Evison 1987, 82). Four copper-alloy pins were found at Park Lane, plus two iron shanks that may have been pins or nails. Copper-alloy pins were cast and this would have included the decorative moulding that is found on three of these examples. Two copper-alloy pins were recovered from Edridge Road, one of which had its head flattened like the head of a nail: similar iron examples were recovered from Dover Buckland (*ibid*, 84). The other example has a head which is rectangular in section, and is not too dissimilar from those with facetted heads.

Expanded head pin

Graves 39 and 133 each contained a cast copper-alloy pin which has a flattened and perforated head through which a wire ring would have been threaded (ONs 92 and 102; figs 15, 24 and 60). This may have served to attach the pin to, for example, a purse ring or chatelaine when it was not in use. Alternatively, perforated triangular or sub-triangular fittings, normally called spangles, were attached on rings and served to decorate the end (Sherlock & Welch 1992, 41–2).

Facetted head pin

A facetted head pin (ON 71, figs 23 and 60) was found in grave 115. These pins are much rarer than those with expanded heads, but parallels for this type can be found in southern England. For example, an unstratified pin was found at Droxford, Hampshire (Aldsworth 1979, fig 31), which is very similar to the Park Lane specimen. These pins were being manufactured and deposited during the 5th century as the example from Mucking grave 843 with an early claw beaker demonstrates (Evison 1988, 12). Similar pins were produced, however, in the Roman period; for example, a Roman pin of this type was recovered from the Anglo-Saxon cemetery at Alton, Hampshire (*ibid*; cremation burial 24). In grave 115 the associated objects are not much help with dating, but if the knife blade is a Böhner (1958) type B or Evison (1987, 113) type 2 then it would suggest burial before the 7th century.

Disc headed pin

Disc headed pins are relatively common finds among the pins found in Early Anglo-Saxon contexts. A number of similar pins were discovered at Dover Buckland (Evison 1987, 83), although these four copper-alloy pins all differ from the Park Lane example (ON 201, fig 42) by having moulding in the centre of the shaft. The objects in grave 362 are of no help with dating, though the Dover Buckland graves span the period from the late 6th to the end of the 7th century.

Spiral/expanding finger ring

One example of a finger ring was found (grave 103, ON 103, fig 21). It is generally believed that they were made from scrap metal (MacGregor & Bolick 1993, 169), while their lack of diagnostic features has precluded any attempt to produce a typo-chronological scheme. Finger rings are rare inclusions in a funerary context: just 4% (total 39) of a national sample of jewellery burials (total 934) had them. They tend to be confined to the wealthiest female burials, eg grave 43 at Alfriston, East Sussex (Welch 1983, fig 19d), which included eight brooches and a glass vessel. There are exceptions though, as the pair of spiral finger rings from grave 21 at Berinsfield (MacGregor & Bolick 1993, 169), associated with only an amber and glass bead necklace, demonstrates. At Park Lane, none of the jewellery burials is particularly outstanding, and even the pair of gilt saucer brooches in grave 103 does not indicate that this individual was of a high social status within this community.

Many finger rings were worn on the finger at the time of burial, but they have also been discovered on toes, strung on necklaces, or carried in purses (Fisher 1979, 27–9). Because of the poor bone preservation in grave 103, it is impossible to be conclusive, but the ring is likely to have been worn on the left hand resting on the hip, or alternatively it could have been in a hip bag.

Buckles and belt fittings

The second most popular grave good after the knife was the buckle. Buckles were found in a total of eleven graves (including one cremation grave) and all were single occurrences except for grave 85 which contained two. Most Early Anglo-Saxon graves contained single examples: from a national sample of 762 burials with buckles, single occurrences were recorded in 697/91% cases, while 61 burials had a pair and just four burials had three.

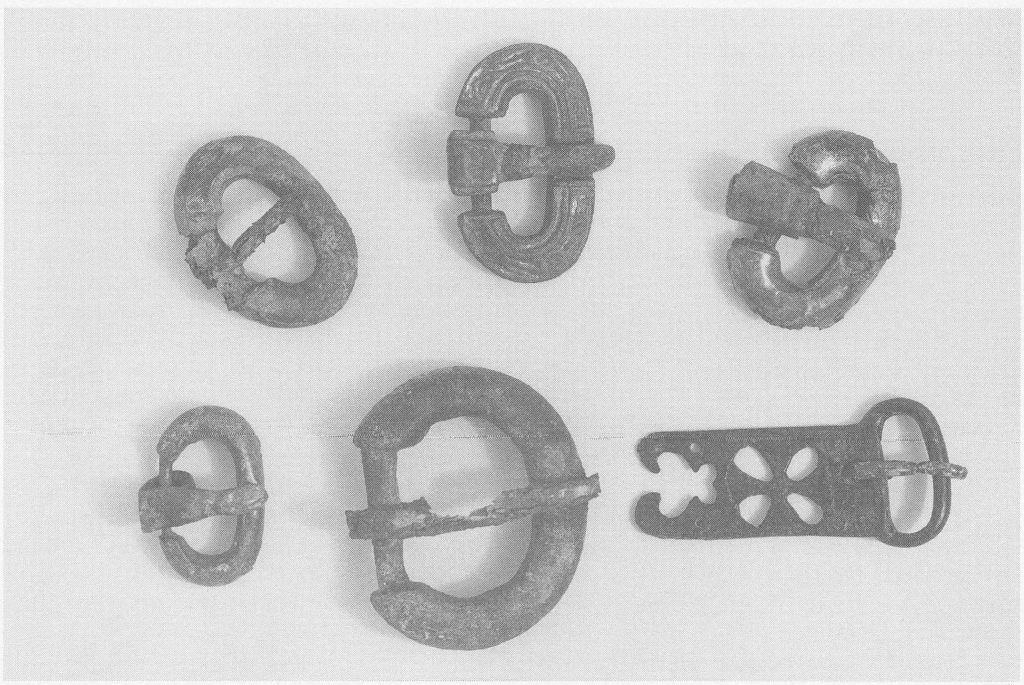

Fig 59 Park Lane, Croydon. Buckles (clockwise from top left): ONs 121, 135, 53, 153, 18, 104.

Six copper-alloy buckles and six of iron were recovered. Four of the copper-alloy buckles have a tongue made of the same material, while two have iron examples (graves 4 and 164: ONs 18 and 121; figs 8, 28a and 59). The tongues in graves 74, 103 and 144 all have separate anchorages cast on the back (ONs 53, 104, and 135; figs 19, 21, 26 and 59); in the case of graves 103 and 144 a projecting spike bent around the loop held it in place. The method of anchorage for ON 53 has broken away, but on the basis of a small projection on the underside of the tongue it again appears to have been a spike.

Copper-alloy buckles

All the copper-alloy buckles, except for the tiny openwork buckle from grave 210 (ON 153, figs 33 and 59), are oval in outline with a D-shaped section. These stout, oval buckle loops are mainly found in 6th century contexts (Welch 1983, 98), and are not uncommon in Early Anglo-Saxon cemeteries whether they are Saxon, Anglian or Kentish in character. Very similar buckle loops can be cited from Alfriston (grave 4, fig 4a; grave 55, fig 26d and grave H, fig 43c) and Norton in Cleveland (grave 113, fig 63), while heavier D-shaped copper-alloy buckles, such as found in grave 4, were recovered from excavations in Ipswich, Suffolk (West 1998, figs 11 and 68.2). The associated finds with these buckles would not be out of step with a 6th century date: for example, in grave 103 a pair of five spiral saucer brooches and in grave 4 a Dickinson & Härke Group 3 shield boss.

Of special note is the buckle in grave 74 (ON 53, figs 19 and 59), which has a covering of sheet silver. A similar D-shaped buckle covered with tin sheet was recovered from Selmeston, East Sussex (Welch 1983, 99, fig 48d); the associations are not known, but a 6th century date is again implied for these objects on the basis of their similarity to other D-shaped buckles. In the case of the Park Lane example a 6th century date is indicated by the associated Dickinson & Härke Group 3 shield boss. That this was a showy belt set is underlined by the three copper-alloy rivets found close to the buckle, which were probably riveted to the belt. The fact that one, but probably all, were decorated with silvered sheet indicates that they were intended to complement the silvered buckle. Evidence of a similarly sophisticated belt, with three rivets (two silver plated) and a pair of bar-headed studs, was found at Lechlade, Gloucestershire (Boyle *et al* 1998, 55–6, fig 5.35). One might expect such a belt set to be the property of an individual of high status, or one who belonged to a kin group of some social standing in the community. However, apart from this object the grave was only modestly furnished and the accompanying shield is the only other object of note.

The fine copper-alloy gilt buckle in grave 144 (ON 135, figs 26 and 59) is decorated with Style I zoomorphic animals, which confirms that it was of 6th century manufacture. A similarly decorated belt set, although with the buckle plate ornamented in Style I creatures, was recovered from Highdown (Welch 1983, 98, fig 90b).

The openwork buckle in grave 210 (ON 153, figs 33 and 59) is one of the latest objects in the cemetery: grave contexts indicate that these buckles were in use during the late 7th and early 8th centuries; for example at Lechlade, grave 155 contained an openwork buckle along with a seax that is datable to the turn of the 8th century (Geake 1997, 78). The distribution of buckles of this form is largely restricted to Kent, though they are encountered more rarely across England. Openwork buckles demonstrate little in the way of variation in the basic form although no two examples are exactly the same (Evison 1956, 92–3). The Park Lane buckle is relatively simple and plain compared with, for example, the buckle from grave 11 at Holborough, Kent, which has both a cross motif and a pair of opposing birds' heads depicted on the plate (*ibid*, 121).

Iron buckles

Because the iron buckles were forged individually they are more varied and thus more difficult to classify and date than their bronze counterparts. Three are D-shaped in section and three

oval, although corrosion can make it difficult to recognize the outline and section. In general terms, simple iron buckles such as these are frequent finds in graves ranging from the 5th to the early 8th centuries and are found throughout the country. The only example for which a date can be confidently ascribed is the buckle and rectangular plate from grave 352 (ON 198, fig 41). The presence of silver plating identifies this as belonging to a group of objects that demonstrate the technique of decorating metalwork by applying silver or bronze wires into grooves, or alternatively applying silver sheet onto a keyed surface by hammering (Evison 1955). The available evidence suggests that wire and sheet inlay iron buckles were manufactured during the 5th century, though deposition could take place as late as the earlier 6th century (Welch 1983, 97). Parallels are not easy to find: there are numerous objects decorated with wire inlay but sheet inlay was less popular. Of course, it is possible, even probable, that many iron objects have lost their plating. At Edridge Road, a kidney-shaped loop and rectangular plate, of which the former exhibits fragments of both sheet and wire inlay, was recovered, while at Highdown, grave 14 contained a buckle loop with wires and possible sheet inlay in between (Evison 1955, 36, 39). A relatively large and showy belt set such as this may be taken as evidence for high social status although, as with the buckle accompanying the individual in grave 74 (ON 53, figs 19 and 59), the only other object of note was a shield boss.

The position of the buckle in the grave can provide important information regarding the function that the fastener was performing. It is evident that not all buckles were used to secure a belt at the waist: some, especially the smaller varieties, were used to fasten the accessory straps of a variety of objects, such as shields and swords. The lack of skeletal material means that the precise position of the buckles could not be ascertained, but the majority (77%) were from the central area of the grave (fig 49) and it seems reasonable to assume that they were employed to fasten belts at the waist. However, several buckles were found in direct association with shield bosses or grips (see *Endnote* (grave catalogue), below), for example, ON 18 in grave 4 (figs 8 and 59) and ON 37 in grave 26 (fig 13). In these cases it could be argued that the buckle was fastening a strap associated with the shield, but in the case of ON 18 – given its position in the centre of the grave – it seems more likely that the shield had been placed above where the belt fastened.

The theory that most of these buckles fastened belts is borne out by their size; for example, the buckle in grave 4 was 39mm high with a width of 30.5mm. One exception is ON 153, the buckle with the openwork plate in grave 210 (fig 33 and 59), which is a small delicate fastener. Nevertheless, its position does suggest that it clasped a waist belt. Several of the other buckles are also small, for example ON 206 in grave 85, which has a loop height of only *c* 15mm and which lay close to the shield boss (fig 20). Given the presence of another, although only slightly larger, buckle loop in this grave (ON 66), it is probable that the smaller fastener had a function associated with the shield. However, chronology also has a part to play: in the 5th and 6th centuries, buckles tended to be quite large and heavy in order to allow belts of 20–30mm in width, but the 7th century saw a reduction in size which indicates the wearing of narrow belts of 20mm or less. Until recently it has been usual to view small iron and copper-alloy buckles as type-fossils of the period, but as Geake (1997, 79) correctly points out, they are also fairly common in late 5th and 6th century burials.

Only one certain belt mount (grave 6, ON 11, fig 9a) was found. The lack of strap-ends and belt mounts is significant when the belt equipment found at Edridge Road is considered. A number of late Roman belt fittings were recovered in the 19th century including a copper-alloy strap-end and discoid belt attachment, and a number of 5th century pieces belonging to the Quoit Brooch Style school of metalwork including a 'strap distributor' and a belt fitting. The general dearth of belt equipment in the Park Lane graves perhaps suggests that such accoutrements were used earlier on in a social or political context in which elaborate belts were required to signal a particular position or role within the community.

Amber, glass and chalk beads, by Lorraine Mepham

Two groups of beads were recovered: seventeen monochrome glass beads from grave 39 and one chalk and five amber beads from grave 164 (figs 15 and 28a). In both instances paired brooches were also found in the grave. The glass beads from grave 39 were found grouped in the head area and were almost certainly worn on a necklace. They are all translucent blue and mostly of a single type: sixteen annular and one drawn globular. The blue annular beads are of a particularly long-lasting type, found from the 5th century BC to the 8th century AD (Guido 1978, 66–8). At Dover Buckland they occurred most commonly in late 6th to early 7th century graves (Evison 1987, 62), but they are also common in 5th century graves, for example at Lechlade (Boyle *et al* 1998).

The beads from grave 164 also appear to have formed a necklace, found in a tightly clustered group in the upper chest area, just below a pair of brooches. The five amber beads are roughly shaped and all approximately the same size. At Dover Buckland amber beads were generally found in small numbers (not more than five per grave in most instances), and were most popular in the 6th century, although occurring sporadically both earlier and later (Evison 1987, 59–60). At the same cemetery cylindrical beads made of white composition (magnesium carbonate and apatite) also occurred, and similar white cylindrical beads in other materials are known from other sites (*ibid*, 60); the chalk bead from Park Lane may be in the same tradition.

Personal equipment, by Nick Stoodley

Toilet implements

Toilet articles comprise tweezers, picks, ear scoops, 'scrapers' and cosmetic brushes. These objects are relatively uncommon and their appearance in six of the Park Lane burials (13%) is higher than one would normally anticipate. For example, at Abingdon (Leeds & Harden 1936), Berinsfield (Boyle *et al* 1995) and Dover Buckland (Evison 1987) the figures are 8%, 2% and 3% respectively. The Park Lane finds comprise four pairs of copper alloy and one pair of iron tweezers and a set of scrapers.

Tweezers were found throughout all the Germanic areas in the early period and tend to occur in male burials (Stoodley 1999, 33). The appearance of two of the pairs of tweezers in weapon burials at Park Lane (graves 6 and 147) seems to underline this association; the other three pairs were in graves without gender-specific artefacts (table 2). Three pairs were at the waist area associated with knives and/or belts (graves 6, 19, 144; fig 49), one pair (grave 147) was in the chest area, again with a knife, and one pair lay adjacent to the skull (grave 43). There is good evidence to indicate that tweezers were suspended from the belt, probably by a wire ring (MacGregor & Bolick 1993, 220–5), though only the iron tweezers have evidence for this attachment.

All the tweezers are similar in constructional terms: manufactured from a single piece of copper alloy with well-formed loops and expanded distal ends. In keeping with the majority of examples, the decoration applied to these articles is rudimentary, consisting chiefly of incised lines and stamps (*ibid*, 221). Similar, although more elaborately decorated, examples have been found in two graves (2 and 35) at Alton (Evison 1988). All these pieces belong to the group of functional 'Roman' tweezers that are robust in form, and were undoubtedly used to remove body hair. Although some tweezers may be of Roman derivation, most have been recovered from 5th and 6th century contexts. As one would expect, the pair of iron tweezers (grave 6: ON 12) has not weathered the passage of time so well: the loop at the top has broken away from the arms. In common with the copper-alloy tweezers, this set was also decorated by incised lines.

Of particular interest is the set of scrapers that was found in grave 115 (ON 69; figs 23 and 60). Although their function is undetermined, their identification as a type of toilet item seems probable on account of their occasional discovery in association with other toilet

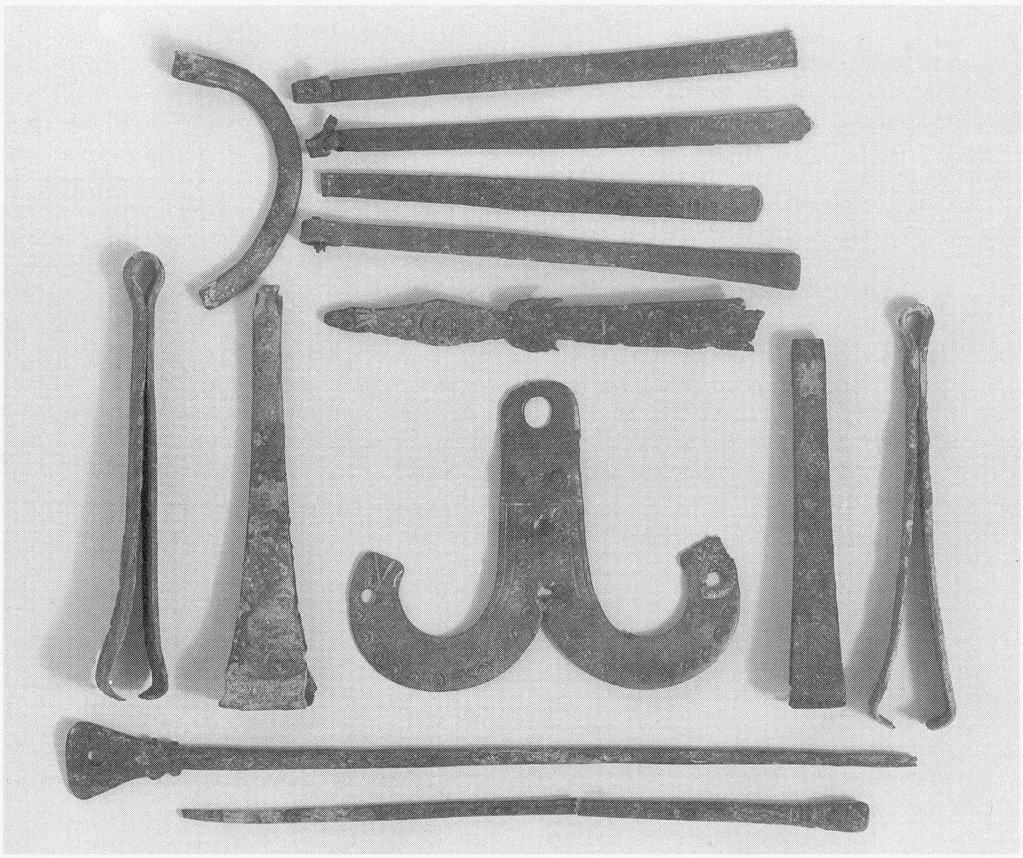

Fig 60 Park Lane, Croydon. Top: toilet set ON 69; centre from left: tweezers (ONs 142 and 4), bucket escutcheon (ON 169), tweezers (ONs 134 and 28); bottom: pins (ONs 92 and 71).

implements. This artefact was found in the chest area of the grave, possibly suspended from a necklace or placed in the bucket (ONs 67 and 68; see *Buckets*, below). 'Scrapers' resemble one arm of a pair of tweezers, but the foot is often turned outward and in some cases is notched to form two prongs (MacGregor & Bolick 1993, 225). Like tweezers, these implements are often associated with a wire ring from which they would have been hung, and the presence of fragments of iron wire in all the terminals indicates that they were once suspended in this way. The semi-circular copper-alloy strip with a curled terminal may possibly have served as the object from which the iron rings suspended the scrapers; it is difficult to suggest another function for this object unless it is to be interpreted as a toilet instrument which had been deliberately bent.

It is interesting that the Park Lane example consists of five 'scrapers' because it is more usual for them to be found singly or in pairs. The closest parallel seems to be from Berinsfield grave 107, a female accompanied by, among other objects, three copper-alloy 'scrapers' threaded onto a wire slip-knot ring (*ibid*). This grave is firmly dated to the 6th century by the presence of a great square-headed brooch, and overall 'scrapers' along with the other toilet items were deposited in the late 5th and 6th centuries. Although the burial has not been sexed, the scrapers are associated with, among other objects, a pin – an object which records a strong feminine association (Stoodley 1999, 34).

Knives

As in most Early Anglo-Saxon cemeteries, knives are the commonest object type, occurring in just under half the graves (43% of burials): at Dover Buckland (66%), Alton (60%) and Spong Hill (inhumation burials only – 47%). In total, 21 knives are represented: fourteen consisting of a blade and tang, six by just the blade, and one tang. The knives consist of a simple blade and tang, some having traces of a horn grip covering on the tang (see *Mineralized organics*, below). Previous analysis has revealed that the organic material used for knife handles was horn or bone, with a small number made of wood (Evison 1987, 114; Sherlock & Welch 1992, 51; Hirst 1985, 89). Some of the blades at Dover Buckland have a welding line which shows that the better quality cutting edge was welded onto the back section (Evison 1987, 114), and a similar welding line can be discerned on the X-radiograph of the knife from grave 26 (ON 39; figs 13 and 61).

The knife from grave 204 (ON 155, fig 32) has a decorative groove along the edge of the blade that was added during the forging process. Because knives have not been the focus of much attention, there are few recorded decorative details such as grooving and inlay (Evison 1987, 114), although a number of knives from Polhill had simple linear grooves along the blade close to the back (Philp 1973, figs 57 & 62).

In all but one of the graves, a single knife had been placed with the deceased; the exception is the pair (ONs 207 and 210; figs 9a and 9b) in grave 6 – a weapon burial that included a sword and a copper-alloy bowl. Multiple knives within a burial are clearly the exception: from a national database of 1537 burials with knives, 97% (1484) had a single knife, while 50 had a pair and only five burials had three.

In ten graves (fig 49) the knives were in the waist area, the usual place for this object, indicating that they were attached to a belt. The two knives from the hip area in graves 135 and 197 may have been similarly attached. In graves 164 and 210 (figs 28 and 33) the knives (ONs 119 and 154) were close to buckles, and in grave 135 the knife (ON 111, fig 25) was associated with a collection of objects that can best be described as a 'purse collection' (see *Purse*, below). In five graves (fig 49) the knife was found in the chest area, occasionally in association with another item, for example, the knife (ON 143) and tweezers (ON 142) in grave 147 (fig 27a). The knife may have been laid on the body during burial, or it could have been attached with the tweezers to a thong and suspended from the neck. This anomaly demonstrates that knives could occasionally have been put into the grave separately, as is also indicated by those recovered from what appears to represent the head and leg regions in graves 57, 231 and 282 (fig 49). Knives are found in graves of both sexes and all age groups (Stoodley 2000, 459–60) and were multi-purpose objects, though they must have been used primarily in the preparation and consumption of food.

The classification schemes used by Böhner (1958) and Evison (1987) are both given in this report. Evison's Types 1 and 2 are equivalent to Böhner's Type A (450–725) and B (450–600), while Types 3–5 are equivalent to Böhner's Type C (600–725), which are generally later. Type 6 can probably be equated to Böhner's Type D which is a 7th century artefact on the

Fig 61 Park Lane, Croydon. X-radiograph of knife 39 showing welding line.

Continent, though at Dover Buckland it was also found in 6th century graves. Evison's Types 1, 2, 3 and possibly 6 are represented, though because of the state of preservation it was impossible to identify the type in five cases and to be sure of the form of seven knives. It is of note that both Types 1 and 3 are equally represented (six graves each), because although Type 3 knives are occasionally known from 6th century contexts, they are primarily an artefact of the following century. Four of these six graves (9, 144, 282 and 347) contained 6th century artefacts. Late 7th/early 8th century burial is represented at Park Lane by grave 210 with its openwork buckle, but given the propensity for Type 3 knives to occur in 6th century contexts it must be concluded that these are not 7th century burials with earlier heirlooms.

Type 2, the other main 5th and 6th century type, is inconspicuous, occurring in only three graves, and there is some doubt about the identification of two of these. Although it is usual to find both Types 1 and 2 represented in an early cemetery, there is often a clear preference for one of the forms. Although knives demonstrate chronological variation they are not culturally distinctive and all the main forms are represented throughout the country: for example, in the author's sample of East Anglian cemeteries 44% are Type 1, 45% Type 2 and 11% Type 3, while in Wessex 47% are Type 1, 32% Type 2 and 21% Type 3.

Other items

An iron object (ON 10) from grave 6 was tentatively identified as a pair of shears on the basis of it consisting of two strips of iron that widen to make a pair of blades. A full examination of the object could not be undertaken because it was fused to a knife and adhering material obscured the artefacts. Only a fragment of the looped end of the object survives and the tips of each rod are missing, but they do appear to widen in a manner consistent with their interpretation as a pair of blades. If the identification is correct, it is significant that it was found in a weapon grave because shears are usually restricted to female burials as, for example, at Dover Buckland (Evison 1987, 113). The position of the artefact (fig 9a) suggests it had been secured, along with the knife, by a belt. The shears in two of the three Dover Buckland graves were also found at the waist and this may well be the usual place for them. Shears are generally regarded as being part of 7th century burial practice: they figure in graves at the late cemeteries of Shudy Camps, Burwell, Cambridgeshire and Polhill (*ibid*). A similar knife and shear set was found in grave 194 at Field Farm, Burghfield, Berkshire (Butterworth & Lobb 1992, 26), a cemetery that was also used predominantly during the 7th century.

An iron artefact that is either part of a pair of shears, or more probably part of an iron purse-mount (ON 182; fig 11) was found in grave 17. The object consists of an iron strip, the end of which curls over to make a loop which may have been used for attachment, and was recovered from the area to the right side of the chest. Most of these items have a hump in the centre and are found around the waist area, which has led to the suggestion that they were worn horizontally on the belt, providing a frame for a purse containing flint and tinder, hence the other term for them – firesteel (Brown 1977).

Containers, by Nick Stoodley and Lorraine Mepham

A container of some description accompanied seven or possibly eight burials (table 2). In many instances the metal reinforcing strips, handles and fittings are the only elements that survive. This is especially the case for wooden lathe-turned vessels, which are usually only represented by the metal plates used to repair them. In the majority of early cemeteries, these fittings are relatively uncommon, for example they were found with five burials (4%) at Abingdon I (Leeds & Harden 1936) and three (4%) at Andover (Cook & Dacre 1985). It seems probable that simple wooden vessels were a much more common addition to the burial than is suggested by the presence of these plates.

Purse

Grave 135 yielded a collection of iron and copper-alloy objects (ON 111; fig 25) which include a knife and three strips of iron, two of which fasten together and may constitute the frame of a purse or small container. A fragmentary iron ring is fused to several other iron objects, and there is part of a small iron ring and two parts of a thin copper-alloy ?disc, which together with the knife, may have been the contents of the receptacle. A plain cast copper-alloy ring and two fragments of an iron ring (ON 93) lay immediately adjacent to the objects described and have consequently been grouped with the collection. The objects lay on the left side of the grave, in what is likely to have been the area of the waist, though this cannot be verified due to the lack of skeletal material. Its position supports the idea that it was a purse or thigh bag and is consistent with it being suspended from the waist. Brown (1977) has argued that rings found in a position which indicate the contents of a bag should be interpreted as amulets. However, Evison (1987, 119) has countered this by claiming that rings were commonly used by both males and females to suspend objects from the belt and thus the hoarding of rings for a future occasion is perfectly understandable. This object bears no resemblance to the purses with metal frames that are usually found in male burials (Down & Welch 1990, 103) and on the basis of the pair of S-shaped brooches it is likely that the occupant of this grave was female. It is possible that the object represents a very rudimentary container of another description or even a totally different type of object altogether.

Buckets

Stave-built wooden vessels bound by bronze or iron strips are referred to as buckets. Where the wood has been identified it is usually yew and the vessels range in capacity from 0.25 litres to over 2 litres (MacGregor & Bolick 1993, 247). Such vessels are relatively rare and to date they have not been comprehensively studied, although variations in the form of the metal bindings and the method by which the handle was attached are recorded (Evison 1987, 104–5). They are found in both male and female graves and are generally believed to have been used as domestic drinking vessels, while in a funerary context they may have held offerings of food and drink, perhaps from a funeral feast.

A stave-built wooden bucket (now reconstructed) was recovered from Edridge Road in the 1890s. The fragmentary remains of a stave-built bucket (ON 47) were found in grave 41 (fig 16). The rarity of these vessels has led some to claim that they were symbols of high social status (Sherlock & Welch 1992, 56). It is certainly true that such vessels were only available to a select few in any community, with, for example, one from Norton (*c* 0.85% of graves: *ibid*), two at Andover (3% of graves: Cook & Dacre 1985) and six at Abingdon (5% of graves: Leeds & Harden 1936). In addition, buckets tend to be placed in graves that have a relatively high number of grave objects. For example, in the upper Thames Valley the average number of different types of grave goods in burials with buckets is five (sample = 28), while for those with simple pottery vessels it is three (sample = 21). In some cemeteries, they display clear masculine associations, such as at Alfriston (Welch 1983), where five of the eight buckets had been placed with weapon burials, and at Berinsfield (Boyle *et al* 1995) where a similar situation was found. However, this is not always the case; at Abingdon, five jewellery burials compared with only one weapon burial had these vessels, while at Andover both the buckets were in jewellery burials.

In some cases the original diameter of the receptacle can be calculated from the bindings, but this was not possible with ON 47 because relatively few of the bindings survived and those that did had been flattened. Most of the elements of the receptacle are represented in one form or another: fragments of a wooden stave, rim mountings, U-shaped clips, binding hoops and an upright section. It was simply decorated with repoussé dots along the rim mounting and the remaining upright section. It is common for buckets to have elaborate mounts and handle escutcheons, but many such as the Park Lane example are quite modest. The upright

section protrudes above the height of the rim mounting and the handle would have been attached to this through the perforation. Similar vessels can be cited from Lechlade (Boyle *et al* 1998, 57–8, fig 5.37) and Andover (Cook & Dacre 1985, 94, fig 65). Such buckets are not closely datable but the associated objects demonstrate that they were deposited throughout the 5th to 7th centuries. In common with most types of container, buckets tend to be placed at one end of the grave and the position of this vessel at the foot end of grave 41 is in keeping with this assertion (fig 49).

A cast copper handle escutcheon or handle hinge, that would originally have been part of a wooden stave-built bucket, was recovered from grave 197 (ON 169; fig 29). The escutcheon would have lain outermost over the hoops and vertical strips, with the handle attached to the vertical upright section by a split pin. Two rivets would have passed through the vertical standard to attach it to an upright, and a single rivet would have pierced the end of each crescentic terminal to secure it to the upper hoop. It was found associated with a number of fragmentary iron objects, perhaps scrapers, or rods. Textile remains are present on some of these objects, and given their position by the left thigh, it appears that they once comprised a purse or bag collection which included the bucket escutcheon.

Two fragmentary copper-alloy loops originally from a stave-built wooden bucket were excavated from grave 85 (ON 5; fig 20). These are joined together by a rivet and the larger loop has a row of repoussé dots along its edge. Vessels were usually placed to one side of the head and in this grave it was to what would have been the left side of the head (fig 49).

Wooden vessels

The copper-alloy U-section rim (ON 131, grave 198; fig 30) shows the profile and curvature of the rim of a lathe-turned or stave-built vessel and was probably part of the reinforcing strip/rim band. It is rectangular in outline and bent symmetrically and displays two rivet holes towards the bottom, one of which still contains an iron rivet and traces of the wooden vessel.

A curved rectangular iron strip (ON 30, grave 19; fig 12), which has mineralized wooden remains adhering, may have been a repair to a wooden vessel. A number of iron fragments (ON 90, grave 115; fig 23), the largest of which consists of an iron plate folded over to create a binding and the other fragments including the remains of iron rivets, could have formed part of the rim binding of a wooden vessel, though without further evidence it is impossible to be certain about its function. The copper-alloy strips and iron mount in the same grave (ONs 67 and 68) can probably be interpreted as once belonging to a wooden stave-bound bucket in which the set of scrapers had been deposited.

Copper-alloy vessel

From grave 6 came a very fragmentary, beaten copper-alloy vessel (ON 2, fig 9a). This was found in an inverted position and contained hazelnuts, the contents being held in position by a textile cover (see *Plant macrofossils* and *Textiles,* below). The absence of skeletal remains from the grave makes determination of the vessel's position problematic, but from the position of the sword (ON 13) it appears to have been placed to the right of the head (fig 49). Rim, body and base fragments are present, but the very fragile and fragmentary nature of the vessel has precluded anything other than a partial reconstruction. The vessel is of a type termed *Gotlandkessel* – globular with a horizontal rim, raised triangular lugs and semi-circular iron handle (the handle is missing from the Park Lane example). The type is related to the *Vestlandkessel,* which has a carinated profile, and may be a development from the latter. A *Vestlandkessel* was found at Edridge Road in 1893/4 (Shaw 1970, fig 15d). The distribution of both types is almost exclusively southern English with finds concentrated in the Midlands and East Anglia, but with a notable concentration south of the Thames. They are traditionally thought of as Frankish, produced in the Meuse Valley, although some could be of native

manufacture. Where contexts are known, most examples from this country come from wealthier graves, and they are found in contexts ranging from the late 5th to 7th centuries.

Pottery, by Lorraine Mepham

Two graves (32 and 212) contained pottery vessels. Both vessels are carinated bowls, almost identical in profile although of different sizes, and are well made, well finished vessels with stamped decoration.

The vessel from grave 212 (ON 139, fig 34) is complete, although damaged at the rim on one side (partly ancient, partly recent damage). This vessel had been placed as an accessory vessel at what was probably the head end of the grave (fig 49). It is in a moderately fine, silty, micaceous fabric containing frequent organic inclusions. The vessel is well finished, burnished both internally and externally, and the decoration is elaborate – a double row of stamps ('hot cross bun' motif: Briscoe 1981, A 4aii) around the neck, banded by horizontal tooling, and three different stamps ('hot cross bun'; circle and dot – Briscoe 1981, A 1c; and 'zigzag') within roughly defined (tooled) chevrons below the carination. The carination is marked by slight finger impressions.

The vessel from grave 32 (ON 46, fig 7) had been redeposited within the upper grave fill – cremated bone from the fill of this and neighbouring graves indicates that this represents the remains of a disturbed, urned cremation burial. The profile could be largely reconstructed although the base is missing. This vessel is in a moderately coarse, sandy fabric and is burnished externally and inside the rim. The decorative scheme comprises a single row of stamps ('cartwheel' motif: Briscoe 1981, A 5b) around the neck, bounded by horizontal tooling, with stamps of the same motif within neatly tooled chevrons below the carination – alternate chevrons use stamps of a slightly larger die.

Both vessels are of the biconical form derived directly from the Continental *Schalenurne* series of the 4th and early 5th centuries. The fashion of decorating the carination of the *Schalenurnen* apparently originated during the second half of the 4th century on the Continent, and is found in this country through the 5th century and into the 6th century (Myres 1977, 18–19). Certainly the stamped pendant-triangle decorative schemes used here on both vessels are generally a 6th century feature, and Myres illustrates a number of biconical forms employing this decorative style, some of which at least are fairly firmly dated to the 6th century (eg *ibid*, fig 326). In this instance neither vessel can be closely dated by associated finds.

It is possible that further sherds of Saxon pottery, occurring as residual finds both from the main excavation and evaluation trench 1, may also represent the remains of disturbed cremation burial urns.

One partial, fragmentary vessel was lifted from evaluation trench 1 (PAK92 30; figs 6 and 43b), from what was thought to be an urned cremation burial (see *Cremation graves and/or related mortuary deposits,* above and *Cemetery discussion,* below). Only the lower half of the vessel survives; the top half has been neatly truncated just above the girth. The overall profile, however, can be defined as rounded (or globular), with a rounded base angle. The fabric is moderately sandy (grains <1mm) with a moderate amount of organic inclusions. The exterior has been lightly burnished, and there is tooled chevron decoration extending over the girth. Form and decoration are not particularly closely datable within the pagan Saxon series, but the vessel is probably of 5th or 6th century date.

Seventeen pottery vessels are recorded from Edridge Road, of which nine survive in the British Museum collection and four at Croydon Museum (table 1); cremated bone was present in two of the latter but it is not known whether the others also comprised the remains of cremation burials. The vessels are briefly described by Shaw (1970, 111–12, fig 16), and include two elaborately decorated *buckelurnen* dated to the mid-6th century, as well as four carinated bowls; two of the latter are decorated, but neither provides a parallel for the decorative schemes of the Park Lane vessels. There are also parts of a large plain urn, a small

plain cup and another decorated urn (decorative scheme unknown). As a group, Shaw dates these vessels as 5th to mid-6th century.

Glass vessels, by Lorraine Mepham

No glass vessels were recovered from Park Lane, although two were recorded from Edridge Road. These are described by Shaw (1970, 109 and fig 15a–c) and comprise a complete short-stemmed beaker and a fragmentary claw beaker. The short-stemmed beaker (illustrated by Harden 1971, fig 5, type I) is a 5th century import from northern Gaul; comparable examples have been found at Howletts, Kent (*ibid,* pl VIIIA, a) and Highdown, Sussex (*ibid,* fig 5, type I). The claw beaker, in a pale greenish glass, appears similar, from the published drawing (Shaw 1970, fig 15b–c) to 6th century examples from Howletts and from Finglesham, Kent (Harden 1971, fig 5, type II and pl VIIIB, a).

Other containers, by Lorraine Mepham

Nails were found in nine graves (36, 39, 74, 103, 133, 147, 197, 260 and 282; table 2), in numbers ranging from one to thirteen. All appear to be of the same type, with a rectangular-sectioned shank and flat round head, although varying somewhat in size. In only one grave (197, fig 29) could the nails be convincingly attributed to a container – the thirteen nails from this grave, found at three different levels, formed a rough outline at the foot of the grave, where they almost certainly represented a wooden box. Only one other grave (282, fig 38) produced more than two nails. The six nails from this grave were grouped towards one end of the grave, probably the foot end, and again perhaps derive from a wooden box, although this is difficult to reconcile with the surviving mineralized textiles on four of the nails, which appear to enfold each object in several layers (see *Textiles,* below).

Other nails, occurring singly or in pairs within graves, are less easy to interpret. They occurred in different positions within graves, although generally towards the sides or ends. It seems unlikely that they were used in coffin construction, since only one burial (19) was identified as having potentially been coffined, and this grave produced no nails.

Miscellaneous objects, by Nick Stoodley

Copper-alloy objects

A collection of copper-alloy objects (ON 138) was excavated from the central area of grave 212 (fig 34), consisting of a fragmentary iron ring, half an iron ring, gilt fragments of a copper-alloy bucket escutcheon, a copper-alloy disc and two copper-alloy strips. The material represents a collection of scrap and it is reasonable to interpret it as the contents of a bag. It was usual for such containers to have an ivory bag ring that formed the mouth, though as examples from Apple Down (Down & Welch 1990, 103–4) and Edix Hill (Malim & Hines 1998, 234) demonstrate, this feature was not present in every case. Bags are mostly confined to female burials and it is generally believed that they were made from leather. Occasionally, the bag contained a number of complete objects such as knives and keys, but in many instances various pieces of scrap appear to have been hoarded. For example, at West Heslerton (North Yorkshire), the bag's contents comprised four beads, a shell, a fragment of a glass cullet, a broken sleeve-clasp, fragments of copper alloy and small wire links (Haughton & Powlesland 1999, 118).

Numerous small, fragmentary copper-alloy artefacts were recovered from the Park Lane graves, but they are of limited analytical value, either in chronological or cultural terms. A stud was found in grave 85 (ON 64, fig 20) associated with a small iron buckle and may have formed part of the belt. A Roman coin from grave 135 (ON 96, fig 25) is pierced, apparently (supported by its position) for suspension on a necklace, where it would have hung upside down.

Iron objects

Graves 198 and 231 yielded iron rings (ONs 129 and 152 respectively: figs 30 and 36). ON 152 was in direct association with a bun-shaped ceramic spindlewhorl (ON 151), but its function is unknown. Grave 362 produced a pair of small interconnecting rods (ON 200). ON 115 (grave 147) is a kite-shaped plate or fitting. ON 114 consists of two rectangular plates with rounded ends that are riveted together and which may have decorated a belt or strap.

Conclusion: non-weaponry metalwork, by Nick Stoodley

Unfortunately, little of the material is culturally diagnostic, but what there is is generally in keeping with what one would expect in an area of Saxon settlement, although few of the finds can be directly paralleled elsewhere. The saucer brooches provide the best indication of cultural influence: the five spiral examples have connections with other south-of-the-Thames brooches. Overall it is the general lack of Anglian and Kentish material which reinforces the view that this was a community with limited connections, although the S-shaped brooches hint at wider contacts.

Although a number of 5th century artefacts were associated with the inhumation burials at Park Lane, it is questionable whether any burial should be regarded as having been made before the beginning of the 6th century. The earliest burial is probably that made in grave 352 with its silver sheet buckle and early shield boss. Because these buckles could occasionally be interred in the earlier 6th century and the other weapon burials appear to be 6th century in date, it is probably prudent not to regard this as a genuine 5th century burial. However, some of the burials from Edridge Road must have been dug in the 5th century – reflected in the type of object, their date and their quality. The fact that the late 7th to early 8th century burial (grave 210) was placed among a dense area of 6th century graves argues against horizontal stratigraphy and the orderly laying out of graves over time. Perhaps it would be safer to err on the side of caution and to regard grave 352 as a late 5th/early 6th century interment. All the jewellery burials can be easily accommodated in the 6th century, with grave 106 and its pair of five spiral saucer brooches probably being interred before grave 231 and its zoomorphic brooches. The other burials with brooches cannot be closely dated. At the other end of the scale, grave 210 demonstrates that burial continued well into the 7th or early 8th centuries. However, this appears to be the only grave that can be confidently placed here. In fact, very few of the Park Lane burials can be dated with any confidence. The later types of knives have been shown to belong to 6th century burials, which is an important discovery, but leaves a gap in the burial sequence. Is this hiatus real? Was the cemetery used again for an isolated burial years after it was abandoned?

Textiles, by Penelope Walton Rogers, Textile Research

Fourteen of the Anglo-Saxon burials yielded metal objects with remains of textile adhering to the surface. The textiles were particularly poorly preserved and, although the weave structure and yarn type could be recorded in twenty examples, the fibres could be identified with confidence in only nine (table 6). This may be because the site has free-draining soils and a pH which seems to have altered with time (see *Human bone*, above), so that the textiles have been in the kind of changeable environment which is most damaging to organic materials. Even so, some useful information has been obtained, particularly from the graves with weaponry, assumed to be male burials.

TABLE 6 Textiles in the Saxon graves

Textile type	Wool	Linen	No fibre identification	Total
ZZ tabby	0	4	2	6
ZZ 2/2 twill	0	2	5*	7
ZS 2/2 twill	1	0	1	2
ZS 2/2 diamond	2	0	0	2
ZS ?2/1 twill	0	0	1	1
twill, possibly tablet-woven	0	0	2	2
Total	3	6	11	20

* two of the ZZ 2/2 twills are probably wool

Textile types

The usual range of textile types of the Early Anglo-Saxon period are present, namely tabby, 2/2 twill and 2/2 diamond twill (table 6). The yarn is mostly Z-spun in warp and weft (ZZ), but occasionally Z-spun in the warp and S-spun in the weft (ZS). Examination of better-preserved examples from other sites has shown that ZS twill and ZS diamond twill are almost exclusively made from wool, while ZZ tabby is predominantly linen, and ZZ twills may be linen or wool (Walton Rogers 1999, 144–7).

The relatively fine diamond twill from grave 197 has a pattern repeat of 20/Z × 18/S (or 10/Z × 9/S between reverses; fig 62A), which is a unit which recurs frequently in diamond twills on the Continent (Bender Jørgensen 1991, 143). Bender Jørgensen has suggested that some of these fabrics, which are found in graves and settlements in northern Germany and the Netherlands as well as eastern Britain, may be traded goods (*ibid*). The less standard forms of ZS diamond twill from Anglo-Saxon sites, however, were probably made in Britain (Walton Rogers 1997, 1826). These include the second diamond twill, from grave 6, which is much coarser than the first and without a complete pattern repeat present (fig 62B).

The 2/1 twill tentatively identified in grave 135 (fig 25) is one of the less common textile types of the period. There are fewer than twenty examples from East Anglia and Kent, and it seems to be even rarer among the north Anglians and Saxons. 2/1 twills mainly occur in fine qualities, with thread-counts of 20–28 × 16–19 per cm, although there are some medium-weight examples, comparable with the Park Lane piece which has 16 × 12 threads per cm, from Fonaby, Lincolnshire (Crowfoot 1981, 93), Spong Hill, Norfolk (Crowfoot & Jones 1984, 24) and Westgarth Gardens, Bury St Edmunds, Suffolk (Crowfoot 1988, 15). It has been suggested elsewhere that 2/1 twills were made on a different loom from other textiles and limited in distribution to the areas where that loom was in use (Walton Rogers 2001).

Two textiles from graves containing the remains of weapon burials (85 and 362, figs 20 and 42) have been identified as twills from their diagonally grooved appearance. Both have been woven with plied yarn in one direction and singles in the other. These features often occur together in twill-effect tablet-woven bands, although none of the diagnostic tablet-weave twists can be observed in the preserved areas. Tablet-woven bands were mostly used as borders at the edges of garments in the Anglian and Kentish regions, and less frequently in the Saxon region. There are examples of twill-effect tablet bands from West Heslerton, North Yorkshire (Walton Rogers 1999, 150–1), Castledyke, north Lincolnshire (Walton Rogers 1998, 275), Morning Thorpe, Norfolk (Crowfoot 1987, 172–3) and Sibbertswold, Kent (Crowfoot 1990, 49; 53). On present evidence they seem to be the most common type of tablet weaving in male graves, although the amount of data is relatively small.

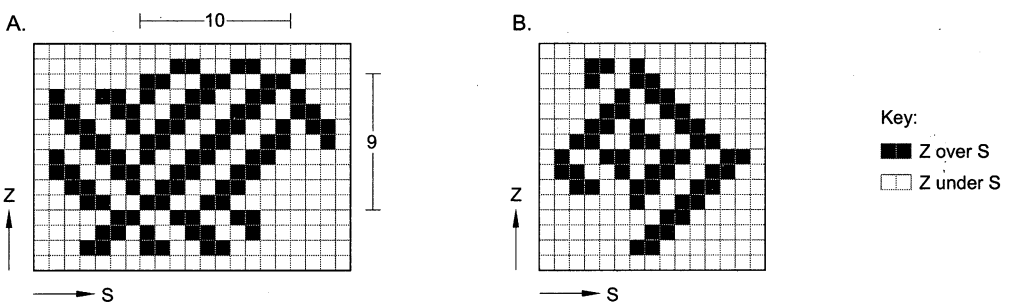

Fig 62 Park Lane, Croydon. Textile weaves.

TABLE 7 A grave-by-grave summary of the textile and clothing evidence

Notes: (male) and (fem.) indicate gender derived from grave goods, not biological sex; 'right' and 'left' indicate the body's right and left; 'inner', 'outer', 'inside' and 'outside' mean as worn by the body; 'in region of' is used where the skeleton is absent, but the position of the object on the body can be estimated from the position of the object in the grave

Grave	Sex	Age	Dress fittings etc	Fibre	Weave	Count/Spin	Position of textile	Interpretation
4	(male)	13yr	*With textile* shield grip ON 23 *Without textile* Sword, shield boss and studs, spear, buckle and tweezers	wool	2/2 diam twill	10/Z × 9/S	On one face of shield grip 23, beneath shield boss, in region of waist	The coarse wool diamond twill may represent the man's outer clothing, where the shield touches the body.
6	(male)	–	*With textile* long Cu/a belt plate ON 11	mineralized	2/2 twill	16/Z × 16/Z	On outer face and edge of belt plate 11, outside other textiles	Bowl probably wrapped for burial. The complex of textiles at the waist (on the belt plate) indicate that three different garments were worn, one coarse and the other two relatively fine.
			Cu/a bowl ON 2/9	mineralized	?2/2 twill	18/Z × 16/S	On outer face and edge of belt plate 11, inside ZZ twill	
			Without textile Sword, shears, tweezers,	mineralized	?	?	Coarse textile at edge of belt plate	
			two knives	flax	tabby	20/Z × 18/Z	Flat against outer surface of bowl 2/9 at head of grave	
17	(male)	>15yr	*With textile* Fe javelin ON 32	mineralized	2/2 plain twill	14/Z × 14/Z	On one face of javelin 32 at left of likely head position	
			Without textile Shield, purse mount	?wool	2/2 twill	10/Z × 8/Z	On socket of javelin 32	
26	(male)	–	*With textile* Fe broken spearhead ON 38	?flax/hemp	?2/2 twill	10/Z × 10/Z	In loose folds close to socket of spearhead 38, which lies crossways near shield	
			Without textile Shield, buckle, knife					
85	(male)	–	*With textile* Fe shield boss and grip ON 62 Fe buckle and Cu/a shield stud ON 206 Fe knife ON 65 Fe buckle ON 66	2/2 plain twill	9–10/Z × 8–9/Z		In association with shield boss nd grip 62 in region of waist; and on front of buckle 64 in same area; possibly also on knife 65 close to buckle 66.	Possibly a cloak or other outer garment of coarse wool twill worn over a belted garment; shield placed on top.
			Without textile Third buckle and shield fittings	mineralized	twill/tablet-woven	9/S-ply × 18/S	Across back of buckle 66, higher on body than other buckle	
115	(?fem.)	>13yr	*With textile* Fe belt-plate ON 90	?flax/hemp	?twill	12–14/Z × 12–14/Z	On ?back of belt plate of buckle in region of neck.	
			Without textile Dress pin, knife, frags					
135	(fem.)	–	*With textile* purse complex ON 111	mineralized	?2/1 twill	16/Z × 12/S	In folds on both faces of objects forming purse complex 111 in region of waist/hip/thigh.	
			Without textile Two S-brooches, disc brooch, coin	mineralized	tabby	10/Z × 8/Z	Outside twill on purse complex	

TABLE 7 (continued)

Grave	Sex	Age	Dress fittings etc	Fibre	Weave	Count/Spin	Position of textile	Interpretation
164	(fem.)	18–30yr	*With textile* Cu/a applied brooch ON 118 Fe knife ON 119 *Without textile*	flax/hemp	2/2 twill	14/Z × 12/Z	In folds at edge of brooch 118 in region of left shoulder, and probably also on one face of knife 119 at waist.	A gown of medium-weight linen twill. Possibly a cover or cloak of animal pelt, with the knife carried underneath the pelt.
			Second applied brooch, buckle, beads	animal	pelt		On opposite face of knife 119	
197	?	>13yr	*With textile* Cu/a bucket escutcheon ON 169 *Without textile*	wool	2/2 diam twill	18/Z × 16/S	Innermost of three textiles in association with escutcheon at left of leg	
			knife, nails, iron fittings	?flax/hemp	tabby	12–14/Z × 12–14/Z	Outside wool diamond twill, with bucket escutcheon	
				mineralized	tabby	10/Z × 10/Z	Outside linen tabby and wool twill, with bucket escutcheon	
231	(fem.)	–	*With textile* Pair of saucer brooches ONs 149 & 150 Fe ring ON 152	?flax/hemp	twill	?	On back of saucer brooch 150 and probably also pierced by pin of saucer brooch 149; both brooches at centre of grave	If it is correct to see this as a crouched burial, the woman was probably wearing a tubular gown of linen twill fastened on the shoulders by the brooches. The linen tabby may be from a second garment or a bag or purse.
			Without textile knife, spindle whorl	flax/hemp	tabby	12/Z × 12/Z	On one face of iron ring 152, towards foot end of grave	
				flax/hemp	yarn	Z-spun	Fine yarns wrapped around hinge end of pins of saucer brooches	
282	?	–	*With textile* Fe nails ON171–3,179 *Without textile* Knife, Cu/a sheet	flax/hemp	tabby	24/Z × 20/Z	In folds, enveloping each of the four iron 'nails' examined	
339	(male)	–	*With textile* Fe sword ON 184	animal	pelt		Running across both faces of blade of sword 184	Scabbard of sword lined with animal pelt.
Incomplete grave			Fe spearhead ON 189 *Without textile* Shield, seax	mineralized	?twill	6-8/? × 6–8/?	On both faces of spearhead 189	The spearhead probably wrapped in coarse textile.
352	(male)	>18yr	*With textile* Fe inlaid buckle ON 198 *Without textile* Shield	coarse plant fibre	2/2 twill	8/Z × 7/Z	On back of buckle 198 in region of waist	Belted garment, tunic or trousers, of coarse canvas-like twill.
362	(?male)	–	*With textile* Fe shield fitting ON 199 *Without textile* garment pin, connected rods, nail	mineralized	twill or twill-effect tablet weave	20–30/ ?S-ply × 15/?	On shield fitting 199, on opposite face from wood; plied yarn runs across the fitting, in the same direction as the wood grain	

Costume evidence

Because textiles are generally preserved with metalwork, and Anglo-Saxon women wore more metal dress accessories than men, women's clothing is generally better represented than men's in Anglo-Saxon cemetery studies. At Park Lane, however, seven or eight of the fourteen graves with textile may be regarded as 'male', from the presence of shields, swords and spears (table 7).

Some of the textiles from the male graves are probably wrappers for grave goods. The extremely coarse textile on spearhead 189 from Grave 339 is comparable with the coarse spear wrappers from West Heslerton (Walton Rogers 1999, 158), and there are examples of wrapped spearheads, where the textile is fastened with a pin, from Buckland, Barfriston and Lyminge in Kent (Evison 1987, 82–3). The copper-alloy bowl (ON 2/9) in grave 6 has a fine linen tabby close up against large areas of the outer surface, which suggests a bag of some sort. There are several examples of textiles which lie fortuitously against copper-alloy bowls in graves at other sites, but clear evidence for wrapping comes from Wrenningham, Norfolk, where a similar linen tabby, 18/Z × 18/Z per cm, covers the outer surface of the bowl (E Crowfoot pers comm), and from Sutton Hoo Mound 4, where another linen tabby, 26/Z × 15/Z per cm, seems to have been used to cover the bowl mouth (Crowfoot 1983, 466).

The clothing in male graves is mainly represented by linen and wool twills. One of these, on the back of the inlaid iron buckle (ON 198) from grave 352, is a rather heavy textile made from a thick, partially processed plant fibre. This would have been a canvas-like fabric and may represent the man's belted tunic or jacket, or perhaps trousers, since trousers sometimes had belts at this date. As noted above, the tentatively identified tablet-woven bands were only found in the probable male graves. If correctly identified, they are likely to represent the borders of garments, in the case of grave 85 perhaps the edge of a belted front-opening jacket, since the remains were found running vertically across the back of a buckle at the waist. Similar remains have been found in graves with weaponry at Castledyke (Walton Rogers 1998) and Buckland II (Walton Rogers, in prep).

The women's clothing fabrics include linen and wool twills and linen tabby. In grave 164 a medium-weight linen twill appeared at the shoulder on brooch 118 and at the waist on knife 119. The knife seemed to be sandwiched between this textile and an animal pelt. The pelt may represent a cover or, more probably, the remains of a skin cloak. Such items are rare, but perhaps under-represented in the archaeological record owing to the poor preservation of non-tanned skin products.

The female in grave 231 was wearing a pair of matching small saucer brooches, which are assumed to have been in their usual position at the shoulder, although the skeleton was not preserved (fig 36). She was probably dressed in the traditional shoulder-fastening tubular gown which was worn in the Anglian and Saxon regions until the later 6th century. The fabric of the gown, on the backs of both brooches, is another linen twill. A second textile, a linen tabby which appears on the iron ring (ON 152) towards the foot end of the grave, may be the remains of the sleeved inner gown that was usually worn inside the tubular dress, or the remains of a bag. Both the shoulder brooches also have fine linen yarn wrapped many times around the pin-hinges, one encircling the base of the support for the pin spring (ON 149) and the other encircling the pin spring itself (ON 150). Yarns of this type are often interpreted as the ends of strings of beads, worn as a festoon between the brooches, but in this case, where there are no beads preserved, they may represent repairs to the pin fastening.

Mineralized organics, by Esther Cameron

The survival of evidence for organic materials was extremely variable, even among objects recovered from the same grave. Mineralized organic remains on metalwork from eleven graves were selectively sampled from eighteen iron objects of which most were weapons (table 2).

The material was examined at different magnifications. The results are presented in the grave catalogue (see *Endnote*, below), including a confidence rating through the range 'possible', 'probable' and 'good' to indicate the strength of the evidence. An explanation of this approach and its significance in recording remains of skin and leather in particular is published elsewhere (Cameron & Edwards forthcoming).

Sword-hilts and scabbards

The grips of all four swords were of horn, as were the upper and lower guards of swords 13 and 144, and the lower guard of sword 184; the upper guard and pommel of 184 are missing, and the remains of the upper and lower guards of sword 15 are not sufficiently well preserved to identify.

The wooden scabbard of sword 15 was possibly ash, 2mm thick, and lined with a haired skin. Overlying the wood, but surviving only as a trace at the upper end of the scabbard, was a thin layer of animal skin, a remnant of the outer cover. The scabbard of sword 13 was made of willow/poplar wood and lined with sheepskin. An iron buckle, 28mm in width, is fused by corrosion to one edge of the sword at its mid-point. This is accompanied on the scabbard by a transverse ridge 24mm in width, the original substance of which could not be identified but which might represent a strap. Associated with this sword are six rod-like fragments which are composites of textile, wood and iron corrosion. The pieces do not join, but the sum of their six lengths is 150mm. Consideration was given to the possibility that this was a fragmented iron chape, but detailed examination of the pieces suggests that they are parts of the edge of the sword-blade, sandwiched by traces of scabbard and of a textile wrapping which gives it a U-shaped cross-section. The scabbard of sword 184 was also of willow/poplar wood and lined with a haired skin, the hair-fibres of which lie in a transverse direction. Faint scale patterns on the casts of fibres could not be identified with certainty, but sheep is a possibility. The condition of the wood of the scabbard of sword 144 was poor, but the transverse section suggests that it might have been willow/poplar 2mm thick. Neither the lining nor the outer skin of the scabbard survived, but the positions they would have occupied show evidence of insect activity in the form of pupae cases.

Shields

Wood remains of the shield-board from grave 4 were possibly of lime. Mineralized remains of skin, attached to the flange of the shield-boss, indicate that the front of the board had been covered with skin or leather. Further evidence for skin or leather on the underside of the iron shield-grip suggests that the back of the shield-board had also been covered. Wood-grain of two different directions on one rivet of the grip indicates a lap-joint between the board and grip-backing, giving a total board thickness of 7mm (Dickinson & Härke 1992, fig 29). The extent of textile remains on the upper surface of the grip, covering the rivet heads, suggests that it derives from casual contact rather than a binding of the grip.

The shield from grave 9 had a wooden board, 7mm thick, probably of willow/poplar, the front of which had been covered with skin or leather 1.5mm thick. Wood remains of the shield-boards from graves 74 and 204 were too slight to sample, but the front of the board had also been covered with skin or leather. Wood remains of the shield board from grave 347 were also too slight to sample and other remains from the front of the board, in a layer 1.5mm thick, could not be confirmed as skin or leather. The shield-board from grave 352 was 7mm thick, probably of alder wood, and the front of the board had been covered, possibly with skin or leather.

Seax

The incomplete seax (ON 185) was accompanied by several fragments of sheet iron which can be assembled into a flat plate 2mm thick, incomplete on all sides, measuring approximately 90 × 40mm. One surface of the plate has wood grain running in a lengthwise direction, identified as willow/poplar.

Knives

All three of the knife-handles examined were of horn (ON 136, 143 and 185). Traces of a probable skin or leather overlaid by a layer of textile were found on blade 136. Remains of a leather sheath were observed on both faces of blade 143, folded over the blade back and extending a little beyond the cutting edge but the seam does not survive. No organic remains were preserved on blade 185.

Conclusion

Anglo-Saxon sword hilts and knife handles were regularly made of horn in the 5th–7th centuries. In a recent survey of Anglo-Saxon scabbards it was discovered that 67% were made of willow/poplar wood and the scabbards from Park Lane support this finding (Cameron 2000, 34–5). The instance of ash wood being used for scabbard manufacture is less common but not unknown. Similarly, the use of haired skin linings, possibly of sheep, and outer covers of skin or leather were some of the unvarying elements of scabbard composition during this period.

The wood species of two shield boards were identified as willow/poplar and alder, both of which were used with equal frequency in Early Saxon shield manufacture. A third board was possibly of lime, the traditional wood of Saxon shields (although it seems to have been used less often than willow or alder). Where it was possible to measure thickness, the shield-boards were 7mm thick – a figure that falls within the national average and is typical of the 6th century. The use of skin, in some cases on both front and back faces of the boards, was also normal practice (Dickinson & Härke 1992, 47–51).

The use of ash wood for spear hafts is attested among other burial assemblages of similar date, as are sheaths of skin/leather with knives.

Metallurgical analysis of the swords, by Brian Gilmour

X-radiographs of the four swords (ONs 13, 15, 144 and 184) showed them to have been pattern-welded, the design appearing to form a continuous chevron or herringbone design along the centre of each blade. Metallographic investigation was undertaken to recover detail of their structure and likely original appearance. X-radiographs and a small metal detector were used to locate a large enough area of surviving metal on each of the corroded swords from which to take a sample that could be linked to the structural information gained from using X-rays. A wedge-shaped sample, extending approximately half-way across the blade, was cut using a diamond impregnated disc cutter. The samples were then mounted and the gaps in the swords filled with an inert resin to match the rest of the corroded surface.

Results

The overall structure of the swords was found to vary widely. ON 184 (figs 39 and 63) was simplest in construction, with the central pattern-welded part of the blade made of two pairs of composite twisted bars welded back-to-back without any central intermediate piece. Each of the composite bars was made by hammer-welding a piece of plain iron (carbon content below *c* 0.1%) with a piece of phosphoritic iron. This combination would then have been folded, or cut and stacked, and welded again to produce a laminated bar with eight layers. Unusually for swords of this (or any) period, the cutting edges were found to have been made of plain (ie more or less carbon free) iron.

The pattern-welded core of ON 15 (figs 8, 55a and 63) was made of four adjacent twisted composite bars or strips of a laminated combination of low carbon (carbon content *c* 0.1–0.2%) and plain iron welded to either side of a central core of low-carbon iron (carbon content *c* 0.2–0.3%, just below the threshold value of 0.3% that would make it a steel). The cutting edge formed a sandwich of a middle- to low-carbon iron piece – very much the same as that used for the central core piece – welded between pieces of low-carbon and plain iron, although only one of these survived in section.

No steel was used in either ON 184 or ON 15, which means they could not be hardened by quenching and no kind of heat treatment appears to have been attempted. The low-carbon and plain iron pieces of the cutting edge of these swords appear to have been welded together in such a way as to produce a diagonal weld that would have appeared on the surface as a bright white line along the blade after surface polishing and etching. The low-carbon iron in the middle of the cutting edge of ON 15 would have probably been visible as a darker band, and the lower carbon and plain iron of the rest of the cutting-edge as successively paler bands.

ON 13 (figs 9a, 54 and 63) also had a welded-on composite cutting edge, using a sandwich construction of five layers. The central part was made of steel the structure of which showed the blade to have been quenched but not tempered. The steel part would have shown up as a narrow dark etched band along the blade on either side of the cutting edge, in sharp contrast to the generally pale etched phosphoritic iron bands running along the adjacent surface of the sword. Unusually for phosphoritic iron in swords of this period there was some carbon, which would have given the metal a mottled streaky appearance with bright white striations within it – the more usual carbon-free phosphoric iron creating a homogeneous pale colour – an effective contrast to the dark steel tip of the cutting edge. The mottling may have been unexpected. The outer part of the cutting-edge 'sandwich', the strip of low-carbon iron, probably showed up as a grey etched band running along the inside of the cutting-edge and in sharp contrast both to the adjacent phosphoritic iron band, and to the alternate pale and dark laminations of the twisted pattern-welded strips which formed the middle part of the blade. The phosphoritic iron was used in the middle band of the cutting edge and in combination with low-carbon iron (carbon content *c* 0.1–0.2%) in the laminated twisted pattern-welded surface parts of the middle portion of the blade, which was welded to the central core of low carbon iron (carbon content *c* 0.2%) on each side of the blade.

The cutting edge of ON 144 (figs 27, 46, 54a, 55b and 63) appears to have comprised a three-layer sandwich structure, with a thicker piece of steel in the

centre and a smaller piece of low-carbon or plain iron welded onto either side. The steel is very inhomogeneous in its carbon distribution (carbon content range *c* 0.1–0.8%) which accounts for its patchy or rather 'pie-bald' appearance in section. This is unlike most steel found in the cutting edges of Early Anglo-Saxon sword blades, which usually has a relatively even composition, showing that it was well homogenized before being used (eg Tylecote & Gilmour 1986, fig 72). Each of the pattern-welded portions was made of three twisted strips of the usual laminate of phosphoritic and low-carbon iron (carbon content *c* 0.1%), welded to a central core of plain iron. A narrow strip of plain iron was welded to either side of the central composite block, to which the cutting edges were subsequently welded to form the complete blade.

Available evidence suggests that steel of this period would have been made as a variant of the bloomery smelting process which probably produced highly inhomogeneous blooms requiring homogenizing after they were consolidated to remove excess slag and other waste products of smelting. This would have been done largely to produce an even steel with predictable properties that could be heat-treated without warping etc. It was probably done as an extensive forging process similar to that used for the same reason by the surviving traditional Japanese sword makers (Kapp *et al* 1987, 69).

What is interesting in the case of ON 144 is the use of a piece of incompletely homogenized steel for the greater part of the cutting edge. It is not yet known whether steel, as billets or consolidated blocks, was reaching sword-smiths in a fully homogenized state or if they carried out this process for themselves. The blade of ON 144 had, predictably, not been quenched as the differential stresses resulting from the uneven composition of the steel would have caused it to warp badly, a problem noted for certain European sword-makers by al-Kindi in the early 9th century AD (Hoyland *et al* forthcoming). Why such steel was used to make this blade is not clear, although it may well have been done to exploit the variable decorative surface effect resulting once it was polished and etched, the patchy paler and darker appearance in section probably giving rise to a more rippled effect on the surface given the 'stretching-out' caused by the forging necessary to draw out the blade along its long axis during manufacture.

Discussion

Pattern-welding has hitherto been generally thought of as involving only the central parts of swords of this period, with their twisted or (sometimes alternately) straight banded parts visible on X-radiographs. In most cases, however, there is no reason why the whole of the blade, including the cutting edges, should not have been intended to exhibit a surface pattern and, therefore, be said to be pattern-welded in its entirety. The results of this analysis support the conclusion that this technique was carried out to produce a decorative finish once the forged blade was given a final polish – grinding would probably have been minimal to avoid altering the patterns – and etch to bring out the pattern inherent in its composite structure. Before many sword blades of this kind were examined in enough detail to identify exactly how they were made it was suggested that pattern-welding might have been undertaken as a way of combining iron and steel to produce a blade with superior physical properties (see discussion in Ellis Davidson 1962, 23–30). However, more recent studies have shown that in north-west Europe the technique was exploited and developed purely for its decorative properties and potential. Currently, it seems to have originated in the Celtic or Germanic regions outside the Roman empire to the north and to have existed in Britain by the early 1st century AD (Gilmour 1996, 113–31). It appears to have reached the height of its development during the Early Anglo-Saxon period and it is clear that by this time the best sword blades were made using tried and tested combinations of carefully selected iron alloys, and well developed construction methods. Why the technique of pattern-welding developed seems to a large extent to have been masked by mistaken notions as to its purpose. Analogous descriptions of sword blades reported in the Middle East by al-Kindi in the early 9th century suggest that the patterns are representations of water and they are probably best seen as signifying this aspect of pagan symbolism.

The four swords from Park Lane were made using carefully selected combinations of different iron alloys which are unlikely to have come from the same smelting site owing to the different iron ores that would have been required. This implies a trade network, perhaps with certain iron smelting centres specializing in specific alloys that would have been in demand by sword makers. How this trade network operated is yet to be ascertained but some sort of trade-iron is implied, perhaps in the form of billets although these are still to be

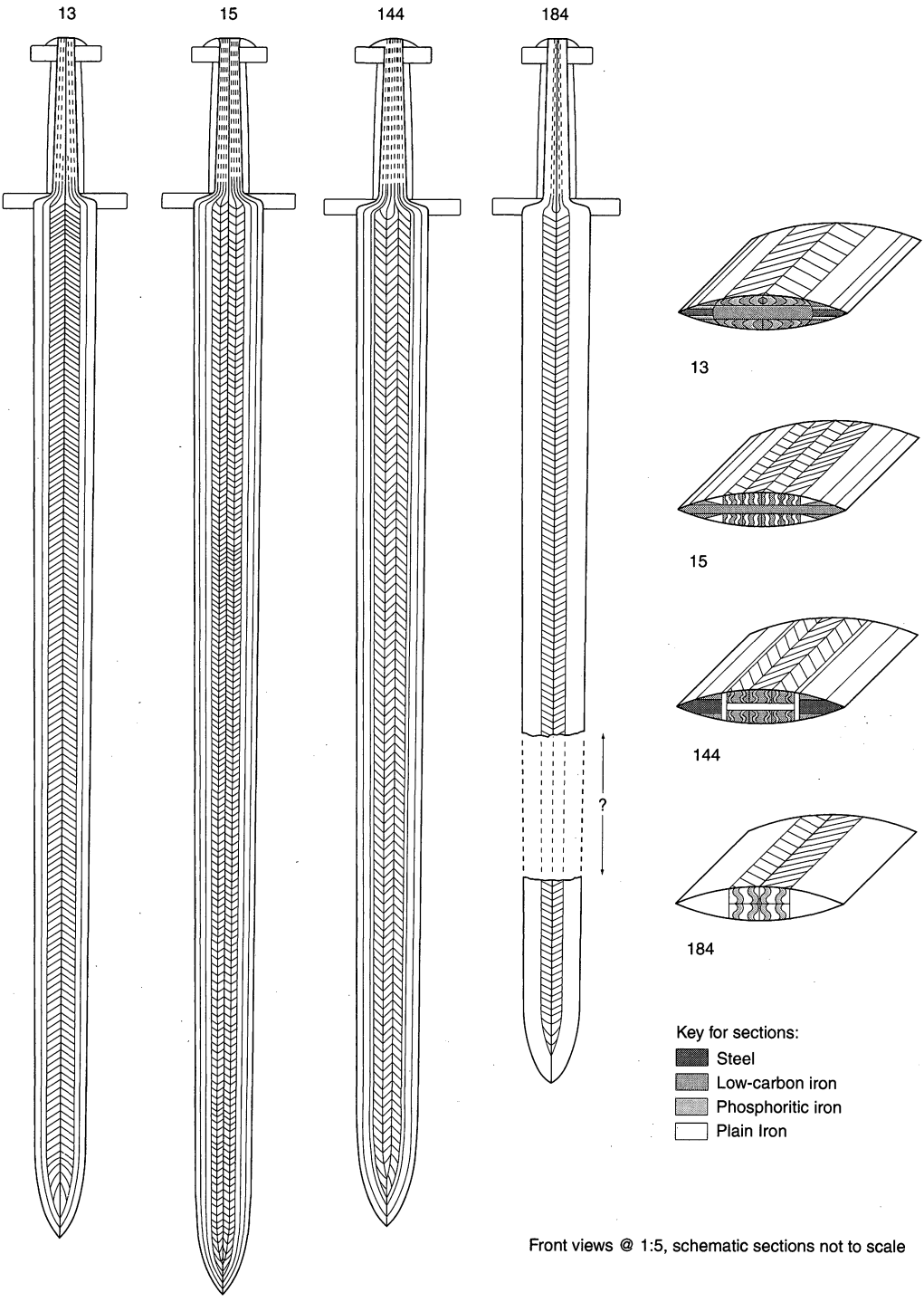

Fig 63 Park Lane, Croydon. Sword reconstructions giving simplified view of original pattern-welded appearance and schematic three-dimensional representations of the blades.

identified in Britain for this period. It is not known where swords of this type were being made and, although southern Britain seems most likely, the area has yet to be narrowed down further.

White metal analysis, by Peter Northover

Two copper-alloy objects from grave 135 (fig 25), an S-shaped brooch with tinned surface (ON 94) and an incomplete disc brooch (ON 97), were submitted for analysis.

Methods

Prior to sampling, the decorated sides of both brooches and the reverse of ON 97 were examined using a semi-quantitative X-ray fluorescence analysis with energy disperse spectrometry. A small sample was drilled from the reverse of each object using a modelmaker's hand-held electric drill with a 0.9mm-diameter bit. The samples were hot-mounted in carbon-filled thermosetting resin, ground and polished to a 1μm diamond finish. Analysis was by electron probe microanalysis with wavelength dispersive spectrometry with an accelerating voltage of 25kV, a beam current of 30nA and an X-ray take-off angle of 40°. Sixteen elements were sought: pure element and mineral standards were used with a counting time of 10 seconds per element. Detection limits were typically 100–200ppm with the exception of 400ppm for gold. Five areas, each 30 × 50 μm were analysed on each sample; the individual compositions and their means were normalized to 100%. All concentrations are in weight %.

Results

The compositions of the bronze parts of the brooches are remarkably similar being low to medium tin bronzes (7.4% and 5.6%) containing a small amount of zinc (1.05% and 1.08%) and lead (0.23% and 0.38%). ON 94 contains more iron, arsenic, antimony, silver and bismuth, while ON 97 has slightly higher nickel and gold, although the gold could have come from the surface plating. Both are typical bronzes for the 6th and 7th centuries. Evidence from saucer brooches from 5th–6th century Anglo-Saxon cemeteries examined by the author showed that new metal was probably entering circulation and that craftsmen were not dependent solely on Roman scrap. If the latter had been used it is very likely that either the tin or zinc contents would have been higher and probably lead as well, although lead might have interfered with the plating of the disc.

The surface analysis of the tinned surface of ON 94 gave 55.5% copper, 20.8% tin and 11.7% lead; small amounts of iron, arsenic and antimony were present together with 8.1% phosphorus and 2.9% calcium, the last two suggesting a lime-rich burial environment. No other significant elements were detected so it may be concluded that the brooch had been wipe-tinned. Since there is much more lead on the surface than in the bronze substrate it appears that the tinning had been done using a lead-tin solder rather than pure tin. Examination of the surface suggested that the flat bronze strip had been tinned before the decoration was cut and drilled. Wipe-tinning was a typical Anglo-Saxon technique with many examples known on objects from cemeteries in East Anglia.

Discussion

The composition of a clean area of plating on the front of ON 97 was recorded as 38.5% silver, 14.5% gold, 5% copper and 40% mercury with, again, calcium from the environment. An analysis of a corroded area showed the presence of more environmentally derived elements, sulphur and chlorine, together with a little iron. Copper was raised to 17.1%, and tin and lead corrosion products were observed. The other plating elements were recorded as 28% silver, 32.7% mercury and 11.9% gold. This object is remarkable and is, to the author's knowledge, unique. Anglo-Saxon craftsmen were adept at amalgam gilding, even if a little careless, leaving high mercury contents having cut short the firing as soon as the amalgam turned gold. This piece has been amalgam plated with neither silver nor gold but with a white gold or electrum. Thus, there can be no real contribution to the dating of the objects. If there is a connection between the composition of coins and that used in Early Saxon jewellery the composition would relate to some of the thrymsas of the later 7th century which seems a little late for this brooch.

The metals of ONs 94 and 97 were respectively characterized as a tinned unleaded bronze containing a small amount of zinc, and a wipe-tinned with a lead-tin alloy, and a similar bronze amalgam plated with electrum.

ENVIRONMENTAL DATA

Charcoal, by Rowena Gale

Charred plant material and charcoal were recovered from the backfill of cremation grave 29. Charcoal was much sparser than the charred plant remains and only occurred in two of the twelve sub-contexts (whole-earth recovery by spits and quadrants), one of which was selected for analysis.

Methods

Bulk soil samples were processed by flotation and sieving with flots retained on 0.5mm mesh and residues on 1mm mesh. Flots and residues were scanned under low magnification and the charcoal separated from plant macrofossils. Samples were prepared for examination using standard methods (Gale & Cutler 2000). When possible, the maturity of the wood was assessed (ie heartwood/sapwood). A group name is given for members of the Pomoideae (*Crataegus, Malus, Pyrus* and *Sorbus*) where anatomical differences between related genera are too slight to allow secure identification to genus level. Where a genus is represented by a single species in the British flora this is named as the most likely origin of the wood, given the provenance and period, but it is rarely possible to name individual species from wood features, and exotic species of trees and shrubs were introduced to Britain from an early period (Godwin 1956; Mitchell 1974) Classification follows that of Tutin *et al* (1964–80).

The sample consisted of small fragments of charcoal mostly measuring <2mm in radial cross-section and was too fragmented to assess the dimensions of the wood from which it was derived. Species identification was undertaken on all viable fragments (see *Endnote* (grave catalogue), below). Apart from the small size of the fragments, the charcoal was moderately well preserved, although some pieces were slightly vitrified. In addition, the sample included numerous small pieces of what appeared to be coal.

Results and discussion

By association, the charcoal appears to represent pyre debris and it is clear from the taxa identified that fuel was obtained from a range of trees. These included oak (*Quercus* sp.), ash (*Fraxinus excelsior*), beech (*Fagus sylvatica*), the hawthorn/*Sorbus* group (Pomoideae) and probably birch (*Betula* sp.). The analysis recorded the use of wood mainly from large trees and, apart from birch, there was no evidence of shrubby species that could have provided brushwood for the pyre. Small fragments of ?coal were common in the sample and since it is unlikely that coal would have been a residual component of the soil in this area, this was also attributed as pyre fuel. Although very rare in cremation-related deposits, coal was recovered from among pyre debris at Trentholme Drive, York, where it appears to have been used as fuel in Roman cremations (Wenham 1968, 21; McKinley 2000a).

The use of oak, ash, beech, the hawthorn/*Sorbus* group and birch would have provided high-energy firewood (Edlin 1949; Porter 1990), and it is probable that these species were selected for their pyrogenic properties rather than for any ritual purpose. Firewood would have been drawn from the closest possible source, though the region would almost certainly have supported a much wider range of taxa than those named here, which had been specifically selected for pyre fuel. This suggestion is endorsed by the absence of hazel (*Corylus avellana*) in the pyre fuel, while hazelnuts were recovered from the pyre debris in the same grave. The charcoal was too comminuted to assess whether the firewood was obtained from managed woodland.

Plant macrofossils, by K L Hunter

Five samples were selected for plant macrofossil analysis including one from the pyre debris in cremation grave 29, two from vessel fills including the copper-alloy bowl (ON 2/9) in grave 6 and the redeposited ceramic vessel (?urned cremation burial; ON 46) in grave 32, and two inhumation grave fills (graves 36 and 135). The fill of the copper-alloy bowl proved to be very rich in uncharred hazelnuts while the other samples contained only a few charred plant remains.

The bulk samples were processed as outlined above (see *Charcoal*, above). The identification of the plant macrofossils was carried out in comparison with modern reference material and standard reference texts (Beijerinck 1947; Berggren 1981; Jacomet 1987). The nomenclature for the identification of the plant remains follows Stace (1995).

Results

Charred plant remains were present in relatively small numbers in all except the sample from the copper-alloy bowl ON 2/9 (table 8). The majority of the remains consisted of amorphous charred lumps <20mm in diameter which had a much denser structure than the vacuolated one usually associated with charred cereal remains. No identifiable elements were noted, so although they were organic it was not possible to suggest their origin. Cereal remains were present in two samples including a badly degraded cereal fragment from grave 135 and a grain of a *Triticum* sp. from cremation grave 29. The shape of the latter suggested a free-threshing wheat type; however, as it was not associated with any diagnostic chaff it was not possible to suggest identification beyond genus. Single shell fragments of hazelnut were present in two samples (table 8). Charred fragments of false oat grass/onion couch were recorded in two samples, including from cremation grave 29 which also included heather/ling-type stems and *Brassica/Sinapis* sp. (cabbage/mustard-type), both of which were also recovered from the fill of grave 135 (table 8).

The inverted copper-alloy bowl from grave 6 appeared originally to have been sealed by/in a textile cover/bag (see *Textiles*, above). The contents consisted largely of uncharred hazelnut with 21 complete nuts and numerous fragments. There was no evidence of either animal or insect damage to any of the whole nuts or the larger fragments and many of the larger remains were coated in a blue/green deposit probably resulting from the corrosion of the metal bowl. The toxicity of the copper alloy inhibited the decay of the contents of the bowl resulting in the excellent preservation of the organic material. Mixed with the hazelnut fragments were small amounts of other organic material including roots, wood, bark and dicotyledonous leaf fragments, all of which were too small to identify further (table 8). One *Rumex* sp. (dock) achene still encased in its tepals was also present along with a fragment of a *Chenopodium* sp. (fat hen-type) seed.

Discussion

A number of deposits of hazelnuts, as well as crab-apples and onions, have been found in copper-alloy bowls from other Early Saxon cemeteries in Britain (Lucy 2000). It is probable that the other fragmentary plant remains found with the hazelnuts were incorporated accidentally, and either entered the bowl with the hazelnuts or later after the bowl was damaged.

The presence of *Arrhenatherum elatis* var. *bulbosum* (false oat grass/onion couch) culm bases, particularly from cremation grave 29, may be indicative of fuel used for cremation. Finds of a similar type have been recorded from Bronze Age cremation-related deposits, such as at Briar Hill, Northamptonshire (Perry 1985), Ashville Trading Estate, Oxfordshire (Jones 1978) and Rollright, Oxfordshire (Robinson 1988). It has been suggested that the grass was used as tinder. The presence of Ericaceae (heather/ling-type) stem fragments in the fills of graves 36 and 135 may also represent evidence of fuel as tinder or as inclusion of turfs used for fuel or building material later destroyed by fire. This may also apply to the *Carex* sp. (sedge) tuber fragment from cremation grave 29. A possible association has been noted between these tubers and Ericaceae stems in deposits from the settlement site at West Heslerton, North Yorkshire suggesting the use of turf for fuel or building (Carruthers & Hunter, in prep). However, the presence of these charred remains is in relatively small concentrations in the various grave fills and the fill of the possible redeposited urned cremation burial in grave 32, suggesting that it may represent a background assemblage of secondary or tertiary deposition, rather than being evidence of activities directly connected to these burials. Graves 29, 32, 36 and 135 were all in close proximity within the northern burial group and fragments of redeposited cremated bone were recovered from several of the inhumation graves in this area (fig 50); this charred plant material may represent the remnants of redeposited pyre debris disturbed during insertion of these graves. The *Brassica/Sinapis* sp. (cabbage/mustard-type seeds) may represent weeds accidentally incorporated with the fuel for the cremations.

The two examples of cereal grains present in the assemblage probably also represent

TABLE 8 Charred plant macrofossils

Taxa	Common name	Component	Habitat	Feature				
				cremation grave 29	inh grave 36	vessel grave 32	inh grave 135	bowl grave 6
Triticum sp.	Bread wheat type	Grain	C	1				
Cereal NFI	Unidentifiable cereal remains	Grain fragments	C				1	
Corylus avellana L	Hazelnut	Complete nut	HSW					21
Corylus avellana L	Hazelnut	Shell fragments (un-charred)	HSW			1	1	(200+)
Chenopodium sp.	Goosefoot type	? Seed	CDn					1
Rumex	Dock	Achene and tepal						1
Brassica/Sinapis sp. L	Cabbage/mustard	Seed	B,Da,C		1		2	
cf Calluna sp.	Heather	Stem fragment	Heath, bog, moor		1		1	
Carex spp.	Sedge	Tuber fragments	GM	1				
Arrhenatherum elatis var. *bulbosum* (L) P. Beauv. Ex J. s&c. Presl	False oat grass/ Onion couch	Culm base	DaH	1	1			
Indet charred organic fragments				****		***	****	
Tree bud (charred)				*				
Un-charred roots/leaf fragments/wood and bark								**

KEY
Habitats: B=bankside; C=cultivated; D=disturbed ground; Da=disturbed ground including arable; G= grassland; H=hedgerow; M=marsh; n=nitrogen rich soils; S=scrub; W=woodland.
Values (approximate): * rare (<5); ** occasional (5–10); *** frequent (20–100); **** abundant (100+)

background waste that has become incorporated in to the grave fills rather than deliberate inclusion.

Cemetery discussion

The Saxon cemetery at Croydon has long excited interest and discussion, partly fuelled by the absence of supporting contextual evidence to accompany the known finds from Edridge Road, by virtue of which so much was left open to speculation. The importance of the Edridge Road finds rests primarily on the nature and 5th century date of a few of the objects, and the location of the site in proximity to London (Morris 1959, 152–3; Shaw 1970, 95, 112; Welch 1997). The 5th century objects include components of a Roman military style belt (middle third of the 5th century; Shaw 1970, fig 13; Welch 2000, 134) and two items with Quoit Brooch style decoration (early 5th century) – probably products of a late Roman workshop (Shaw 1970, fig 14; Welch 1997) – which imply a potential link with federate troops from Saxon north-west Germany with Roman military experience. Other points of significance are the implied longevity of the cemetery indicated by the presence of a 7th century shield boss (Shaw 1970, fig 10), and the use of both inhumation and cremation mortuary rites.

The Park Lane excavations presented an opportunity not only to acquire additional data from this undoubtedly important cemetery, with full stratigraphic recording of all the surviving components, but also to provide further information as to the probable context of the earlier finds. The aims of the project included ascertaining the size and extent of the cemetery, its date, form and structure, and the status and cultural affinities of those burying their dead within it. A further objective was to improve understanding of the choice of location and, by inference, that of the settlement with which it was associated.

The density and distribution of the surviving Saxon graves suggest that the site was situated on the eastern margins of the cemetery. This is not conclusive owing to the dispersed distribution of some of the smaller clusters and singletons in the southern half of the site, but it seems unlikely that any large groups of Saxon burials extended further east. The location of the late Roman/early post-Roman grave, however, suggests more burials of this date may lie under Park Lane itself. It is probable that the Saxon cemetery extended further to the north, though how far will probably never be known because of the substantial truncation of the natural gravel (late 19th–early 20th century) below the level of the known graves in the northern 10–12m of the site and beyond. The lack of any recorded finds during the construction of the buildings to the north cannot be taken as evidence of absence since there is no record of any finds made during the insertion of the 1903 villas on the site, yet the northern basement, at least, clearly cut through, and probably totally destroyed, several graves. No traces of the cemetery were observed in the various investigations undertaken to the north of the site off Park Lane or Edridge Road (fig 1). The cemetery does extend to the south, and graves in addition to the incompletely excavated 339 and 362 (fig 3) are highly likely in the adjacent property and possibly beyond. The basement of the neighbouring building is probably of the same size and similarly aligned to the two southern basements within the site and may have damaged remains, but the area to the rear is probably relatively undisturbed (currently occupied by single-storey pre-fabricated structures). It will be clear from the extensive gaps between the small groups of burials in the southern half of the site that Davidson's 6 × 5m trench *c* 15m to the south at No 94 (Youngs *et al* 1986) could have fallen between graves and their absence from the area of investigation cannot be taken as conclusive proof that the cemetery did not extend this far south. However, the paucity and distribution of the graves in this area suggests it is marginal to the main focus of burial and that the southern boundary is likely to be close.

Extrapolating from the density and easterly extent of the graves adjacent to the northern basement suggests that its construction totally removed up to seven graves extending approximately half-way across it to the east (a *c* 7 × 7m area, fig 3); giving a total of *c* 53

inhumation burials within the limits of the excavation. Calculations based on the most commonly occurring find from Edridge Road – the spearhead – together with the known frequency of occurrence of this item in the Park Lane graves, indicate that a minimum of 125 inhumation burials were destroyed during the construction of Edridge Road. The high probability of other spearheads going unrecorded suggests the true number would have been higher. A maximum of 115 inhumation burials is estimated for the unexcavated car park area, but this assumes a consistent density similar to that in the excavated northern cluster. While it may be argued that the graves within this more central area of the cemetery could have occurred in greater density, this is not supported by the findings from MoLAS evaluation trench 1 (figs 3 and 6), the grave density within which suggests a further *c* 60 inhumation graves could remain unexcavated. Since, however, the density of graves varied across the excavated area and was relatively sparse in the evaluation trench, it is likely that there was variation across the whole cemetery. A minimum of sixteen cremation burials was recorded from Edridge Road, one from Park Lane and a potential six from the MoLAS evaluation trench 1. Their density within the latter was not great, and by extrapolation there could be *c* 60 remaining unexcavated in the car park area. The implication is for a cemetery of *c* 238–293 inhumation burials and *c* 83 cremation burials, rendering it close in size to Mitcham with its 238 known graves (inhumation only, no cremation graves were found), though it has been postulated that the latter may have held up to 500 (Bidder & Morris 1959, 58).

Although nine graves (*c* 20%) held items of probable 5th century manufacture (fig 64; including items of weaponry, brooches, a buckle and a pin), none could be confidently assigned to that date, the earliest – grave 352 in the small group central to the site – probably being late 5th–early 6th century. Several of the graves were assigned to the early to mid-6th century, but the majority could not be confidently designated a date closer than the 6th century. Two burials, 282 with the penannular ditch and 210 in the northern cluster, were attributed a 7th or possibly early 8th century date. The dating of penannular graves has generally been based on artefactual evidence either from the graves themselves or the adjacent flat-graves as for example, at Droxford, Hampshire (Aldsworth 1979). However, the later graves tend to include fewer grave goods (Welch 1980, 258) and where radiocarbon dates have been obtained there are indications that the tradition may have extended slightly later than suggested by the adjacent flat cemeteries (eg McKinley forthcoming c). Although not conclusive, the form of grave 282 together with the type 3 knife recovered from it, implies a 7th century date (Hogarth 1973, 119; Lucy 2000, 98–9).

The findings agree closely with those from Edridge Road where the majority of items were also 6th century in date. In addition to about nine items identified as Romano-British in 1897 (table 1), a 4th century belt fitting 'already old when buried' (Welch 1997) was recovered and the presence of about seven other objects of 5th century date has been discussed above. One 7th century shield boss was also found. The major interpretative problem with the Edridge Road material is the lack of context. It has generally been assumed that all the Roman finds (table 1) were re-used in Saxon graves, but while this was a relatively common trait, particularly with regard to Roman coins – as represented in at least two of the 6th century Park Lane graves (Roman coins; ON 89, grave 33 and ON 96 grave 135) – Morris (1959, 138) refers to the 'unusual survival' of the four Roman vessels. With the now known presence of a Late Roman/early post-Roman burial in the immediate vicinity can this still be taken for granted: could there not have been Roman burials on the west side of the Saxon cemetery? While further burials of this date may be most likely to be in the vicinity of grave 369, the possibility cannot be ignored or summarily dismissed. Similarly, the probability of the 4th century belt fitting being a curated or 'hereditary' item has already been suggested, but what of the other 5th century items – were any of them deposited in 6th century graves as at Park Lane or were they genuine 5th century deposits? The consensus seems to support the latter with regard to most items, based on their type and quality. It has been observed that the remains of burials regularly include a wide range of 5th century objects rarely, if ever, mixed with those of 6th century date, and that no Anglo-Saxon grave has been found to contain

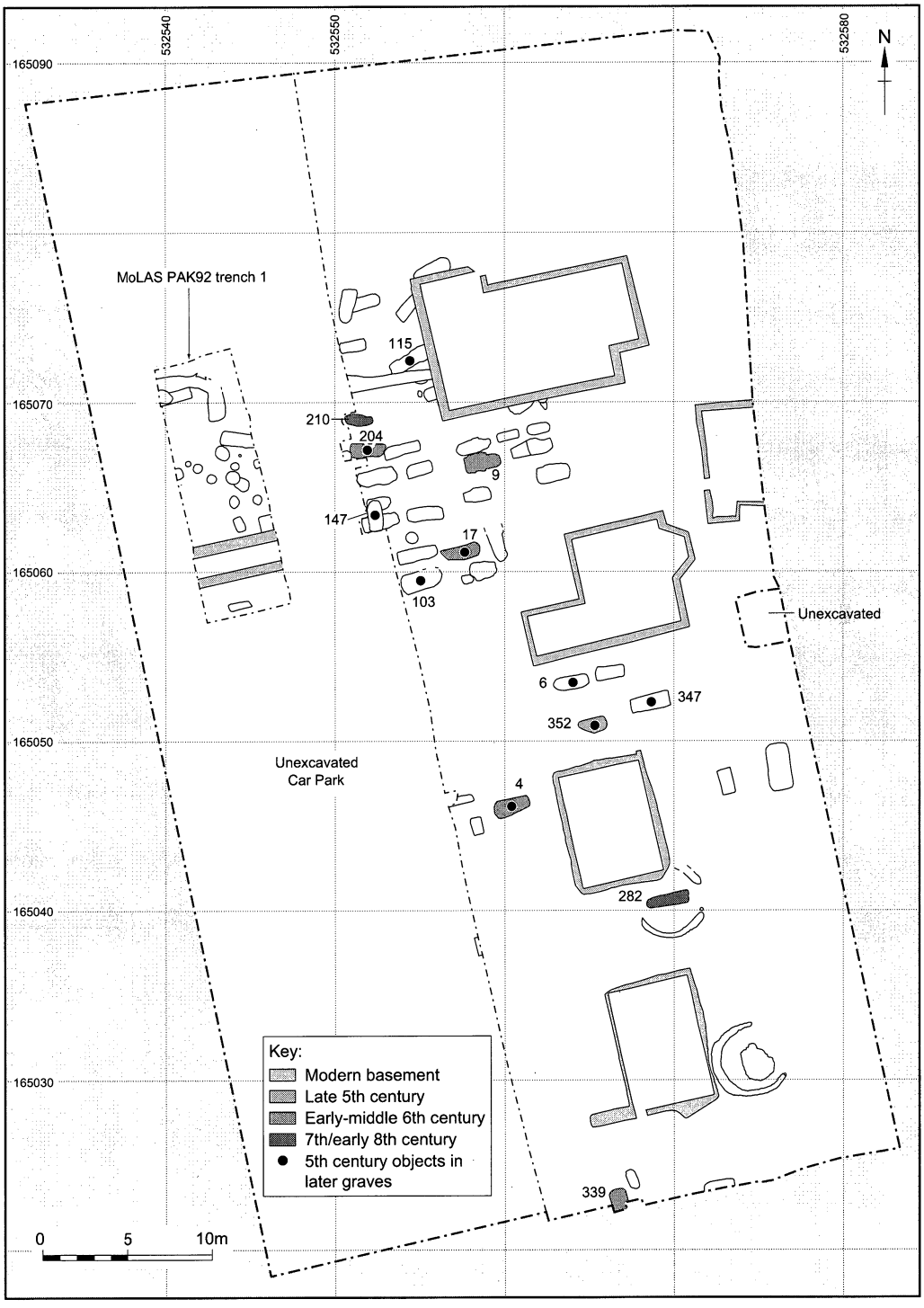

Fig 64 Park Lane, Croydon. Site plan showing distribution of late 5th, early–middle 6th and 7th/early 8th century graves, and 6th century graves with 5th century objects.

Teutonic objects separated by more than 30–40 years (Morris 1959, 151–2; Bidder & Morris 1959, 88). Others have noted, however, that some old brooches have been found in contexts of between 50 and 100 years after the type was current (N Stoodley, pers comm), suggesting that, at least with some object types, there may have been greater flexibility in the age of items chosen for burial.

The dates attributed to the urns suggests a continuum in use from the late 5th to 7th centuries (Myres 1977, 18–19), implying the two rites of inhumation and cremation were in contemporary use throughout rather than one largely preceding the other as is the case in the predominantly cremation rite Anglian cemeteries.

Although the earliest Saxon burials – possibly AD430–60 – appear to have been made in the western (Edridge Road) part of the cemetery, burials from across the date range seem to have been spread throughout with no spatial chronological development. The suggested dates for the two graves in MoLAS evaluation trench 1 are late 5th–early 6th and 6th–7th centuries. The earliest dated grave from the excavation (352) lay in what may be seen as a marginal position, while what appears to be the latest (210) lay within the main northern cluster of 6th century ones (fig 64). It does not appear, therefore, that the cemetery developed outwards from a single core, but, as is commonly the case (Stoodley 1999, 126–7), that groups, possibly linked by family, status or role in life, were buried in different parts of the cemetery. The number of 5th century burials within the cemetery is likely to have been small, with evidence for as few as three to six (all from Edridge Road), the 6th century representing the period of main use. The number of apparent 7th century burials is also small, with three or four known graves of this date. By this stage a combination of religious, social and economic factors may have led to a shift in the place of burial to what seems to have become the focus of later Saxon settlement in the valley bottom. The same pattern of temporal development may be seen at nearby Mitcham and Beddington (Bidder & Morris 1959, figs 2–4, 128; Morris 1959, 133–4 and 152–175; Poulton 1987, 199).

The groupings suggested by the mixed distribution of burials of different date is supported by structural evidence from the graves and the components of the burial. The osteological evidence (scarce as it is) does not indicate any grouping on the basis of the age or sex of the adults such has been observed in some cemeteries (Lucy 2000, 132). While it is probable that at least three graves held the remains of infants or juveniles and possible that a further two could have done so, the graves of such young individuals are conspicuous by their absence. This may reflect the genuine demographic profile of the population using the cemetery, with the small number of immature individuals reflecting a low fertility rate (Larsen 1997, 337–40). The poor condition of the skeletal material renders details of the population structure difficult to deduce, but there were certainly at least some females of child-bearing age among the individuals identified. The surviving evidence should be viewed with caution, however, since there could be other significant factors, including poor bone survival. Where the small graves do exist they seem to be similarly dispersed to their larger counterparts, but there may have been a concentration elsewhere in the cemetery.

The relatively few burials (six; fig 48) containing jewellery were all in the northern cluster. The weapon burials are spread across the cemetery but there are two points of interest. The four sword burials were dispersed, no two occurring in any one group, though the size of those groups varies widely (fig 48). This suggests that each group was associated, or had associated with it, one high-status individual. The high proportion of weapon burials at Park Lane (33%; 13% higher than at neighbouring Mitcham) and relatively high percentage of swords (9% of graves, compared with 5% from Mitcham) emphasizes the significance of warrior symbolism within the graves. The importance attached to these visually impressive weapons (fig 63), both symbolic and practical, is evident from the care with which they were treated. Many of the items, presumably after suitable preparation, were wrapped in protective cloth prior to burial, with some of the shields possibly having been placed in bags. The small size of most of these grave groups suggests that the implied allegiances were short lived and revolved around one individual. Conversely, the status of the male (35–50 years) in grave

147 may have been an inherited one, and it may be significant that it contained the greatest number of items from any one grave, is one of only three graves to cut through an earlier one, and was one of the nine to contain 'curated' 5th century material. There may be further significance in the observation that three of the four swords recovered were of probable 5th century manufacture, the one exception (ON 184) being from a grave that was not fully excavated.

The central group of four burials – including that with a sword (grave 6) – all contained weapons, though in the case of the other three, the weapon was the defensive shield; the grave with the sword being the only one containing such an item not also to hold a shield (figs 48 and 64). This group included the earliest grave identified on site and two of the others (including 6) contained material of probable 5th century manufacture (weaponry and belt buckle ON 198), suggesting that the group as a whole may have been relatively early. The high status of the individual in grave 6 is further emphasized by the presence of the copper-alloy bowl containing hazelnuts, wrapped in cloth and placed to the right of the head. Similar small clusters of weapon burials have been observed within other cemeteries, for example Empingham II, Rutland (Stoodley 1999, 130; Lucy 2000, 133); a notable departure from those observed elsewhere, however, is that the individual from grave 347 was identified on osteological evidence as a probable female of *c* 16–30 years (only one other in the group (352) was sexed osteologically, as probably male). While the integrity of the sexing is not absolute, to assume it is wrong simply because the grave contains a weapon would also be misleading. The concept of the 'shield maiden' is not purely Wagnerian and the 'elusive warrior maiden tradition' has been the subject of some study (Shepherd 1999). Skeletal material identified osteologically as female has been found buried with items of weaponry in at least five Early Saxon cemeteries – Beckford A and Beckford B, Hereford and Worcester (Evison & Hill 1996, grave A2), Dover Buckland (Evison 1987, 125), Empingham II (Timby 1996, grave 106) and West Heslerton, Yorkshire (Lucy 2000, 89). Unfortunately, in most cases – as here – the condition of the bone has not been of the best and the attributed sexing of varying integrity from probable to possible, giving the excavators sufficient excuse to dismiss the osteological evidence as incorrect in some cases (Shepherd 1999, 228; Stoodley 1999, 29–30).

West Heslerton provides the exception, the osteological sexing having been confirmed by DNA analysis (Lucy 2000, 89). The items recovered have mostly been spears with some shield bosses. It has been suggested that old spearheads could be adapted for different use and may not necessarily have functioned as or carried the role of weapon (Härke 1990, 36; Shepherd 1999, 228). One other example that comes close to being accepted is the subadult female (13–15 years) from Empingham II, owing to her young age. Shepherd observes the lack of Norse (from where much of her argument is derived) or Saxon literary evidence for a woman as warrior, but relates one legendary saga of a young maiden who carried her father's sword in the role of 'surrogate son', a role she held until she 'fixed' her female gender by taking a husband. The argument rests on the perception of gender roles and accepted behaviour, which may to a point be flexible, dependent on circumstances rather than absolutely fixed by the biological sex of an individual (as accessible though osteological analysis). The possible existence of a third gender where an individual of one or other sex may be attributed the gender symbolism of the opposite sex for social or religious reasons (Stoodley 1999, 76–7), would encompass the argument put forward by Shepherd. The role of weapons within burials has been discussed by Härke (1990) who argues that they are symbolic of the social status of the deceased's family rather than indicative of the role of the individual as warrior. Such symbolic significance would not preclude weaponry being included in female graves, again being commensurate with the adoption of a third gender under certain social circumstances. On a more practical level, there is also the question as to whether a woman would stand by while her home and family were destroyed (Shepherd 1999, 227). The practical and symbolic need not be mutually exclusive. In the case of the individual from grave 347, there may be some significance in the fact that she was essentially a young adult, rendering her within the bounds of being a maiden.

The northern grave cluster – which probably included the two most easterly graves in the evaluation trench, covered a *c* 17 × 18m area and originally comprised *c* 50 graves – was also distinguished from the other, smaller groups, by characteristics in grave form. The use of flint nodule linings (seventeen graves) and various forms of internal ledges (nine graves) were all confined to graves within this group, as were variations in grave width (five graves) and the angle to which the sides were cut. The cluster appears to have contained minor sub-groups such as that suggested by the (minimum) three south-west to north-east oriented graves on the north-west margins, with others possibly linked by orientation and other aspects of grave form. The only variant not apparent in the main cluster was east–west burial (two), though most (three of four) tapered graves were spread across the south of the site.

Although the cemetery was of mixed rite, it was predominantly for burial by inhumation by a factor of about 3:1. It also appears as though, although practised at the same time, the cremation burials were largely confined to particular areas of the cemetery, possibly within their own small clusters as in evaluation trench 1 (figs 3 and 6). This type of spatial distinction has been noted elsewhere, including Portway (Cook & Dacre 1985, fig 13). However, at Apple Down – the only other mixed-rite cemetery in the south of England with more than 50 cremation burials (Lucy 2000, 119: NB Lucy's statement that Croydon has >50 cremation burials, unlike at the other two sites, is based on conjecture rather than actual numbers of burials found) – the two types of burial appear more mixed (Down & Welch 1990, fig 2.4).

Croydon and the contemporaneous cemeteries in Surrey lay at, or close to, the interface between different cultural groups of Germanic settlers. Most of the artefacts suggest southern Saxon influences, with limited Kentish connections indicated by some of the weaponry and textiles. Indications of links with the Anglian region are confined to some textile evidence and the presence of the horse cremation burial, though other aspects of the latter (relatively profuse pyre debris) are not characteristic of burials from that area.

At neighbouring Mitcham, the connections appear to have varied over time with similarities to the south and west of the site in the 5th century, followed in the 6th century by the development of a local, perhaps isolated, tradition and subsequent broader, more county-wide influences (Bidder & Morris 1959, 129–31). This pattern does not appear to be mirrored in the findings from Park Lane, and although the cemeteries are of similar date with obvious shared traditions, there are sufficient variations – lack of cremation burials, flint nodule grave linings and the use of integral ledges, and a greater degree of intercutting between graves – to indicate that the populations using the two cemeteries had their differences. Similarly, variations in burial practice between local communities in relation to gender-reflective grave goods have been observed in some cemeteries (Stoodley 1999, 89–90).

There is the implication, fuelled by the lack of the rich Kentish or Anglian material in the later burials within the region, that the area became a rather poor backwater in the later 6th century (Morris 1959, 155–6). Elsewhere, it has been suggested that the Surrey area was always relatively poor and backward (Poulton 1987, 219), though how that could be so in the early period with such rich warrior burials is debatable. It may also be worth noting that the two wealthiest burials, both male (grave 147) and female (grave 164), were among the few to cut earlier graves (being similarly aligned south–north), suggesting that the earliest in the group were not necessarily the richest. Park Lane had a very high percentage of graves containing goods (*c* 72%), with an obvious emphasis towards weaponry (33%) and, conversely, a relative dearth of jewellery (13%). A similar emphasis and disparity, though slightly less pronounced, was observed at Mitcham (20% weapons, 20% brooches). There clearly was wealth in the communities within the area, but it appears to have focused on the warrior symbolism – reflecting, among more practical factors, the wealth and potentially the social rank of the family (Härke 1990) – rather than the show of high-status, generally dress-related, feminine items. The osteological evidence does not suggest any disparity in numbers between the sexes, but there is a bias towards male gender-linked items if the apparent predominance of tweezers, knives and buckles in male graves noted by Stoodley in numerous Saxon cemeteries (2000, 89–90), is real. Both buckles and knives mostly occur in male graves at Park

Lane (table 2: seven of twelve graves and nine of 21 respectively), with only two of each item in female graves, two buckles and ten knives being from unsexed/ungendered graves. It is therefore possible that the higher number of male gender-linked grave goods reflects more males than females within the cemetery, though this is difficult to prove and would not, even if correct, detract from the symbolic importance of the weapon burials. Perhaps during the period of major settlement the area was viewed more as a stepping-stone to other areas to the south and west rather than the location of choice in which to settle permanently. The population may have remained somewhat static over time, those who arrived in the early days staying and becoming set in their ways, the later settlers passing on elsewhere and consequently not infusing new blood and ideas into the region. Whether this, in itself, is indicative of poverty as such, is also open to debate. The lack of flamboyant grave goods in the later period could reflect local fashion, indicating a change in dress such as suggested for the 7th century (Samson 1999, 133–6). The few graves apparently devoid of goods may relate to this later date.

The strategic importance of the three Early Saxon cemeteries – and by implication, settlements – in the Wandle valley (Croydon, Mitcham and Beddington), coupled with their apparent 5th century foundation date, has long been recognized as potentially significant (Morris 1959, 152; Morris & Bidder 1959, 129; Poulton 1987, 211–14; Welch 1997). Morris (1959, 153), among others, has argued that the 'earliest settlements [ie cemeteries] are found in places advantageous to the defence of Roman Britain, rather than on the easiest agricultural land'. Situated on the southern margins of the London Basin on what appears to have been the nearest inhabited land to London in this direction, the Wandle valley settlements would have been well placed to cover the southern access routes to the city. Other similarly placed cemeteries with a 5th century foundation date include Orpington and Horton Kirby in Kent and Mucking in Essex, all believed to be associated with the first phase of Saxon settlement, strategically located to guard the approaches to London (Tester 1968; Whittaker 1994; Welch 1997; Bird 2000, 166). The potential link with federate troops in at least two of these cemeteries – Croydon and Mucking – has been suggested by the recovery of late Roman and Early Saxon metalwork, significantly including parts of Roman military style belts, 'official symbols of office issued to military commanders or imperial civil servants' (Philpott 1991, 187–9; Welch 1997). The implication derived from this material is that at least some of the earliest individuals to be interred in these cemeteries were officers with military experience in the late Roman army from Saxon north-west Germany (Welch 1997).

The choice of location for the Croydon Saxon cemetery may have been based on the known use of the area as a place of burial. The one identified late Roman/early post-Roman burial is unlikely to have been a singleton and more burials may have been made to the east. It is also plausible that earlier Roman burials existed to the west of the site within the area disturbed during the construction of Edridge Road. There is no proof that all the Roman material recovered at that time came from Saxon graves and this assumption has already been queried by some with regard to the Roman vessels (Morris 1959, 138; Poulton 1997, 215). The recovery of the late Roman/early post-Roman burial lends further weight to these doubts. Both the Saxon connection and military connotations attached to the belt fittings are also open to debate; such items could equally indicate a civic person of rank, and without knowing what other items were associated with them, no conclusion can be reached (Philpott 1991, 187–9). Similarly, it has been observed that such items are not 'atypical of late Roman burial practice nationally' (Barber & Bowsher 2000, 305), examples having been recovered not only from Mucking but also at Lankhills, Hampshire and in the eastern cemeteries of London.

The re-use of earlier burial grounds by the Saxons is well documented, and the adoption of former Roman cemeteries or occupation sites for burial is predominantly Early Saxon (Lucy 2000, 124–30). Both Beddington and Mitcham were associated with Roman use, the former lying close to the villa and the latter in the vicinity of both settlement and cemetery (Bidder & Morris 1959, 51–2; Morris 1959, 133). At Higham, Kent, the Saxon cemetery was

situated on the edge of its Roman predecessor, while at Stowting the graves from both periods were intermingled (*ibid*, 57). The potential 5th century date of grave 369 suggests not only continuity of use but the possibility that both the sub-Roman population and the earliest Saxon incomers could have been using the cemetery contemporaneously. It may also be significant that the proposed centres of both Roman and Saxon occupation appear to lie to the north-west of the site. The possible existence of Roman graves among what are accepted to have been Saxon ones found *c*400–500m to the north of the site on the east side of the High Street (fig 1), indicates that there was more than one cemetery serving these communities.

The numbers of 5th century Saxon burials (if they are Saxon) indicated within the cemeteries of the Wandle valley is very small – possibly half a dozen from Croydon, with similar numbers from Mitcham and only one from Beddington. Can so few burials be taken as indicative of settlement? It is more probable that the earliest Saxon burials reflect the presence of a number of specific individuals living within the post-Roman community. If treatment in death may be said to mirror life, these early incomers were not wholly segregated from the local community but formed part of it – possibly integrated by marriage – distinguished by variations in their culture and presumably their function. The evidence lends support to the various arguments for the early presence of Saxons within the area (Morris 1959, 148; Poulton 1987, 213–15; Welch 1997), not as individuals pioneering a settlement but as migrant workers who were later followed by those who came with a more permanent presence in mind.

Endnote

The grave catalogue is available via the Archaeology Data Service website (http://ads.ahds.ac.uk/catalogue/library/surreyac/). The information can also be accessed via the Society's own website (http://www.surreyarchaeology.org.uk) by following the links to *Surrey Archaeological Collections*.

Printed copies of this material will be deposited with: the Society's library, Guildford; Surrey History Centre, Woking, and the Surrey Sites and Monuments Record, Kingston. Photocopies can also be supplied by post – enquiries should be addressed to the Hon Editors, Surrey Archaeological Society, Castle Arch, Guildford GU1 3SX.

An example of the information contained in the catalogue is given below:

Grave 9 (sk 12)

Figures 10 , 57 and 58.

West–east (10° south from), sub-apsidal cut with wider sections in western portion, acutely sloping sides, flat base; 2.15 × 0.96m, 0.25m deep (base at 57.26m OD). Remnant some flint nodule lining along sides and at north end. ?Stakehole, 0.1m diameter, 0.06m deep cut through base of grave in south-west corner. Single mid-reddish-brown sandy silt fill with occasional subangular flint gravel inclusions.

Human remains: Burial appears to have been made supine and extended. *c*2% skeletal recovery, lower limb. Sub-adult to adult >15 yr.

Grave goods:

ON 6: 0.16m above grave base. Incomplete spearhead (Swanton type C2); medium leaf-shaped blade with shallow mid rib, but broken socket ferrule near junction. L 305mm; W 36mm; socket diam 6mm (incomplete).

ON 7: Uppermost part 0.12m above grave base. Shield boss (Group 3) with associated short flat straight-sided grip, Type Ia (ii). 4¼ flange rivets (extant); 2¼ rivets in copper alloy. *Mineralized organic remains:* wood from shield-board (probably willow/poplar, *Salix/Populus* sp.), animal skin from outer facing of shield-board.

ON 8: 0.1m above grave base. Featureless copper-alloy lump (not illustrated).

ON 20: 0.23m above grave base. Socket ferrule, possibly from spear. Conical shape, tapering to a smaller aperture at one end. L 82mm; socket diams 18mm and 6mm.

ON 24: 0.13m above grave base. Iron blade and tang, from a slender knife, complete. Angled back and curved cutting edge – Böhner (1958) type C or Evison (1987, 113) type 3.

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