London and Middlesex Archaeological Society Transactions, 67 (2016), 261–96

EXCAVATIONS AT FINSBURY AVENUE SQUARE, LONDON EC2: FROM SUBURBAN MEDIEVAL GARDEN TO VICTORIAN RAILWAY STATION GOODS YARD

Isca Howell

With contributions by Ian M Betts, Lyn Blackmore, Anne Davis, Jacqui Pearce, Alan Pipe, Beth Richardson, Kevin Rielly and Terence Paul Smith

SUMMARY

The site at Finsbury Avenue Square lies to the north of the walled Roman and medieval city. In the medieval period this was an area of marsh known as Moorfields and the excavations found that little activity took place on the site before the 15th century, when a large drainage ditch was dug. This ditch also probably served as a boundary to one of the garden plots which occupied Moorfields by this date. Plant remains recovered from the ditch included ornamental, edible and medicinal species. An early 17th-century pit contained evidence for red or chilli pepper.

The site offers an opportunity to contrast the early cartographic evidence of the Moorfields area with the excavated features and structures. The site remained open space until the late 17th century. Destruction debris from the Great Fire was dumped on site, then the site was immediately redeveloped and a terrace of brick-built houses was constructed. External features associated with these dwellings included an 18th-century horncore-lined cesspit. These properties underwent various additions and alterations, but they survived until the construction of the Broad Street Railway Station goods yard in 1876.

INTRODUCTION

In 2002 Museum of London Archaeology (MOLA) carried out archaeological work at Finsbury Avenue Square, in the City of London, EC2 (Fig 1), in advance of the construction of an underground restaurant within the square. The programme of works included evaluation trenches undertaken in April–May and an excavation between 21 October and 22 November. The National Grid Reference for the approximate centre of the site is 533015 181785.

This report describes the site sequence as a series of archaeological periods defined during the analysis of the excavation results, within which the principal features and finds are discussed. The more significant finds are also fully covered in the appended specialist reports. The complete site archive (site code FNB02) is available for study at the Museum of London's Archaeological Archive (LAA). All stratigraphic and specialist data were recorded using standard MOLA procedures and subsequently entered on to an Oracle database. This database, housed in the LAA, is the medium through which the finds, environmental and field records may be interrogated.

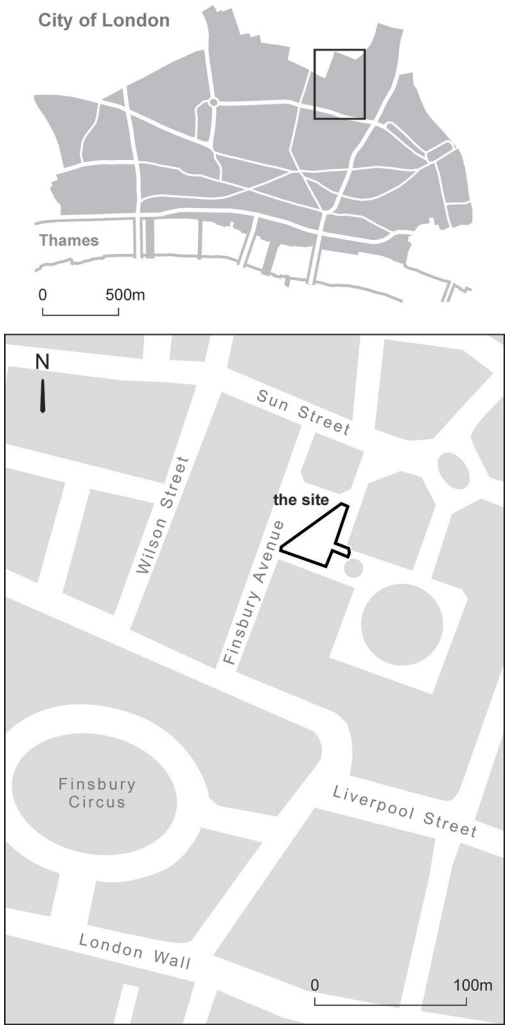

Fig 1. The location of the site in the City of London (scale 1:5000, inset 1:50,000)

The site is generally described in terms of the Buildings (B), Open Areas (OA) or Structures (S), termed land uses, which were found, but individual context numbers are also employed, for example to describe the provenance of finds. In the text, contexts are denoted by square brackets ([100] *etc*) whilst accessioned find numbers appear in angled brackets (<100> *etc*). Some illustrated and/or catalogued finds have been given numbers during the preparation of this article and appear with a letter prefix used to denote the category of find. Thus the series <P1> to <P33> defines the pottery catalogued for archive purposes. Of these items, <P4>, <P8>–<P11>, <P13>–<P15>, <P20>, <P21>, <P23>, <P26>–<P28>, <P30> and <P32> are illustrated within this article. Similarly, <T1> and <T2> refer to the illustrated ceramic building material tile. This article employs standard Museum of London codes for ceramics and building materials. Detailed descriptions of the building material fabrics and complete lists of the pottery codes used, their expansions and date ranges, are available online.[1]

GEOLOGICAL, HISTORICAL AND TOPOGRAPHICAL BACKGROUND

The drift geology of the site consisted of Pleistocene Thames terrace gravels at *c.*9.50m OD, overlain by a *c.*1.40m thick accumulation of brickearth so that the natural ground surface lay at *c.*10.90m OD. The natural topography of the area was slightly undulating with a modest slope from south to north.

The site lies to the north of the City of London, immediately outside the line of the Roman and medieval city walls (Fig 1), in an area which came to be called Moorfields during the medieval period. This marshy area is believed to have developed after the construction of the Roman city wall impeded the natural drainage pattern of the Walbrook stream. However, despite the site lying close to the stream, there was no surviving evidence of marsh deposits.

William Fitz Stephen writing between 1170 and 1183 described this area as 'the great marsh' which stretched between Cripplegate and Bishopsgate along the northern side of the walled city (Stenton 1934, 58). Following the construction of a postern gate (Moorgate) in the city wall in 1415, attempts were made to drain the area by digging ditches. Further improvements to the drainage were undertaken in 1512 and 1527 (Weinreb *et al* 2008, 560). The area was quarried for material to make bricks, but by the 16th century was mainly given over to gardens. In 1498, some of these plots to the south of the site were converted into an archery practice field (Stow 1908, ii, 76–7), shown on the copperplate map of *c.*1559 and subsequent maps as 'Moor Field' (Fig 2). On the copperplate map the area of the site was

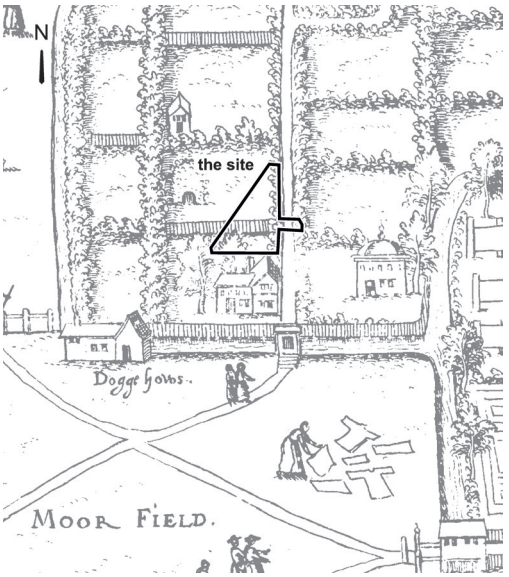

Fig 2. The approximate position of the site in relation to the copperplate map of c.1559

occupied by a series of enclosed gardens, surrounded by a substantial drainage ditch crossed by small bridges. Historic maps show that the site was developed as suburban housing between *c.*1658 and 1667 (see below).

THE EXCAVATION

For periods 1–4, during which evidence for buildings on the site were sparse, the area of the site is treated as Open Area 1, though some individual features within this Open Area, such as ditch Structure 1, have independent land-use terms.

The Earliest Activity on the Site (Period 1: Roman–13th Century)

The natural brickearth at the base of the excavated sequence was overlain by a weathered brickearth deposit that survived to *c.*10.90m OD. There was no conclusive evidence for prehistoric or Roman activity on site, although Roman pottery was found in later deposits and three abraded fragments of rotary quernstones cut from lava from the Mayen region of northern Germany – a characteristically Roman import – were found in the weathered brickearth (Williams & Peacock 2011, 452).

Although three ephemeral 12th- or 13th-century features were excavated on the site (not illustrated), there appears to have been no significant activity on the site until the 15th century.

On the Margins of the Medieval City (Period 2: 15th–16th Century)

A V-shaped ditch (S1) ran on a north-west–south-east alignment (Fig 3). It was *c.*2.70m wide across its top, 1.40m deep and was recorded over a length of *c.*22m. The plant and mollusc remains showed that it usually contained stagnant or slow-flowing water, although with some normal seasonal variation (see Pipe below). Although the direction of flow was not defined archaeologically, the ditch presumably drained eastwards towards the upper Walbrook valley.

One hundred and twenty sherds of pottery came from the fills of the ditch and indicated that Structure 1 filled up during the period 1480–1600. There was evidence for gardens having lain nearby as these fills also contained the remains of a number of ornamental, edible and medicinal plants (see Davis below), and the presence of a London-area early post-medieval red ware (PMRE) garden sprinkler or watering can, <P4> (Fig 18), confirms horticultural activity (see Blackmore below). Perhaps the gardens were also used for recreational purposes, as a wooden bowling ball, <124>, made of *lignum vitae* (West Indian hardwood), had been lost in the ditch (see Richardson below). This wood was being imported by the end of the 16th century.

Other finds from the ditch (S1) demonstrated industrial activity in the vicinity. Some, such as a pinner's bone, <122>, and a copper-alloy head-dress frame, <99>, together with other finds of copper-alloy may indicate the production of dress accessories in the vicinity (see Richardson below). A relatively complete otter skull could be waste from a furrier. Food remains were also recovered. These included a wide range of fruits, nuts and spices, evidence of veal calves and several game species – red deer, hare and rabbit (see Davis and Rielly below). While none of these foods is especially exotic, or

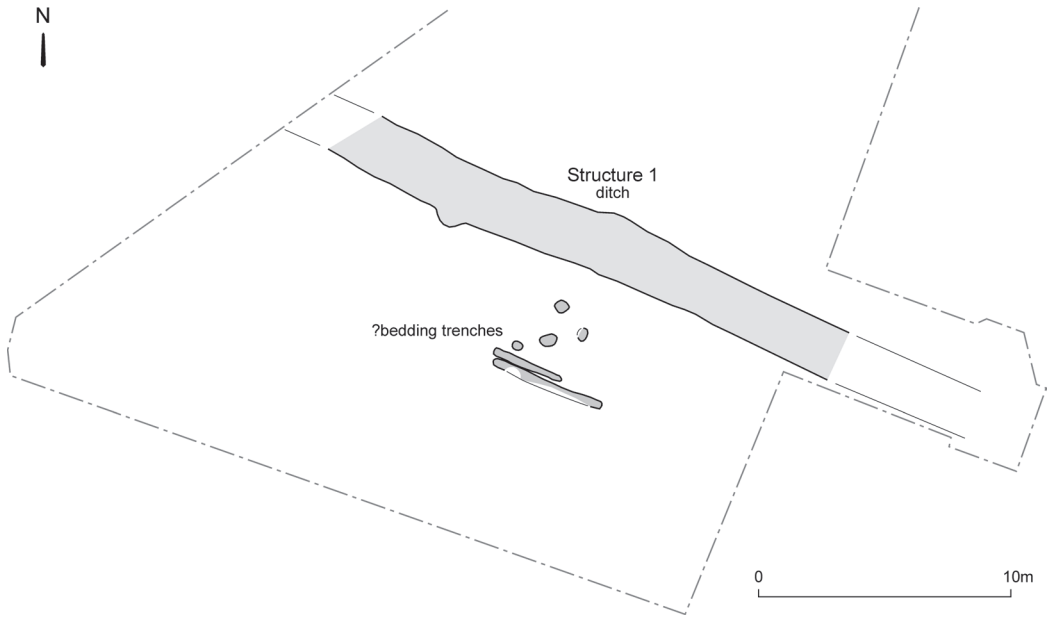

Fig 3. The principal archaeological features of period 2 (scale 1:300)

individually indicative of high social status, the wide range indicates these remains were not derived from impoverished households or communities.

It is likely that the ditch (S1) represents one of the drainage ditches dug across Moorfields during the 15th and 16th centuries. To the south of the ditch, a number of postholes or small pits and linear cuts were recorded. Some of these may be related to gardening: the linear features, for example, may be bedding trenches (Fig 3).

Early Post-Medieval Garden Plots (Period 3: 1600–30)

Although ditch Structure 1 had been backfilled by the early 17th century, this boundary line appears to have been maintained by a fence (S2), built from vertical stakes and wattle and planking panels, and a smaller replacement ditch, [316] (Fig 4).

On the northern side of the boundary lay a large sub-rectangular feature (S3). It measured 10m by 7.5m and 0.5m, with vertical sides and a flat base. On its base was a thin layer of dark silt, overlain by redeposited brickearth, which contained no finds. Structure 3 is most likely to be a brickearth quarry.

On the Agas map of *c.*1562, the site appears to be one of a series of enclosed garden plots (Fig 5). The adjoining buildings shown on this map are believed to have been summer houses associated with the garden plots and the City Dog House, the name given to the kennels of the Common Hunt of the City of London (Oram 1978). In 1570 the Dog House moved from here to Finsbury Field (Prockter & Taylor 1979, 37, pl 10).

South of the boundary ditch lay a regularly arranged group of shallow, flat-bottomed, sub-rectangular pits (Figs 4 and 6), generally *c.*4.30m by 1.60m and *c.*0.20m deep. These pits bear a striking resemblance to a cluster of rectangular features shown on the Agas map in approximately the same location (cf Figs 4 and 5). There is no suggestion that the features on site are actually the same as those represented on the map – the dating of the excavated features mainly falls in the earlier 17th century, most probably 1612–30. These features were more carefully laid out than rubbish pits (and, as they were mapped, presumably also more permanent), but there is no archaeological evidence for their

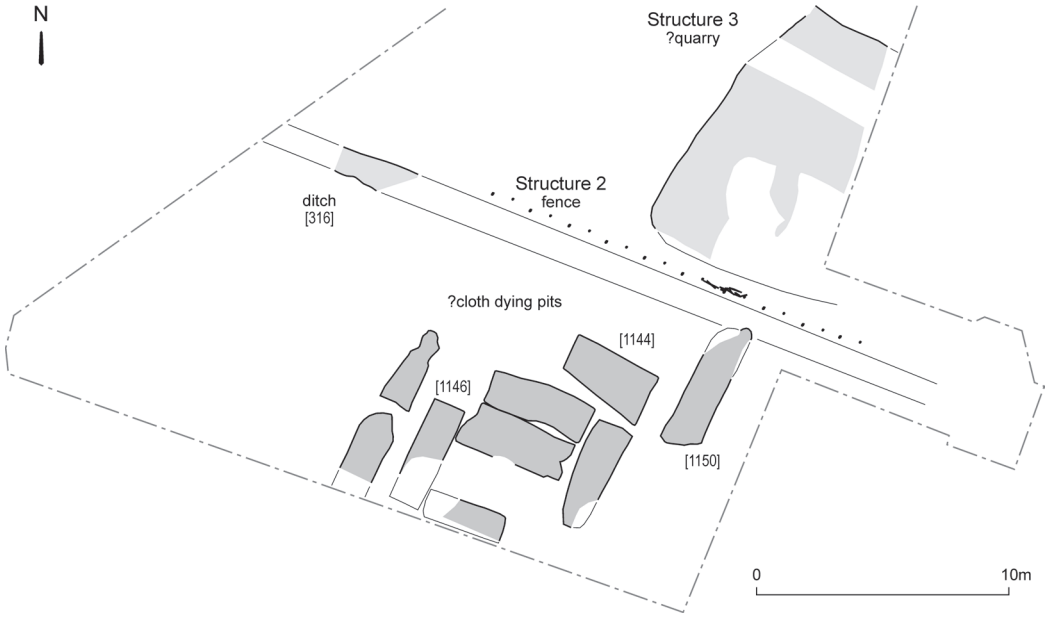

Fig 4. The principal archaeological features of period 3 (scale 1:300)

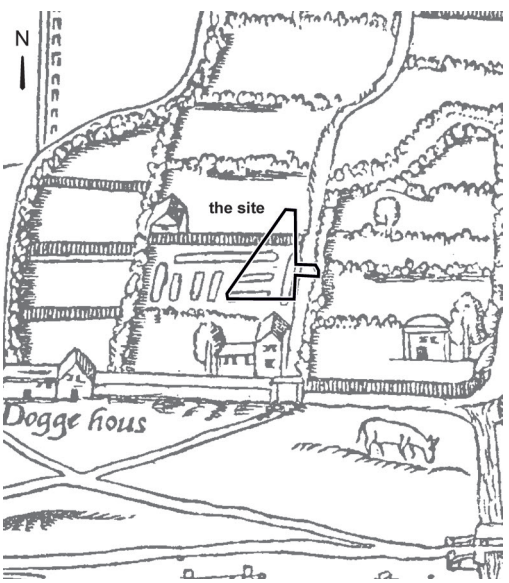

Fig 5. The approximate position of the site in relation to the Agas map of c.1562

original function. They may be horticultural bedding trenches, but a function related to cloth manufacture – fulling or dying pits – is also possible.

Irrespective of their original function, these pits were ultimately backfilled with waste material and contained a distinctive array of finds including, for example, most of the good-quality 17th-century glassware from the site (see Richardson below). The 'façon de Venise' beakers or goblets forming the majority of the assemblage are typical of glassware manufactured nearby at Sir Robert Mansell's kiln in Old Broad Street in the City between 1620 and 1640 (Shepherd nd). Mansell controlled the monopoly of glass manufacture until 1642. The presence of some glass manufacturing waste within the pit fills is curious, as the site was still apparently covered by orchards in *c.*1658 (Fig 7), and therefore an extremely unlikely location for glassmaking. Two berettino dishes in Ligurian maiolica (LIGU) from pit [220] (period 4), however, provide another link to the glassmaking industry (see Blackmore below). These decorative tablewares were made in Italy and might have belonged to an Italian immigrant household working in the glass factory to the south.

Remains of food plants were found in small numbers in all the pit fills, most being from grape, fig, wild strawberry and blackberry/

Fig 6. A view of the southern part of site, showing the period 3 pits under excavation, looking south-east

raspberry. Of some considerable note, however, fill [1149] of pit [1150] contained four seeds of red or chilli pepper. This context dated to *c.*1580–1600 and this may well be the earliest find of chilli pepper from London (see Davis below).

One of the pits, [1144], contained a number of ceramic vessels used in sugar refining (Fig 17), which may have been made locally as some were substandard. Another pit, [1146], contained a purse, <21>, made from flax or fine hemp textile strengthened with a layer of twisted copper-alloy wire rings, almost certainly to make the fabric more resistant to being cut from a belt by a cutpurse or thief (see Richardson below).

It should be noted that many of the finds found in post-Great Fire deposits date to this and the next period, indicating a high degree of disturbance of these levels by later activity.

An Orchard and Evidence for the First Buildings (Period 4: 1630–66)

The archaeological evidence for this period is fragmentary and the interpretation of it is strongly influenced by the Faithorne and Newcourt map of *c.*1658, which shows that the site was situated within an area of orchards (Fig 7). The excavated evidence consisted of a layer of brickearth derived soil that overlay the period 3 features to a depth of 0.40m and formed a new ground surface at *c.*11.40m OD (Fig 8). This deposit was not heavily worked and it is likely that much of it had been imported and mixed with the former topsoil (J Corcorran, pers comm). As might be expected, only residual finds were present.

Leake's survey of 1667 (Fig 9), drawn in the aftermath of the Great Fire of September 1666, shows that the area had dramatically changed and was now characterised by a dense network of suburban buildings and streets. Leake's map shows the limits of the area destroyed the previous year, and it is

Fig 7. The approximate location of the site in relation to Faithorne and Newcourt's map of c.1658

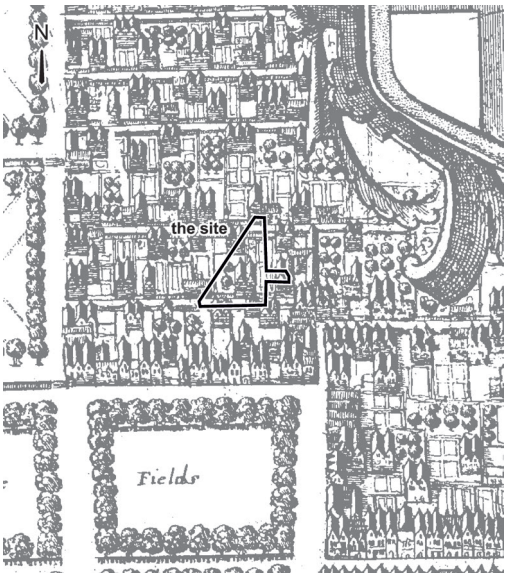

Fig 9. The approximate location of the site in relation to Leake's survey of 1667

apparent that in the Moorgate area the fire did not reach the line of the city wall let alone extend north of it. Therefore, most of the suburban development around Moorfields must have preceded the Great Fire.

The structural evidence from this period of activity on site is ambiguous. The period 4 features which post-dated the brickearth dumps, but were sealed by the period 5 dumps, included a fragment of brick

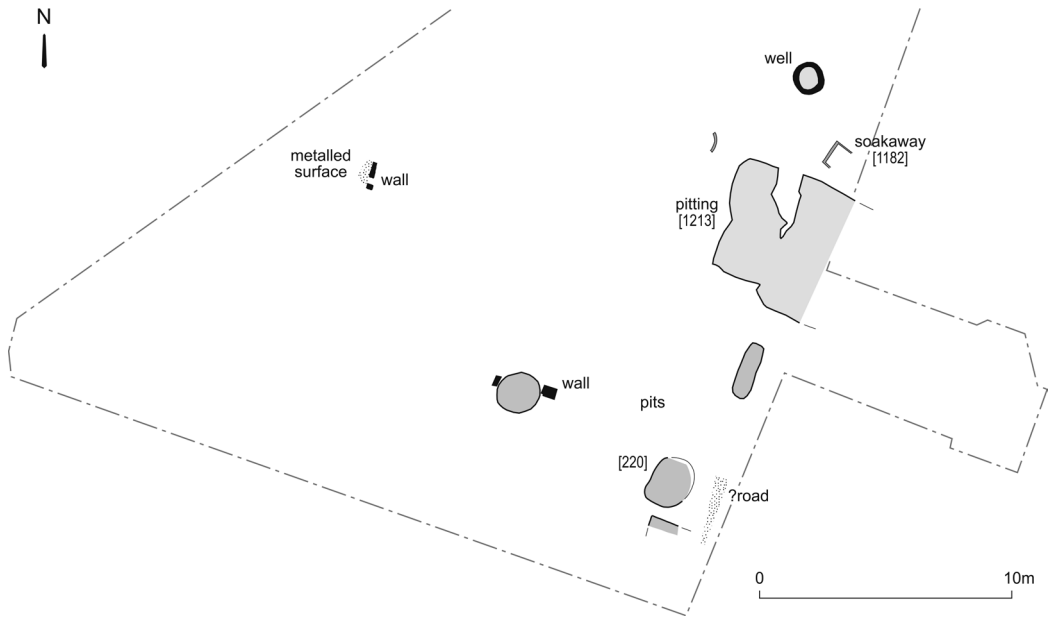

Fig 8. The principal archaeological features of period 4 (scale 1:300)

wall and rough metalled surface on the western side of the site, which, although poorly preserved, could be a fragment of a building or perhaps a north–south aligned boundary wall (Fig 8). In the south-eastern portion of the site a group of four small pits and a road or yard surface also post-dated the brickearth dumps. Of these, pit [220] contained a significant group of 17th-century leather shoe pieces, including a near-complete child's shoe, <9>, and a rare find of a shoehorn, <1> (see Richardson below). There is a strong implication that a cobbler's workshop was sited nearby. Of three tin-glazed dishes/chargers (<P26>–<P28>, Fig 10), also from pit [220], two are more or less identical, with (originally) milled rims and bossed decoration, and probably date to *c.*1650.

An early mid-17th-century blue and white polychrome tile, <43>, made by one of

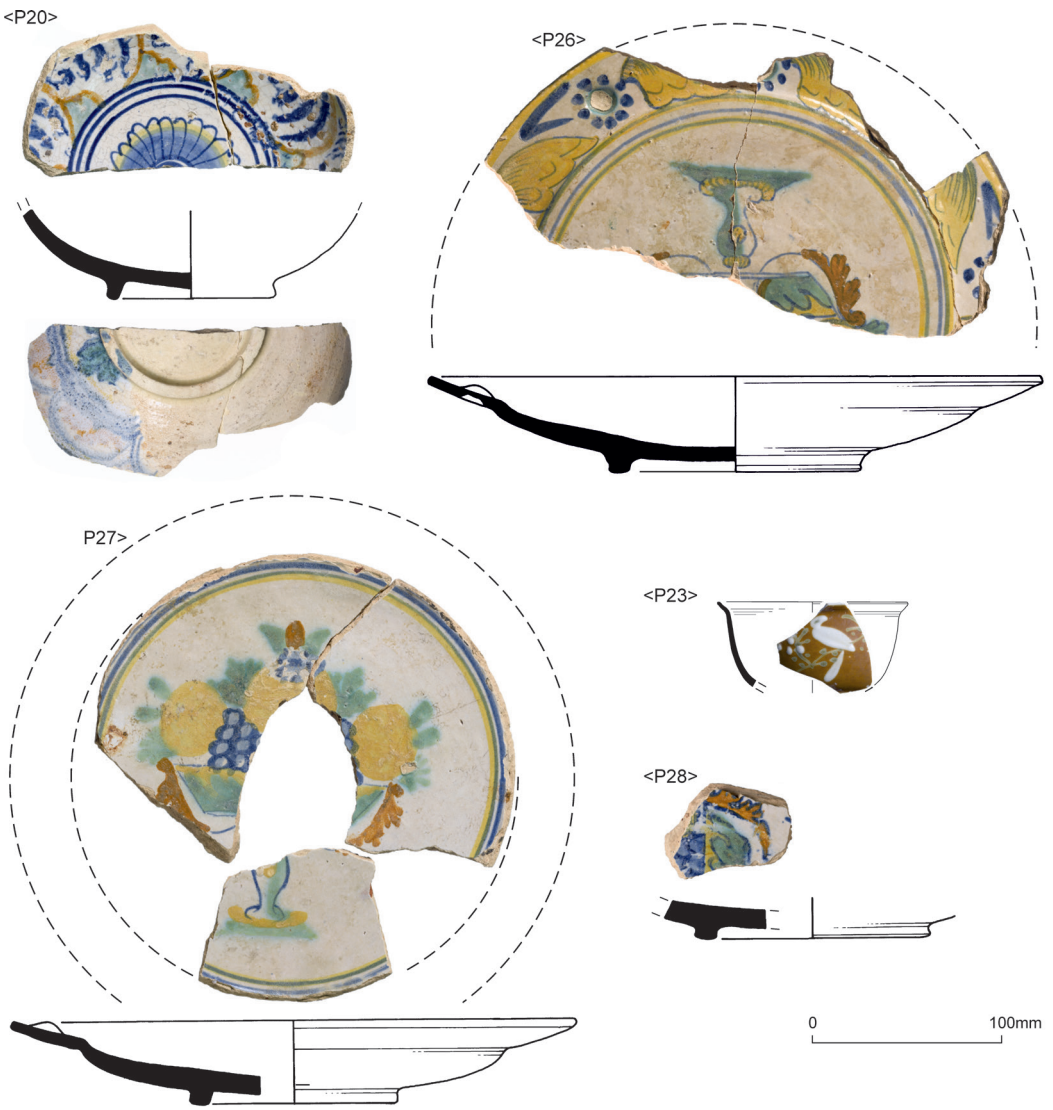

Fig 10. Wares from period 4: south Netherlands maiolica (SNTG) bowl <P20> and Chinese porcelain Batavian ware bowl (CHPO BATV) <P23> (intrusive) from fill [1206] of pit [1213]; and three English tin-glazed ware (TGW D) dishes/ chargers <P26>–<P28> from fill [219] of pit [220] (scale 1:4)

London's delftware factories, was found in an associated layer of demolition debris (see Smith below). A possible brick-lined well and a soakaway, plus a cluster of unlined rubbish pits, may have lain within a plot or yard situated to the rear of a building.

A south Netherlands maiolica (SNTG) bowl (<P20>, Fig 10) is worthy of note. The design on the interior of the vessel has blurred and the glaze has crawled, while the decoration from the bowl below this one in the kiln has transferred on to the exterior surface.

Post-Great Fire Buildings (Period 5: 1666–1700; Period 6: 1700–1876)

An extensive deposit of demolition and fire destruction debris covered the entire site to a depth of 0.40m and raised the ground level to *c.*11.80m OD (period 5). Although the large pottery assemblage from this horizon generally dates to *c.*1600–80, some of the period 4 dating evidence sealed beneath it implies that the debris was not laid down until *c.*1670–80 or later. A high number of the clay tobacco pipes dating between *c.*1660 and *c.*1680 were burnt, while none of the later types show any sign of burning (see Pearce below, AO15 and AO18; Table 4). Whilst it is likely that this debris comes from the clearance of areas further south that were destroyed in the Great Fire, none of the pottery showed any obvious signs of burning, so this debris may have mixed with other material, including domestic rubbish, when it was dumped here.

Building 1, possibly part of a brick-built terrace of houses, was built over the dumped debris (period 5). The building was configured on a broadly east–west alignment, the same as that of the earlier Structure 1 ditch, and extended beyond the western limit of excavation (Figs 11 and 12). Although the eastern part of the building had been badly truncated by modern activity, its probable south-eastern corner was identified. The extant remains generally consisted of the four lowest, red brick courses of various walls, probably representing several successive phases of construction. For example, some of the wall lines, despite being internal partitions within

Fig 11. The central range of Building 1 under excavation, looking east

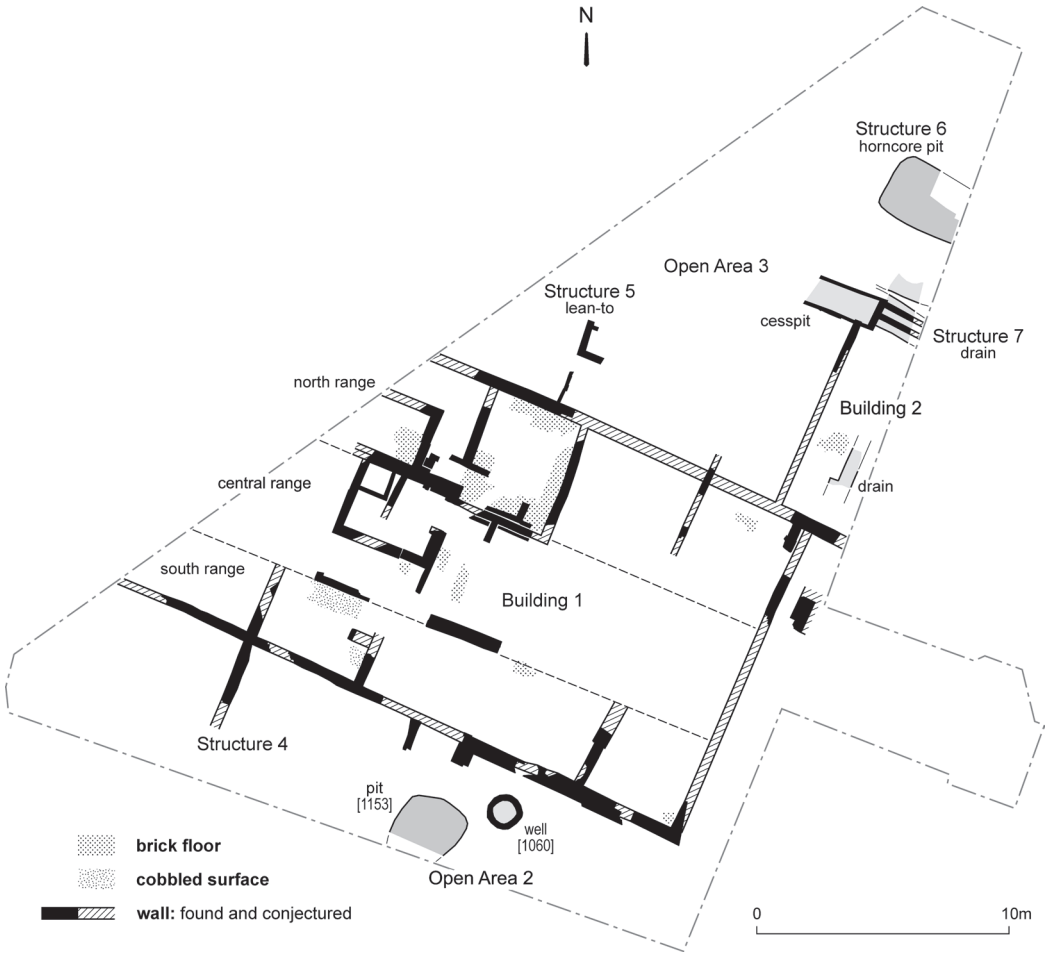

Fig 12. The principal archaeological features of periods 5 and 6 (scale 1:300)

the final layout of the building, were formed by double walls. However, the character of the bricks is consistent and suggests that all the building works occurred fairly soon after the Great Fire (see Smith below).

In its final form, Building 1 was 13.90m wide (period 6). Within it, three parallel 'ranges' of up to five rooms aligned along the length of the building could be identified (Fig 12). Most of the identified rooms had brick-paved floors at *c.*11.80–11.90m OD, although part of the south range was cobbled with small rounded pebbles. The function of a shallow, circular, brick-lined feature within one of the rooms of the central range (not illustrated) remains unknown, but it was clearly not a well.

There was slight evidence for an entrance, suggested by a brick platform, on the south side of Building 1. A more certain threshold on the northern side of Building 1 led into a room with a well-preserved red brick-paved floor around the periphery and plain unglazed Flemish tiles in the centre (Fig 11) (see Smith below). An area of burning within a brick niche on the southern side of the room indicates the position of a fireplace, perhaps suggesting the location of a kitchen.

On the eastern side of the site, where survival was poorest, the layout of the buildings was harder to define. A wall extending north-east from Building 1 might be the western wall of Building 2 (Fig 12). It enclosed an area of 3m by 8m along the eastern side of the site and included a red brick-paved

Fig 13. Horncore-lined pit (S6), viewed from the north-west (0.5m scale)

floor and an L-shaped brick-lined drain. The dating of the wall is consistent with that of Building 1.

Much of the evidence concerning the character of the occupation of these buildings comes from the open areas to their north and the south which contained contemporary pits, a well and drainage features. Within Building 1 itself, there is some evidence for renovations or modifications to floors, the addition of internal partition walls, and robber trenches indicate the removal of some structural features. Similarly, some structural additions seem to have been made. A wall and a tile foundation (S4) represent part of a southern extension added to Building 1. Later, most of this structure was robbed out. The dating of Structure 4 is entirely consistent with the rest of the post-Great Fire construction. This wall is not shown on the Ogilby and Morgan map, but an extension to the terrace is shown on Horwood's map of 1813.

South of Building 1, features in Open Area 2 included a large rubbish pit, [1153], and a brick-lined well, [1060] (Fig 12). The pit contained a large quantity of finds including Chinese porcelain (CHPO), a significant group of decorated wall tiles, clay tobacco pipes (some by local manufacturers), leather-working and shoemaking waste, glass vessels, plus metal fixtures and fittings (see Blackmore, Pearce and Richardson below). Many of these finds represent residual material. It may be noted that similar, but smaller, groups of Chinese porcelain, tiles and clay tobacco pipes were identified in later demolition layers and in Structure 6.

To the north of Building 1 and west of Building 2 lay a second external area (OA3) (Fig 12). As with Open Area 2 to the south, the Great Fire period dumping was 're-worked' throughout the lifetime of this yard. Within Open Area 3 a lean-to (S5) addition was constructed against the north wall of Building 1. It comprised a thin-walled brick structure housing a soak-away, set to the east of the threshold/entrance of Building 1. The ceramic building material dating evidence indicates that it was built after the Great Fire. As the final backfilling of the soak-away occurred in *c.*1740–50 or later, Structure 5 did not go out of use until period 6.

A pit lined with cattle horncores (S6; Figs 12 and 13), also lay within the northern

external area (OA3). It was rectangular in plan and extended eastwards beyond the site boundary. The excavated part of Structure 6 covered 8.125m^2 and was up to 0.77m deep. The lowest course of horncores was set in a shallow trough around the base above which the upper courses were neatly layered with their tips facing outward. Most of the horns were from adult cattle and were equally divided into longhorn and shorthorn types (see Rielly below).

Although much of the fills of Structure 6 comprised clinker and coal, it also contained a large and diverse assemblage of finds deriving from the 18th-century occupation of the site. The pottery comprised one of the largest single groups from the site and included a London stoneware jug (<P32>, Fig 14), carrying a large and rather crude face medallion on its body, which is unparalleled in London. A near-complete red ware jar or bowl had a noticeably flawed base and could be a second acquired from a local potter. A group of decorative tiles from Structure 6 was similar to that recovered from rubbish pit [1153] to the south of Building 1. There were also various metal fittings, glass vessel fragments, a rim from a large glass-working crucible, <136>, and lead window cames (see Richardson below). However, some of these items such as the crucible were residual. The faunal remains included a variety of domesticate bones: a set of calf bones, a sawn cattle horncore cut through about mid shaft, and a concentration of sheep bones may represent waste from butchery and bone working (see Rielly below). Preservation of waterlogged plant remains included seeds of fig as well as a few disturbed-ground weed species (see Davis below).

To the south of, and on the same alignment as, the horncore-lined pit were two successive phases of a brick-lined drain (S7; Fig 12), which flowed westwards towards a brick-lined cesspit. The bricks used to line the drain were pre-1700 in date; while the cesspit did not go out of use until the late 18th and 19th centuries. The location of Structure 7 might imply that Building 2 had fallen out of use by the mid-18th century.

Many of the most significant finds from these periods were found in the robber trenches and demolition debris that sealed Building 1. The blue and white and polychrome tiles (Fig 15) probably once adorned some of the internal walls of the building.

The archaeological remains correspond particularly well with Ogilby and Morgan's map of 1676, which shows the post-Great Fire reconstruction of the area (Hyde 1992, pl 17; Fig 16). Although it remains difficult to transpose modern locations on to historic maps with absolute accuracy, it seems likely that the archaeological remains of Buildings 1 and 2 represent the eastern end of an L-shaped terrace running east from Upper

Fig 14. London stoneware Bartmann jug (LONS JUG BART) with a unique face medallion <P32> from [1049], Structure 6 (scale 1:2)

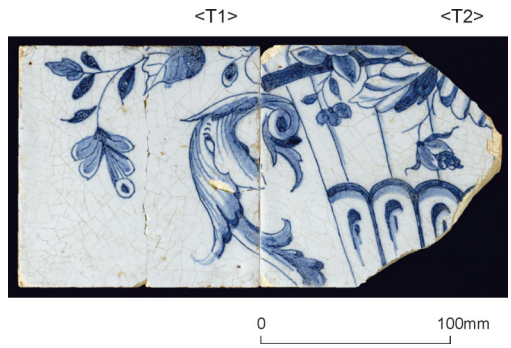

Fig 15. Tin-glazed polychrome tiles <T1> and <T2>, from destruction debris [1109] (period 7) sealing Building 1 (scale 1:4)

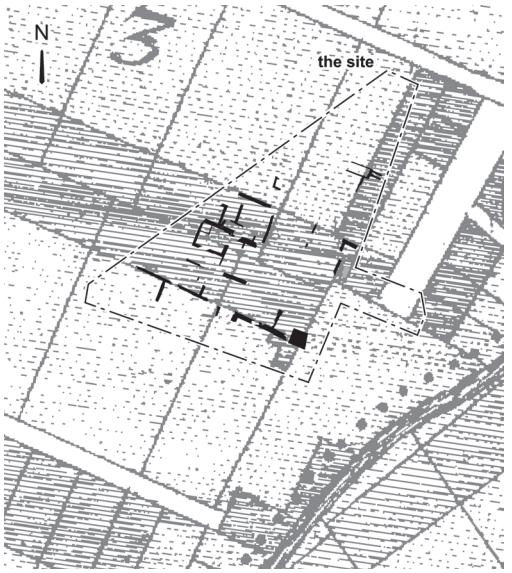

Fig 16. Buildings 1 and 2 and associated Structures 4, 5 and 7 superimposed on Ogilby and Morgan's map of 1676

Moor Field. This mapping tentatively suggests that Building 1 may have been part of several separate 'back-to-back' east–west aligned properties where the southern range probably formed elements of two units and the central and northern ranges apparently comprised a third dwelling. Building 2 was clearly part of a fourth dwelling aligned north–south. On the north and south sides of these properties were yards or gardens, which correspond with Open Areas 2 and 3 (Fig 12).

The subsequent history of the site can be traced on Rocque's map of 1746 and Horwood's of 1813 (Hyde 1982, pl 5; Laxton 1985, pl 5). A yellow brick floor repair at 11.96m OD, within the northern part of Building 1, is dated to the 19th century confirming that this building was still in use. Similarly, the finds accumulating within Open Area 2 to the south of Building 1 demonstrate continued use until *c.*1840–60. The essential layout of the site appears to have remained unchanged until the Broad Street Station goods yard was built over the site.

Broad Street Railway Station 1876–1969 (Period 7)

Broad Street Station was built in 1865 as the terminus of the North London Railway. In 1876 the site was incorporated into the station as part of a goods yard, which closed in 1969. Most of the station closed in 1950, but part of it remained operational until 1984, when it was finally closed to make way for the Broadgate development (Weinreb *et al* 2008, 100). The only evidence of the former station goods yards on site was the base of a hoisting mechanism (S8, not illustrated). This structure was constructed of engineering bricks and built on a concrete footing that supported the concrete bases for two massive circular iron fittings. The structure survived to a maximum height of 12.44m OD. It measured 10m by 5m and extended beyond the north-western limit of excavation. Aligned south-west to north-east it would have stood on the western side of the goods yard adjacent to the former Finsbury Avenue.

DISCUSSION

Medieval and Tudor Gardens

There is substantial botanical evidence for the presence of garden refuse in period 2 in the form of plant remains recovered from the fills of ditch Structure 1, confirming the cartographic evidence (Figs 2, 3 and 5). These remains included a number of ornamental, edible and medicinal plants, all of which were commonly cultivated in gardens of the period (see Davis below). Records from the 16th century show that bryony, marigolds and roses were commonly grown in London gardens (Forsyth 1990, 59), and Gerard states that violet 'groweth in gardens almost everywhere' (Gerard 1994, 199). Remains of all these species were recovered. The presence of a ceramic garden sprinkler provides further evidence of horticultural activity (see Blackmore below; Fig 18). The mollusc assemblage from Structure 1 was dominated by freshwater snails (see Pipe below).

Remains of wild strawberry, apple and fig were found in most Structure 1 samples, and could come either from garden plants or from faecal material, while seeds of

brassicas, including black mustard, may have come from either wild or cultivated plants. Parsnip, spinach and parsley seeds are uncommon finds, however, and their presence in the same feature, and together with the other evidence, strongly suggests that they were being cultivated in nearby gardens. Parsnips originated from western Asia, where they were cultivated as a vegetable and a medicinal herb (Schauer 1982), although it was apparently not much in evidence in this country before the 16th century (Harvey 1981, 121). By the 1580s, however, Thomas Cogan wrote that parsnips were 'common meate among the common people all the time of Automne' (Weinstein 1990, 85). Spinach too is a relatively late arrival, and seems to have been cultivated here only since the later part of the medieval period (Harvey 1981, 120). The Carpenters' Company, when enlarging their London garden in 1568, bought seed of spinach and parsley (Harding 1990, 55). Documentary records show that parsnips, coleworts (brassicas) and mustard were commonly grown in 16th-century London gardens.

Garden herbs, fruits and vegetables, as well as flowers, were also used extensively for medicinal purposes, and there are records of many of the species recovered from the site being used in this way. Feverfew (featherfew), for example, was considered good for vertigo and melancholia (Gerard 1994, 150) for women after childbirth, for colds and colic, and was also used after opium had been taken too liberally (Culpepper 1995, 102). Milk thistle, a native of southern Europe, was cultivated in gardens and used against fevers, including the plague, and for the disorders of the liver and spleen (*ibid*, 254), a purpose for which it is still used today. Catmint had various gynaecological and medicinal uses including treating headaches, coughs and colds, and for 'windiness of the stomach and belly' (*ibid*, 178). Gerard (1994, 169) also relates how in 'Dutchland' petals of marigold were dried in large quantities and sold for use throughout winter in broths and 'Physicall potions'.

The abundant twigs and wood fragments, as well as box and other unidentified leaves found in Structure 1 may well have come from hedge trimmings or garden prunings. Box leaves were found in a number of samples from the nearby excavations at Finsbury Island Pavement (Giorgi 1997), suggesting that it was common in this area, probably as a hedging plant. Seeds of lime, hawthorn, rose and elder all come from woody plants that may have been used for hedging and other ornamental planting in and around gardens.

Many of the weed seeds found in Structure 1, for example dandelion, docks, oraches, dead nettle and chickweed, are common weeds of gardens, although they also grow in other disturbed habitats.

Diet

While occasional remains of edible plants were found in all samples, including the garden vegetables discussed above, the largest single assemblage of plant food remains was found in one fill, [1233], of Structure 1 (period 2). Pips of several fruits, notably fig, wild strawberry and blackberry/raspberry, and to a lesser extent grape, were common in all features, but fill [1233] also included remains of gooseberry, apple, blackberry/raspberry, plum, cherry and sloe, as well as hazelnut and walnut. Herbs and spices were represented by coriander, fennel, mustard and parsley. While none of these foods is especially exotic, or individually indicative of high social status, a wide range of fruits, nuts and spices is represented, including gooseberry which is a relatively rare find, so it is unlikely that this represents the diet of an impoverished household (see Davis below).

The Environment of the Site during the 16th Century

The 17th- and 18th-century samples contained few remains of wild plants, but large waterlogged assemblages from 16th-century fills of Structure 1 give a useful picture of the naturally occurring flora of the area. Structure 1 seems to have contained water, at least for long enough periods for the aquatic horned pond-weed to have grown and produced seeds and water-fleas to breed. The soils in and on the banks of the ditch were also wet enough to support plants such as celery-leaved crowfoot, fool's watercress and gipsy-wort. Large amounts

of organic material and other rubbish, discarded into the feature, seem to have swamped the natural vegetation. However, much of this dumped material seems to have come from garden waste, but the seeds from waste-ground weeds may have come from plants growing on disused land within the area. Those weeds with a preference for damp, nitrogenous soils, such as stinging nettle, burdock and hemlock may have grown in or around the ditch, while those preferring dryer waste-ground habitats, including thistles, bristly ox-tongue, and white horehound may have come from a little further away, perhaps from pathways and nearby marginal land.

The Suburban Expansion of Stuart London

The maps of *c.*1658 and *c.*1667 (Figs 7 and 9) show how the site dramatically changed from orchards to housing. This pattern of rapid suburban development was driven by the expansion of London's population, which, it is estimated, doubled to 400,000 between 1600 and 1640 (Porter 1996, 16). In 1637 a survey of London's development since 1603 revealed that 1,361 new houses had been constructed. The largest number of these new dwellings (816 or 45.4%) had been built in the Westminster area, while a further 404 (29.7%) had been erected north of the City and only one had been constructed within the walled city (Brett-James 1935, 116). These figures provide a good idea of the contemporary pace and pattern of urban expansion. This pattern of expansion was completely altered by the Great Fire of September 1666, which destroyed some 85% of the City of London making at least 65,000 people homeless (Porter 1996, 71). This colossal destruction created a huge demand for new housing, which further encouraged more suburban development. While it appears that the Moorgate area had been extensively developed before the Great Fire (Fig 7), the presence of the dumped fire debris on the site pre-dating the construction of the terraced housing implies that this particular terrace was constructed immediately after the Great Fire to meet the capital's chronic shortage of housing. By 1667 the site was apparently occupied by part of a terrace comprising at least four separate brick-built (uncellared) dwellings surrounded by gardens or yards (Figs 12 and 16). The ground storeys of these dwelling would have been occupied by kitchens, pantries, living and work space, while the upper one or two storeys would have been mostly bedrooms. However, if these properties were subject to multiple occupancy, then families may have been living in one or two upper storey rooms and sharing facilities like kitchens and external cesspits (Porter 1996, 19).

Rubbish disposal pits and cesspits were dug in the external yards. Cesspits were normally lined to make them easier to empty, so the faecal material and admixture of domestic rubbish which survives in the archaeological record should relate to their final use. The associated finds can provide important information concerning the material culture of the occupants of the properties. For instance, the period 6 ceramics included Chinese porcelain (CHPO), plus some material from France, Germany, Iberia and the Low Countries (see Blackmore below; Table 3). This demonstrates not only London's increasing role as a centre of international trade but also that objects from widely dispersed sources filtered down to appear in association with 'ordinary' domestic buildings. These features also provide some indirect evidence for local industry such as the substandard cane sugar syrup refining vessels: the cane sugar itself originated in tropical climates. Other examples of far-flung imports are the *lignum vitae* (West Indian) bowling ball from a 16th-century (period 2) context and red or chilli pepper (*Capsicum* sp) seeds in a period 3 (early 17th-century) context.

The cattle horncores used to line one cesspit (S6) represent waste from butchery, tanning or more likely horn working. Post-medieval horncore-lined pits have also been found at sites such as 6–7 Crescent (CST85), 8–10 Crosswall (XWL79) and Cutler Street (CUT78), where about a dozen examples were discovered.[2] The sheer number of cattle horncores involved implies the existence of a considerable animal processing industry in East London during the late 17th or 18th century.

SPECIALIST REPORTS

Ceramic Building Materials

Terence Paul Smith with Ian M Betts

The building materials were examined microscopically (x10) and recorded using the Museum of London classification of ceramic building materials (see Introduction). The more important groups and individual items are described below.

Bricks

The majority of the bricks from the site, either *in situ*, in walls for instance, or discarded or reused in other contexts, were in fabric 3033 or its variants 3039 and 3046. Although occasionally found in London *c.*1400, most bricks of this type date from the late 15th century down to *c.*1700. They range in length 215–235mm (median value 224mm), in breadth 94–112mm (median 105mm) and in thickness 52–64mm (median 58mm). They frequently show sunken margins in the upper bedface, resulting from their particular method of manufacture.

All other bricks are in fabric 3032, introduced *c.*1670. Bricks of this type persisted until the early 20th century, never being wholly superseded by the familiar London Stocks. Sunken margins are no longer present, reflecting a different manufacturing method from that of the earlier bricks.

Unglazed Floor Tiles

The period 5 brick-paved floor, [1113], in the central part of Building 1 incorporated unglazed floor tiles imported from the Low Countries (Fig 11). The two samples are in fabric 2318 and measure 244mm and 250mm square; they are too worn for thicknesses to be preserved, although they were not less than 32mm. One shows two circular nail holes, reflecting the method of manufacture using a wooden template, held in place by small nails, for trimming following demoulding. The other tile is too worn to retain these. Two further fragments were recovered from period 6 pits. They are in fabrics 2317 and 2850 and are 35mm and 42mm thick respectively; other dimensions are not preserved. Unglazed floor tiles were imported from the late 16th century down to *c.*1800.

Decorated Tin-Glazed Floor Tiles

A number of early–mid-17th-century blue and white and polychrome floor tiles were recovered from *ex situ* contexts. No full dimensions are preserved, but thicknesses range 8–25mm, with a median of 11mm. Some are decorated with a flower vase, others with the so-called 'Tudor rose' pattern, the most common tile design used by London's delftware factories (Horne 1989, 16). There is little doubt that the tiles were made in London, although at which factory is not clear. Those with a thickness of only 8–10mm are uncommonly thin for floor tiles. Possibly they were in fact intended as wall tiles and were made in competition with Dutch wall tiles, which were arriving in increasing quantities from the 1630s. They are also unusual in being painted in a slightly different style from other 'Tudor rose' tiles so far found in London and in employing a slightly different colour scheme.

Plain and Decorated Tin-Glazed Wall Tiles

A number of tin-glazed wall tiles, or fragments of such, in fabrics 2196, 3064, 3067, 3078 and 3086 were recovered from period 6 and 7 contexts. Lengths range 125–130mm with a median of 126mm, breadths 124–130mm, median 126mm, and thicknesses 6–9mm, median 7mm. Some are plain 'white' – in fact mostly very pale blue. Others are decorated, mostly blue on white (although again this is sometimes very pale blue), occasionally with a purple border; a few fragments are purple on white and one is blue and purple on white.

The tiles vary quite widely in date and include Dutch as well as London products, although in some cases it is difficult to be certain of the provenance. Some are too fragmentary for their designs to be identified, but they included a landscape with a windmill, another with a church and yet another with a human figure. There are also townscapes, one with a canal crossed by a drawbridge and another with what seems to be a town gate with a man urinating against one of its passage walls. The one biblical tile

shows John the Baptist's decapitated head on a platter being presented to Herodias (Mark 6.27–8; Matthew 14.10–11), comparable with a Dutch version of the scene (Huijg 1978, 124).

Four of the tiles, all from demolition debris [1109] (period 7), are from large tile panels showing flower vase designs, similar to a few surviving complete examples (Horne 1989, 114, no. 674; Britton 1987, 180, no. 205; both of which use 66 tiles), the theme being borrowed from Dutch still life painting. The tiles have small nail holes in two opposite corners, resulting from trimming using a wooden template (see above). All have Arabic numerals – 13, 14 and 21 (two examples) – painted in blue on the reverse before firing to indicate their positions within the scheme. The numerals are placed towards the top of the tiles and those numbered 13 and 14 and one of those numbered 21 have a small vertical stroke (a numeral 1?) towards the bottom. Those numbered 13 and 14 adjoin (<T1> and <T2>; Fig 15). The two tiles bearing the number 21 are similar, but not identical. Clearly, the tiles are from two separate panels, each with a slightly different version of the same basic design. It is possible that those with the additional vertical stroke formed one panel and those without it formed the other. They are London products of *c.*1720–30.

The Post-Medieval Pottery

Lyn Blackmore

With the exception of 51 sherds of medieval pottery, 2,574 sherds of post-medieval pottery were recovered, weighing 87.35kg and representing an estimated number of vessels (ENV) of 1,425. The assemblage from this site appears to be of average size for this part of the City of London and for the nature of the site. The pottery from the site reflects its changing usage from garden to suburban housing. The 17th- to 19th-century pit groups can be added to a growing series of house clearance groups found on the eastern side of London. The broad distribution of the fabric types represented on the site is illustrated in Table 1. The more important groups and individual items are described below.

Industry

Most of the pottery is of domestic origin, but the presence of red ware wasters/seconds that include sugar-refining equipment (Fig 17) is indicative of local pottery production and also reflects the growth of new industries in Tudor London.

The first sugar refineries in England were built in London in 1544. While their location is undocumented, it is assumed from the riverine distribution of finds of sugar moulds that these early refineries were situated close to the docks (Brooks 1983, 10–11). Very few finds are known so far inland from the Thames as Broadgate, and, given that the finds are substandard, it would appear that the moulds and jars may have been made in the Finsbury area and were intended to be used in a refinery closer to the river. For further information on the sugar industry see Brooks (1983) and Allan (1984).

Other evidence for industry is limited to one sherd that may be from a distillation vessel.

Domestic Waste

The pottery from ditch Structure 1 is domestic in character, although there are a few items that relate to horticulture, notably <P4> (Fig 18), a sprinkler, and a flowerpot. This handled sprinkler or watering pot is one of many such examples of 16th- and 17th-century date known from London (Pearce 2013, 92). One jar is a second, possibly from the Moorgate industry (see below), but otherwise the material is of average quality and imports are limited. The finds from fence [1194] (S2, period 3) are later in character and also of higher status and quality, including tableware and more imports.

The pottery from the period 6 horncore-lined pit (S6) comprises one of the larger groups from the site, containing 159 sherds, although 41 sherds are from a single vessel. Some of the red wares, including this well-represented vessel, are imperfect, and possibly seconds, but it is unclear how these relate to the flawed pieces found in period 3 and noted above. Other than this, the pottery is of domestic origin and includes a number of relatively large sherds that cannot

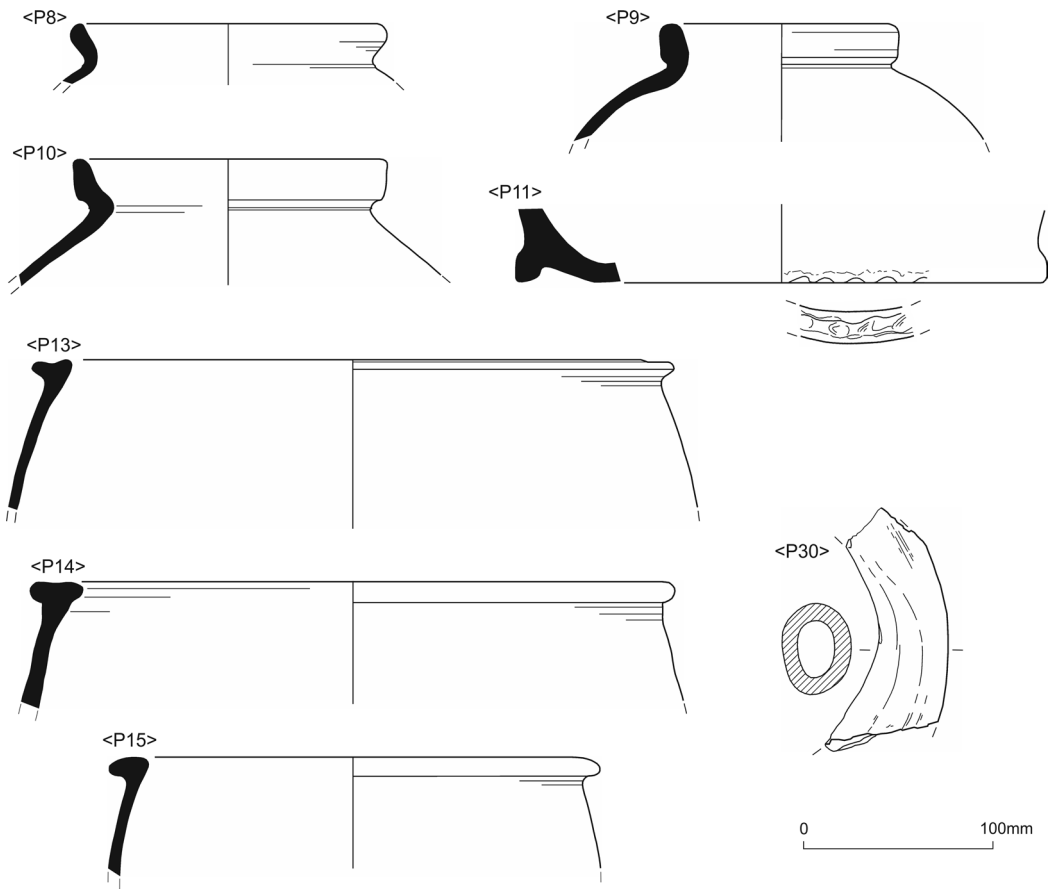

Fig 17. Industrial forms related to sugar refining: London-area early post-medieval red ware syrup-collecting jars (PMRE JAR COLJ) <P8>–<P11> and <P13>–<P15>, from pit fill [1137], period 3; and industrial vessel <P30> in London-area post-medieval red ware (PMR INDV), from occupation debris [1035] in Building 1, period 6 (scale 1:4)

Table 1. The broad distribution of the post-medieval pottery

Fabric	Sherds	% sherds	ENV	% ENV	Weight (g)	% weight
BBAS	1	0.0	1	0.1	24	0.0
BORD	12	0.5	7	0.5	479	0.5
BORDB	27	1.0	12	0.8	560	0.6
BORDG	135	5.2	79	5.5	3401	3.9
BORDO	43	1.7	17	1.2	2252	2.6
BORDY	117	4.5	82	5.8	3685	4.2
BRILL	1	0.0	1	0.1	36	0.0
CHPO	45	1.7	26	1.8	606	0.7
CHPO BATV	2	0.1	2	0.1	11	0.0
CHPO IMARI	6	0.2	4	0.3	33	0.0
CHPO MING	1	0.0	1	0.1	1	0.0
CHPO ROSE	4	0.2	3	0.2	71	0.1

CREA	347	13.5	133	9.3	4998	5.7
CREA SLIP	7	0.3	5	0.4	312	0.4
CREA UTR	10	0.4	1	0.1	127	0.1
DRAB	1	0.0	1	0.1	26	0.0
DTGW	1	0.0	1	0.1	13	0.0
DUTR	18	0.7	7	0.5	571	0.7
DUTSL	2	0.1	1	0.1	43	0.0
EBORD	6	0.2	6	0.4	61	0.1
ENGS	17	0.7	13	0.9	676	0.8
ENPO	3	0.1	3	0.2	37	0.0
ENPO OTR	4	0.2	1	0.1	9	0.0
EYGE	1	0.0	1	0.1	70	0.1
FMSL	8	0.3	6	0.4	87	0.1
FREC	151	5.9	87	6.1	5254	6.0
GERW	1	0.0	1	0.1	12	0.0
KILNF TGW	1	0.0	1	0.1	61	0.1
LIGU	5	0.2	3	0.2	29	0.0
LONS	36	1.4	20	1.4	3884	4.4
LUST	5	0.2	3	0.2	82	0.1
MART2	2	0.1	1	0.1	12	0.0
MART3	1	0.0	1	0.1	4	0.0
METS	32	1.2	18	1.3	838	1.0
MISC	2	0.1	2	0.1	53	0.1
MLTG	1	0.0	1	0.1	37	0.0
MPUR	26	1.0	21	1.5	1211	1.4
NIMS	2	0.1	2	0.1	64	0.1
NISG	1	0.0	1	0.1	12	0.0
OLIV	5	0.2	5	0.4	232	0.3
PEAR	15	0.6	15	1.1	215	0.2
PEAR PNTD	12	0.5	10	0.7	80	0.1
PEAR SLIP	10	0.4	2	0.1	110	0.1
PEAR TR1	56	2.2	30	2.1	480	0.5
PEAR TR2	48	1.9	23	1.6	409	0.5
PMBL	30	1.2	19	1.3	1199	1.4
PMBR	2	0.1	2	0.1	57	0.1
PMFR	70	2.7	43	3.0	3017	3.5
PMFRB	5	0.2	3	0.2	248	0.3
PMFRG	1	0.0	1	0.1	7	0.0
PMR	385	15.0	197	13.8	20955	24.0
PMRE	102	4.0	60	4.2	8875	10.2
PMREC	1	0.0	1	0.1	22	0.0
PMSR	1	0.0	1	0.1	16	0.0
PMSRG	54	2.1	30	2.1	2938	3.4
PMSRY	16	0.6	12	0.8	631	0.7
POTG	1	0.0	1	0.1	4	0.0
RAER	4	0.2	4	0.3	67	0.1

Table 1. (cont.) The broad distribution of the post-medieval pottery

Fabric	Sherds	% sherds	ENV	% ENV	Weight (g)	% weight
RBOR	108	4.2	81	5.7	5400	6.2
RBORB	7	0.3	4	0.3	194	0.2
RBORG	1	0.0	1	0.1	31	0.0
RBORSL	8	0.3	2	0.1	305	0.3
REFR	6	0.2	2	0.1	47	0.1
REFW	10	0.4	7	0.5	87	0.1
REFW CHROM	4	0.2	1	0.1	15	0.0
REFW ERTH	5	0.2	3	0.2	60	0.1
REFW SLIP	7	0.3	1	0.1	11	0.0
SAIN	1	0.0	1	0.1	16	0.0
SNTG	4	0.2	2	0.1	180	0.2
SPOA	1	0.0	1	0.1	12	0.0
STBRS	2	0.1	2	0.1	70	0.1
STRE	1	0.0	1	0.1	71	0.1
STSL	5	0.2	4	0.3	91	0.1
SUND	8	0.3	6	0.4	372	0.4
SWSG	10	0.4	9	0.6	115	0.1
SWSG SCRB	6	0.2	2	0.1	95	0.1
TGW	150	5.8	78	5.5	3446	3.9
TGW A	43	1.7	24	1.7	1194	1.4
TGW B	13	0.5	6	0.4	266	0.3
TGW BISC	4	0.2	4	0.3	69	0.1
TGW BLUE	3	0.1	1	0.1	28	0.0
TGW C	59	2.3	30	2.1	883	1.0
TGW D	65	2.5	29	2.0	2090	2.4
TGW F	8	0.3	3	0.2	64	0.1
TGW G	3	0.1	2	0.1	17	0.0
TGW SPNG	3	0.1	2	0.1	30	0.0
TPW FLOW	2	0.1	2	0.1	26	0.0
TPW1	34	1.3	17	1.2	815	0.9
TPW2	46	1.8	30	2.1	1008	1.2
TPW3	3	0.1	3	0.2	23	0.0
TPW4	2	0.1	2	0.1	16	0.0
VERW	2	0.1	1	0.1	88	0.1
WERR	4	0.2	2	0.1	136	0.2
WESE	9	0.3	6	0.4	339	0.4
WEST	9	0.3	7	0.5	80	0.1
YELL	1	0.0	1	0.1	7	0.0
YELL SLIP	14	0.5	10	0.7	244	0.3
Total	2574		1425		87345	

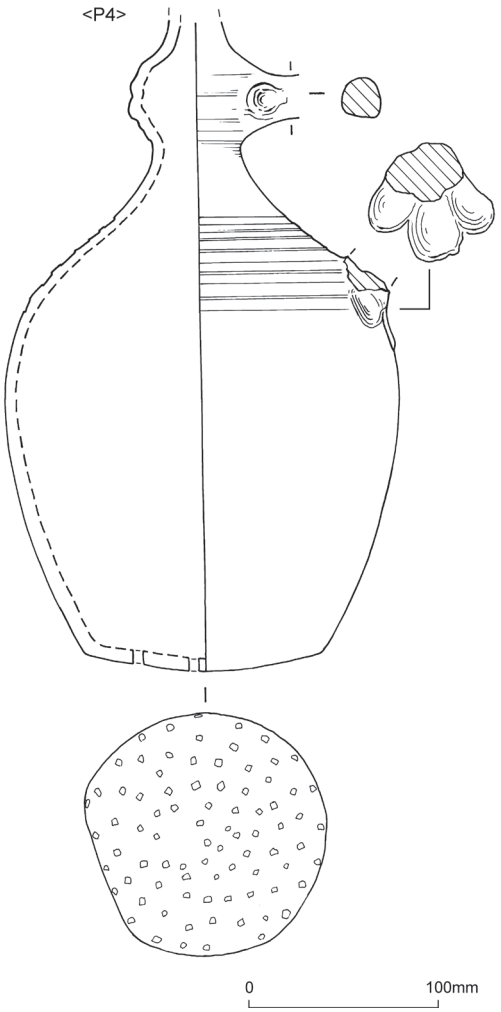

Fig 18. London-area early post-medieval red ware (PMRE) garden sprinkler or watering can <P4>, from ditch fill [1218], Structure 1 (scale 1:4)

have travelled far from where they were first used. The material is typical of the period 1630 to 1680/1700 and, although a number of imported tablewares are present, the group cannot be regarded as particularly high status, as the same wares are found across the City.

Imported Pottery and Immigration

The late 16th- and 17th-century assemblages from the periphery of the north-eastern part of the City of London contain material that reflects the increasingly international character of the area, which became a focus for refugees escaping religious persecution on the Continent (Blackmore 1994, 33; 2009; Pearce 1994; Stephenson 1997, 44–8). Craftsmen from Italy and the Low Countries may have worked in the Broad Street glasshouse. Interpretation of the finds assemblages from the general area is hindered by the fact that many groups consist of material dumped in ditches or quarries, and cannot be related to actual buildings. Nonetheless, there are noticeable concentrations of imports from different areas. At Finsbury Avenue Square, imports amount to 11% of the total sherd count (12% of the total ENV and 9% of the total weight of the pottery recovered). As shown in Table 2, however, the pattern is slightly different when viewed by period, and the amounts seem rather higher, although declining in periods 6 and 7. The assemblage seems to include a random selection, and other than the German stonewares, which are ubiquitous in London, there

Table 2. The distribution of the post-medieval pottery imports by period, based on sum of imports/ sum of all fabrics

Period	**Sherds**	**%**	**ENV**	**%**	**Weight (g)**	**%**
1	21/126	16.7	13/74	17.6	668/4860	13.7
2	22/117	18.8	6/56	10.7	439/6073	7.2
3	32/309	10.4	25/160	15.6	859/12522	6.9
4	55/299	18.4	31/174	17.8	2145/12608	17.0
5	5/73	6.8	5/66	7.6	168/2486	6.8
6	128/1314	9.7	76/690	11.0	3110/37200	8.4
7	18/336	5.4	15/205	7.3	450/11596	3.9
Total imports	281		171		7839	
Global total	2574		1425		87345	

Table 3. The distribution of the post-medieval pottery imports by period and country of origin, based on estimated number of vessels (ENV)/ sherd count

Period	Italy	Spain/ Portugal	France	Low Countries	Germany	China	Imports ENV/ total ENV
1	-	-	-	1/3	16/10	2/2	13/74
2	-	-	-	2/8	4/14	-	6/56
3	2/3	5/5	1/1	4/8	13/15	-	25/160
4	1/1	1/1	-	3/5	24/46	2/2	30/174
5	1/1	-	-	-	4/4	-	5/68
6	3/4	1/1	2/3	1/1	45/74	24/45	77/688
7	-	-	-	-	7/9	8/9	15/205
Total imports	7/9	7/7	3/4	11/25	113/172	36/58	171/1425

are no noticeable concentrations from any particular source (Table 3), or in any one period or feature. Although all these imported wares are found across the London area, they are not usually very abundant on any one site, and Finsbury Avenue Square is no exception. If there were an immigrant community, a greater concentration of specific fabrics might be expected, but the range of material is of interest nonetheless. The types present are summarised below by their area of origin.

The imports from Italy are all tablewares and/or displayable. They comprise small sherds from two berettino dishes and a jar in Ligurian maiolica (LIGU), the latter an unusual find for London (from fill [219] of pit [220] from period 4). The jar and one dish are decorated in blue on blue, while the other dish is black on turquoise. One/two dishes are in Montelupo maiolica (MLTG), while a bowl and a dish are in north Italian marbled slipware (NIMS) and north Italian sgraffito red ware, possibly from Pisa (NISG). All these items were made at production centres in northern Italy during the early to mid-17th century, and could have been owned by Italians working in the glass-house established by Verzelini *c.*1575 at Austin Friars, near Broad Street, which operated until at least 1606.

Spanish pottery is limited to sherds from containers such as olive jars and amphorae, but one small sherd from a Portuguese tin-glazed dish was found in the large period 6 pit [1153] (fill [1143]).

French pottery is very rare on this site, with one sherd from a Saintonge ware (SAIN) chafing dish and sherds from two Martincamp stoneware flasks.

Low Countries pottery is slightly more common, although with one exception all is from contexts assigned to periods 1–4. Up to five cauldrons and pipkins, a jug and a glazed chamber pot with flanged rim are represented, the latter rare for London and probably derived from a Dutch household. Of note is the base of a tripod pipkin from [1194] (S2, period 3) that shows how the foot was attached, or more precisely, barely attached. Dutch slipware is limited to one dish. Tin-glazed wares comprise part of a vase or jug in south Netherlands maiolica (SNTG) from fill [315] of the period 3 ditch, [316], and the substandard bowl described above (<P20>; Fig 10), which chemical analysis suggests was very probably from the Schoytestraat kiln in Antwerp (Vince 2004; Hughes & Gaimster 1999, 60–2, 76; Veeckman 1999, 115–16). This is unlikely to have been a traded item, and may have belonged to the immigrants coming from Antwerp to London in the late 16th or early 17th century. The same may apply to a sherd from a tin-glazed porringer with a floral motif in blue, brown and yellow, found in period 3, [315]. It is not impossible that some of the other tin-glazed wares are also imports, but the paucity of Dutch earthenwares on the site, either red or white, suggests that the site lay outside the main area of the Dutch community. The sprinkler, <P4> (noted

Fig 19. Armorial applied medallion on a Frechen stoneware (FREC) Bartmann jug <P21>, from [1206], period 4 (scale 1:2)

above under red wares; Fig 18), is thus an intriguing find, as the rouletted decoration on it is more typical of Dutch red wares.

Imports from Germany mainly comprise stonewares, but the rim of a white ware pipkin was found in period 3. Part of a Werra slipware (WERR) dish was found amongst the period 4 dishes, while nine sherds from six bowls, dishes and a pipkin were found in Weser slipware (WESE); again, all but one vessel are from periods 1–4. The stonewares include a few sherds from Raeren and Westerwald, but are dominated by Frechen stoneware (FREC), which amounts to *c.*6% of the total post-medieval assemblage. Nine Bartmann jugs have applied medallions, some armorial (*eg* [1194], Amsterdam). The most unusual of these is <P21> from [1206] (period 4; Fig 19), which, in heraldic terms, comprises a barry of eight and two fishes embowed haurient addorsed (*ie* vertical and back-to-back fishes on a barred shield). Two rosette medallions were found in dump [1078] (period 6).

Chinese porcelain (CHPO) is the second most common import, but most of the 58 sherds are of 18th- or late 18th-/19th-century date and from periods 6 and 7. Of the earlier pieces, the most important are sherds from a Ming bowl and a bowl with Batavian, or *café au lait* decoration (<P23>, Fig 10) showing a bird on a tree with green leaves (Pearce & Martin 2004, 105, fig 11), found (intrusive) in fill [1206] of pit [1213] (period 4). The latter is usually dated to after 1700, but this piece could date to 1680/90. It is very unusual to find green in the design. The largest group is from a large period 6 pit [1153] (fill [1143]), which includes blue/white wares, Imari wares and late 18th-century wares with overglaze painting in red, black/green, yellow and gold. A smaller group of similar wares was found in [1030] (period 7).

The Clay Tobacco Pipes

Jacqui Pearce

The English pipe bowls have been classified and dated according to the chronology of London bowl types (Atkinson & Oswald 1969), with the dating of some of the 18th-century pipes refined where appropriate by reference to Oswald (1975, 37–41). The prefixes AO and OS are used to indicate which typology has been applied. Quantification and recording follow guidelines set out by Higgins and Davey (1994) and Davey (1997). The more important groups and individual items are described below.

The Clay Tobacco Pipes as Dating Evidence

The earliest pipes recovered date to *c.*1610–40 (types AO5, AO6, AO8; Table 4). These and a small number of pipes datable to *c.*1640–60/70 (types AO9, AO10, AO12) were all probably discarded while the area was open land in horticultural use. By far the most common clay pipes identified are types made and used between *c.*1660 and *c.*1680 (AO15, AO18). A high proportion of these have clearly been burnt after use, and there is a strong possibility that they represent debris from the Great Fire; no later types show any sign of burning. Among these are fragments from two pipes (<147>, <148>; [1063]; B1; period 6) which bear burnt imprints of grasses or sedges. A total of 78 pipe bowls are dated to *c.*1660–80 (36.8% of all dated types), although they appear to represent contemporaneous dumping in only four contexts; all other occurrences are residual.

The increasingly built-up character of the area of the site after the Great Fire is reflected by a large number of pipes datable to *c.*1680–1710 (types AO20 and AO22 mostly), accounting for 20.3% of all pipe bowls recovered (43 examples), though once again some instances are residual. A total of 60 18th-century pipe bowls were identified (28.3% of the datable bowls, mostly types

Table 4. Breakdown of the clay tobacco pipe assemblage by datable type

Form	Date	Total	% total
AO5	1610–40	2	0.9
AO6	1610–40	1	0.5
AO8	1610–40	1	0.5
AO9	1640–60	7	3.3
AO10	1640–60	3	1.4
AO12	1640–70	1	0.5
AO13	1660–80	9	4.2
AO14	1660–80	1	0.5
AO15	1660–80	37	17.5
AO18	1660–80	31	14.6
AO20	1680–1710	20	9.4
AO22	1680–1710	22	10.4
AO19	1690–1710	1	0.5
OS10	1700–40	12	5.7
AO25	1700–70	1	0.5
OS11	1730–60	23	10.8
OS12	1730–80	25	11.8
AO27	1780–1820	9	4.2
UNK	1580–1910	6	2.8
Total		212	100.0

OS11 and OS12, dating broadly to *c.*1730–80), but many of these were found in contexts containing later pottery. The latest clay pipes recorded on the site were made between *c.*1780 and 1820 (mostly type AO27: nine examples). Interestingly, no later types were recovered, although there is a considerable quantity of pottery dating to the mid to late 19th century.

The Character of the Clay Pipe Assemblage

All the clay pipes from Finsbury Avenue Square are typical of local London manufacture, and conform to the widely accepted typology of London pipes (Atkinson & Oswald 1969). All pipes bearing moulded maker's initials in relief date to the mid-18th to early 19th century (Table 5) and probably include at least three makers recorded in Whitecross Street.

Three type AO27 pipe bowls (*c.*1780–1820) found in Open Area 2 in period 6 have the initials 'II' moulded in relief on the sides of the heel. These were probably made by James Jones, recorded in Whitecross Street in 1799 and in City Road in 1802–40 (Oswald 1975, 139). Another marked pipe of the same form, also from Open Area 2, bears the initials 'IW' in relief on the sides of the heel. This may stand for James Woodroffe, recorded in Old Street 1799–1817 (*ibid*, 148). If these identifications are correct, then both Woodroffe and Jones were local pipe-makers, working a relatively short distance from the site.

A type OS12 pipe bowl (*c.*1730–70) from Building 2, period 5, has the maker's initials 'IS' moulded in relief on the sides of the heel. The pipe-maker John Savell is recorded in Whitecross Street, in 1722–63, with another record under the same name working in Bunhill Fields and Moorfields between 1763 and 1790 (Oswald 1975, 145). The proximity of these locations to the site make it highly likely that Savell produced at least the one marked pipe from Finsbury Pavement, and probably the unmarked pipes of the same form as well. However, the lengthy period of working recorded precludes a more precise dating within this range.

A pipe of type AO25 (*c.*1700–70) from period 7 has the initials 'WW' moulded in relief on the sides of the heel, probably standing for William Wilder, recorded in Whitecross Street in 1717–63 (Oswald 1975, 149). In all, six of the 16 marked pipes dated to the 18th to early 19th century have a likely source within a relatively short distance of the site and can thereby be considered local products. It is probable that some at least of the marks as yet unidentified were also used by local pipe-makers.

Only two 17th-century pipes are marked with makers' initials. One pipe-maker cannot be identified, although this is not unusual with early 17th-century pipes. The other example is a type AO20 (*c.*1680–1710) pipe found in Open Area 4, period 7, stamped in relief under the heel with the initials 'IB'. Much of the bowl is missing so identification of the form is uncertain, and it could be earlier. Numerous pipe-makers with these initials are known, with a James Booth recorded in Finsbury Place in 1662–3 (Oswald 1975, 131), and it is possible that this is one of his pipes.

Table 5. Clay tobacco pipes with maker's marks

Period	Land use	Context	Acc no.	Form	Date range	Mark	Comments
5	B1	[206]	<18>	AO12	1640–60	'EM'	
5	B1	[1068]	<149>	AO5	1610–40	segmented circle/dots	
5	B2	[1128]	<54>	OS12	1730–80	'IS'	John Savell, Whitecross St, 1722–63
6	B1	[1035]	<146>	OS10	1700–40	'EW?'	
6	B1	[1035]	<145>	AO13	1660–80	star/wheel (8-pointed)	
6	B1	[1063]	<51>	OS11	1730–60	crown?	
6	B1	[1063]	<52>	OS12	1730–80	flowers	
6	OA2	[1143]	<55>	AO27	1780–1820	'II'	James Jones, Whitecross St 1799, City Rd, 1802–40
6	OA2	[1143]	<56>	AO27	1780–1820	'II'	Mark as <55> James Jones
6	OA2	[1143]	<58>	AO27	1780–1820	'II'	Mark as <55> James Jones
6	OA2	[1143]	<59>	AO27	1780–1820	'IW'	James Woodroffe, Old St, 1799–1817
6	OA2	[1143]	<57>	AO27	1780–1820	'T' flower	
6	OA2	[1143]	<60>	AO27	1780–1820	'T' flower	mark as <57>
7	OA4	[201]	<19>	AO20	1680–1710	'IB'	
7	OA4	[1029]	<27>	OS10	1700–40	'EW'	
7	OA4	[1029]	<48>	OS10	1700–40	'EW'	
7	OA4	[1029]	<47>	OS10	1700–40	'WC'	
7	OA4	[1030]	<49>	AO25	1700–70	'WW'	William Wilder, Whitecross St, 1717–63
7	OA4	[1040]	<50>	OS11	1730–60	crown and star	
7	OA4	[1109]	<53>	OS12	1730–80	'HS'	

Apart from two pipes with decorated stems, one with bands of poorly moulded beading and the other with milling in criss-cross patterns (<25> and <26>), which were both of 17th-century date but found as residual items, the assemblage is otherwise completely plain, apart from the standard milling around the top of the bowl rim present on 17th- to early 18th-century pipes. There are 99 pipe bowls with evidence for milling, showing a higher level of production, although the overall milling index for the larger groups in which the feature occurs suggests that pipes of only moderate quality predominate. There are also three 17th-century pipe bowls that have been burnished, another sign of a better quality and more expensive pipe. Apart from these, however, there is little evidence for pipes made to a higher standard than usual, and the overall quality is entirely average.

The Accessioned Finds

Beth Richardson

Most of the metal finds are very corroded; only the few earlier items are in fair or good condition. There is a small assemblage of early to mid-17th-century glass and some well-preserved 16th- and 17th-century organic finds which include a near-complete shoehorn, a comb, pieces of a textile and metal ring purse, a cylindrical wooden disk and a group of mid to late 17th-century shoes and shoe parts.

The glass assemblage includes two pieces of waste, which could indicate that the 17th-century glass industry in the Broad Street area extended as far north as the site. Other waste items and tools include leather shoemaking waste, two pieces of bone waste, a pinner's bone for the making and sharpening of pins, pieces of glass- and metalworking crucible and a fragment of pipe-clay waste. While some of these items may have been redeposited, they indicate early post-medieval industrial activity in the area. Apart from a piece of window glass and two pieces of 17th- or 18th-century lead window came, structural evidence is confined to the building materials and ceramic floor and wall tiles (see Smith above). However, there is an important assemblage of 16th- and 17th-century household and domestic items. The more important groups and individual items are described here.

The Leather Finds

The small leather assemblage is closely dated to the early 17th century. It consists almost entirely of shoe parts and a small amount of shoemaking waste, and is significant because of its close dating and because it includes a rare survival of a shoe with traces of a red pigment or dye. The shoes are worn, and were presumably dumped with the waste from leather working in the area.

Pit [220] (period 4) contained the largest group of leather from the site consisting of 62 shoe parts, early 17th-century in style and constructional detail and presumably contemporary with the ceramics from the pit, which dated *c.*1630–60. The most complete item in the group is a child's shoe, <9>, with a flat sole and a two-piece upper consisting of a square-toed high vamp and high quarters with an ankle latchet fastening. Both upper and quarters have traces of red dye, not enough for analysis, and the quarters are decorated with incised near-vertical lines. There is no evidence for a welt. The vamp appears to have been stitched directly to the insole. The other shoes are more fragmentary. There are several soles, straight and made for either foot, an innovation of the 1590s (Swann 1982, 7), and waisted with a narrow oval toe. The soles are multi-layered (up to four layers), some repaired with stitched and nailed repair soles, and one is arched, presumably steamed, at the instep into a heel. There is one stacked leather heel from a large (man's) shoe and two fragments of leather covering for a heel with a double seam along the front edge and bottom, and a single seam at the welt. There are four fragments from two-piece quarters, two from shoes with open sides, one of which extends into a latchet with a large lace hole. The quarters are gently peaked at the centre back, a feature of 17th-century shoes (Mould 1997, 119). Of the five vamp pieces three are not diagnostic, but one has the typical open sides and long narrow tongue pierced with a double row of round lace holes of the 17th century. One vamp, which is flesh side upward giving a suede effect, is

decorated with three cut flaps, each of which is dagged around its edge and pierced with central stab marks. The top edge of the vamp is also dagged, and the internal toe part of the lasting margin is slightly gathered into pleats, possibly for a toe-puff (<10>). The decoration is crudely cut from the outer surface and has the appearance of secondary working.

A later group of leather consisting of shoe parts from two shoes was found in the period 5 make-up for a floor, [208], in Building 1 which was dated *c.*1680–1700 by pottery. A child or young adult's latchet-fastening shoe, <11>, is substantially complete. It has a square-toed sole, which has been repaired with nails, and the characteristic 17th-century high vamp pierced with four round lace holes and cut away to leave oval openings either side of a tongue which is shorter and more rounded than many on adult shoes of the period. The toe is square-shaped and pleated and slightly overhangs the sole, a stylistic feature of 17th-century shoes which became less popular in the 1670s (Mould 1997, 119). One of the two-part quarters survives: it has a peaked back and extends into a latchet with one lace hole. Children's shoes followed fashion, but were often modified for comfort, and the short tongue and comparatively small oval side-openings cannot be used to date the shoe closely. Stylistically this shoe dates from between 1620, when square toes came into fashion, and about 1670/80.

The Bone, Ivory, Horn and Wood Finds

A bone pinner's bone, <122>, from Structure 1, is a good example of a common late medieval and early post-medieval tool used in making sharp points on copper-alloy pins and wire. It is a cattle metatarsus carved into facets at its end, with grooves sawn into the facets to hold the pin and wire points while they were being filed. Normally there are four facets; this example is unusual in having six (MacGregor 1985, 171). This find together with the copper-alloy head-dress frame, <99>, also found in Structure 1 with other finds of copper alloy, indicates the production of dress accessories in the vicinity.

A small wooden bowling ball, <124> (diameter 79mm, thickness 37mm), also from Structure 1, was made of *lignum vitae*, a dense hard wood from the West Indies first imported into Britain at the end of the 16th century. The ball has flat faces and rounded convex or 'barrel-shaped' sides. Both faces are ornamented with groups of grooves, in common with many turned *lignum vitae* objects since the density of the timber allows detailed work on the end grain. The upper (or fair) face is turned, while the reverse, although ornamented on the lathe, has saw cuts from 'parting off'. The reverse side has three holes in triangular layout near the centre. They appear to have been formed with a very small spoon bit, to a depth of about 5mm (C Green, pers comm). These holes are probably the means by which the workpiece was held with pegs on to the faceplate of the lathe, but they were also for the insertion of lead, to add weight and determine the 'bias' of the bowl.

The most common form of excavated early post-medieval bowling ball is spherical or oblate (a slightly flattened sphere) (see for example illustrated examples from London in Thomas 2004, 78; and from York and other sites in Morris 2000, 258–9). These bowls are described by Randle Holme in his *Academy of Armory and Blazon* (Alcock & Cox 2000, book 3 chapter 16, item 46c) as 'Round Byassed bowles for open grounds of advantage' and 'Bowles as round as a ball for green swarths that are plain and "Levell".' The flattened bowls are less common and clearly different, and must be either Holme's 'flat bowles … best for close narrow alleys' or 'chees-cake bowles … round and flat like cheeses' (*ibid*). Holme's illustration of the bowls shows similar holes for the biases, and describes the biases as 'set to the lift side'. In a separate text he describes the game of ninepins, and it seems highly probable that these small flattened bowls were used in bowling alleys for this game.

A near-complete horn shoehorn, <1>, was found in fill [219] of pit [220] (period 4), together with early 17th-century shoe parts. Shoehorns or 'shoeing horns' are first documented in the 15th century, and thereafter often appear in lists, wills and literature, particularly in the late 16th and early 17th centuries when fashionable shoes were tight fitting (Brandon 2000, 11–14). They were made from cowhide, horn and

metal, but horn, sometimes decorated with engraving, was probably most commonly used. Horn very seldom survives in archaeological deposits, and this well-dated shoehorn is therefore a rare and important find. A small thin rectangular plate of horn, which might be waste or part of a lantern window (MacGregor 1985, 66–7), came from the same context.

A near-complete double-sided head-comb, <3>, made of elephant ivory, with fine and coarse teeth), was found in Building 1 floor make-up [208] and as such is dated 1680–1700. This is a good example of a common early post-medieval comb type. It is very similar to other 17th- to early 18th-century examples from London (Thompson *et al* 1984, 100–2).

The 17th-Century Glassware

Thirty-three fragments of good-quality 17th-century glassware were recovered from the site. The majority came from the backfill of a group of period 3 pits. Others were redeposited in Structure 6 (period 6) together with a rim fragment from a glass-working crucible, <136>. Most are pieces of thin-walled beakers or goblets, made from the colourless or slightly grey-tinted 'façon de Venise' glass that imitated Venetian glass and was ubiquitous in northern Europe by the 17th century. They have plain fire-rounded rims, pushed-up bases with folded base-rings and the typical optic-blown decoration (ribs, lozenges, oval depressions and chequered spirals) of the period. There are two goblet stems: a slightly asymmetrical inverted baluster stem, <113>, with a merese (a flattened, collar-like knop) and flattened knop and, from the later pit, a shorter, inverted pear-shaped stem, <24>, which is late 17th century. As well as the drinking vessels there are fragments from a common type of phial with a vertical neck and everted rim in pale green glass, <128>.

The site is near Sir Robert Mansell's early–mid-17th-century glass-working site at Old Broad Street (Shepherd nd), and the presence of a crucible fragment, an offcut from the mouth of a vessel (<102> and heat-distorted handle <109>). These finds would normally suggest that the site was part of the production area, but as has been already noted, it was still apparently covered by orchards in 1658 (Fig 7). The forms and decoration techniques are characteristic of Broad Street products, made *c.*1620–40. The inverted-baluster stemmed goblet is a particularly typical Broad Street form, and typically asymmetrical (Willmott 2002, 59).

The Metal Finds

There were several metal finds from Structure 1 ditch (period 2). A complete or near-complete copper-alloy head-dress frame, <99>, was found with a copper-alloy pin, <98>. The head-dress frame is made up of three lengths of wire, twisted and bent into a form which is slightly distorted, but is probably either a curved 'French hood' or a more elaborate gable type. Women's head-dresses of this style, made with fabric draped and sewn over a metal wire frame which was usually bound and covered with silk (although this seldom survives), date from approximately the 14th to the mid to late 16th century. This one is contextually and stylistically likely to be late 15th to mid–late 16th century (Egan & Forsyth 1997, 228–9). There are several examples of frames from London. This is among the most complete.

The pin, which has a plain solid spherical head and a short shank (39mm), could be earlier but is probably contemporary and possibly connected. Pins are common 15th- and 16th-century finds and had numerous functions, but pins with short thick shanks and large globular or hemispherical heads are thought to have been used as hat pins in this period (Egan & Forsyth 1997, 224), and it is reasonable to suggest that this example, with its slightly smaller head, might also have been a hat (or head-dress) pin.

Purse <21>

Over one hundred twisted copper-alloy loops, the majority stitched to pieces of textile, were found in fill [1135] of period 3 pit [1146]. Each loop has a diameter of approximately 10mm. Twisted copper-alloy loops are common early post-medieval finds. They often occur singly, and are rarely associated with the items to which they were originally sewn. They have been identified as clothing fasteners (Crummy 1988, 14; Margeson 1993, 20), although loops might

be pouch or purse rings used as a protective layer in purse linings as a defence against thieves (Egan & Forsyth 1997, 233). Twisted wire is the simplest way of forming a metal ring and the loops may not be specific to a single function, but these fragments of flax or fine hemp textile and loop are almost certainly also from a purse lining. The loops were sewn between layers of backing material, which was probably attached to outer layers of leather faced with silk. Additional (separate) fragments of leather with impressions of fine silk twill on their surface probably indicate what the exterior of the purse was made from. Although not many of these purse linings have been recorded or recognised, they would probably have been a common precaution against theft.

The Faunal Remains

Animal Bones

Kevin Rielly

A conspicuous feature of the faunal assemblage is the preponderance of the major domesticated mammals, cattle (*Bos taurus*) and sheep (*Ovis aries*) in particular (Table 6). The paucity of game species may be indicative of status, though it is known that such species, favoured by the higher strata of society in the medieval period, were going out of fashion by the Tudor and Stuart era (Wilson 1991, 96, 127). This period witnessed a particular fondness for veal and mutton (Table 7), both of which are clearly attested to at this site. For example, the sheep, at least in period 3, are generally adults, that is approximately older than two years, perhaps conforming to the best age to cull sheep for their mutton, at about two to two and a half years (Lisle 1757, 262). However, other food species were recovered, including a good proportion of fish in period 3, with the incidence of herring (*Clupea harengus*), gurnard (Triglidae) and plaice/flounder (Pleuronectidae) showing a preference for estuarine species (Table 6).

As well as food waste, there are both subtle and more obvious indicators of local craft uses for animal products. These include an otter (*Lutra lutra*) skull from period 2 (Table 6), which could be a waste item from a furrier, and the small collections of goat (*Capra hircus*) horncores from periods 2 and 3. Sheep metapodials, from period 4, suggest waste from whittawyers (tanners specialising in sheep/goat products), perhaps located in this general area. The clearest case for such

Table 6. Species representation from hand collected and sieved assemblage of animal bone (total fragment count)

	Recovery						
	Hand collected				Sieved		
Period	**2**	**3**	**4**	**6**	**2**	**3**	**6**
Species							
Cattle	9	66	11	13		16	
Horse	1						
Sheep/goat	5	26	4	8	1	6	1
Sheep	2	10	6	16			
Goat	3		1				
Pig	5	6	1	3	1	4	1
Red deer	1						
Dog	1				1		
Cat	1						
Otter	1						
Brown hare						1	
Rabbit	2				1	1	
Rat species						2	
Mouse/Vole						1	
Chicken	2	5	1	2	3	4	1
Goose	1					1	
Turkey				1			
Wader/plover			1			1	
Thornback ray						1	
Eel					1	1	
Herring						9	
Smelt					2		
Cyprinid						7	
Gadid species					7	5	
Cod						1	
Gurnard						16	1
Plaice/flounder						13	
Frog/toad						1	
Total	34	113	25	43	17	91	4
No. of samples with recorded bone					3	4	3

Table 7. Age of cattle, sheep/goat and pig – combining tooth wear/eruption and epiphysis fusion data (hand collected animal bones)

Species	Age group	Age	Period			
			2	3	4	6
			N	N	N	N
Cattle	Juvenile	1–6mo	3	50	1	2
	Subadult	1–2.5yrs	1(4)	1(11)	(6)	3(4)
	Adult	>2.25yrs	1	4	4	4
Sheep	Juvenile	1–6mo	1	6		
	Subadult	6mo–2yrs	1(5)	2(11)	(4)	4(6)
	Adult	>1.75–2yrs	3	17	6	14
Pig	Neonate		2			
	Subadult	1–2yrs	1(1)	3(3)	(1)	1
	Adult	>1.5–2yrs	1			2

Key:
Age group (except cattle, period 6): Juvenile, based on age for unfused early epiphysis, as distal humerus, and mandibles with unworn first adult molars; Subadult, fused early and unfused intermediate epiphyses, as distal tibia, plus unworn adult second molar; Adult, fused intermediate epiphyses and worn adult third molar, ages taken from Schmid (1972). All but one of the aged cattle in period 6 are horncores, with ages taken from Armitage (1982).
N = number of bones
Number within brackets = number of bones at that age or older in addition to those which can be more accurately aged

activities was provided by the horncore-lined pit (S6, period 6), an example of what appears to be a relatively common class of feature within the East End of London. These pits are likely to have been cesspits associated with local residential properties, the horncores providing internal reinforcement. It can be assumed that they were a readily available and cheap building material, supplied via the tanners and horners.

Molluscs

Alan Pipe

The mollusc assemblage from each sample group was examined using a binocular microscope and identified, as far as possible, to species level, following Cameron and Redfern (1976), Hayward *et al* (1996), Kerney and Cameron (1997) and Macan (1977). Each taxon was quantified by shell count for each sample. Economic and ecological interpretation followed that of Hayward *et al* (1996), Kerney (1999), Kerney and Cameron (1979) and Wheeler (1979).

Structure 1 (period 2) produced a diverse assemblage of 408 shells dominated by freshwater snails. These included five snail taxa: common pond snail (*Lymnaea peregra*), marsh pond snail (*Lymnaea palustris*), margined ram's-horn (*Planorbis planorbis*), white ram's-horn (*Gyraulus albus*) and whirlpool ram's-horn (*Anisus vortex*). The assemblage was dominated numerically by common pond snail (250 shells) and margined ram's-horn (88 shells) with only occasional recovery of marsh pond snail, white ram's-horn and whirlpool ram's-horn. The common pond snail is ubiquitous in slow and standing waters throughout lowland Britain. It can tolerate hard and soft waters, seasonal desiccation and mild pollution, and is a rapid colonist of new man-made habitats (Kerney 1999, 56). Margined ram's-horn is widely distributed in well-vegetated slow and still lowland hard waters throughout southern Britain. It is particularly characteristic of shallow pools and swampy ditches liable to dry up in the summer (*ibid*, 58). Marsh pond snail (five shells) is a mainly lowland species widely

distributed throughout southern Britain. It is tolerant of hard and soft, stagnant or slow-flowing water. It is typical of swamps, shallow drains and ditches choked with aquatic or emergent vegetation, including those liable to dry up in the summer (*ibid*, 53). White ram's-horn (three shells) is found in stagnant or flowing, hard and soft water throughout lowland Britain. It does not tolerate seasonal desiccation (*ibid*, 66). Whirlpool ram's-horn (one shell) is common in clean, well-oxygenated, hard water in well-vegetated slow-flowing water bodies; it never occurs in places subject to desiccation (*ibid*, 61).

The terrestrial taxa found in Structure 1 included two 'wetland' species, amber snail (*Succinea* sp probably *S putris*) and shiny glass snail (*Zonitoides nitidus*), a single grassland species, smooth grass snail (*Vallonia pulchella*), and six species of moist or damp sheltered situations garden/common snail (*Helix aspersa*) (six shells), grove snail (*Cepaea nemoralis*) (two shells), garlic snail (*Oxychilus alliarius*) (12 shells), cellar snail (*O cellarius*) (one shell), slippery moss snail (*Cochlicopa lubrica*) (one shell) and radiated snail (*Discus rotundatus*) (five shells). The amber snail inhabits wetlands, mainly of lowland type. It often climbs erect vegetation growing in drainage ditches or at the margins of lakes and rivers. It is virtually amphibious and can survive long periods of flooding and withstand desiccation within moist ground litter (Kerney 1999, 77). Shiny glass snail is also virtually amphibious and able to survive periods of flooding. It prefers the emergent vegetation zone at the edges of lakes and rivers (*ibid*, 148). Both taxa are common throughout south-east England. The smooth grass snail is a lowland species found in damp grassy, base-rich places such as moist pastures and marshes (*ibid*, 108). Garden/common snail, grove snail, garlic snail, cellar snail, slippery moss snail and radiated snail are all nearly ubiquitous in all kinds of moderately moist and sheltered places, particularly in base-rich conditions.

Periods 3 and 6 each produced tiny assemblages, 16 and six shells respectively, derived almost entirely from edible, economically important marine species including common/flat oyster, common cockle, common mussel and common periwinkle.

The Plant Remains

Anne Davis

Methodology

Eleven samples were taken from the site for environmental analysis. Five of these were from 16th-century fills of the large ditch (S1, period 2), four from fills of the early 17th-century sub-rectangular pits (period 3), possibly connected with fulling or dying, and two from fills of the 18th-century horncore-lined pit (S6, period 6). Sample volumes ranged from ten to 20 litres. The samples were processed by flotation, using meshes of 0.25mm and 1.0mm to catch the flot and residue respectively. Assessment of the samples showed preservation of organic plant remains to be very good in the ditch fills, but less so in the sub-rectangular pits and horncore-lined pit. A small assemblage of charred plant remains was also found in the last of these, and ten of the samples were selected for further study.

Flots were studied with a low-powered binocular microscope, and any charred plant remains were sorted, identified and counted. Organic flots were scanned and the abundance of waterlogged and mineralised plant remains estimated. Identifications were made using the botanical reference collection of the Museum of London Specialist Services, and standard identification reference manuals (Beijerinck 1947; Berggren 1981; Anderberg 1994). The results were recorded on the ORACLE database.

Results

Charred plant remains, other than charcoal fragments, were rare in the studied samples, and only one sample, from the horncore-lined pit (S6, period 6), contained a moderate-sized assemblage of charred remains. Preservation of organic remains was very good in all the sampled fills of the ditch (S1, period 2), where abundant wood fragments, plant stems and other vegetative tissue survived as well as large assemblages of waterlogged seeds, but rather more restricted in the later samples.

Individual assemblages are described below, and topics arising from these are discussed above in the chronological narrative.

Sample numbers appear in curly brackets (*eg* {100}).

Period 2 (15th–16th century): Structure 1, Ditch

Five environmental samples were taken from primary fills ([1221]/{10}, [1237]/{8}) and later ([1233]/{7}, [1218]/{9}) of the ditch (S1), including one from an upper fill ([323]/{1}) of the same feature in Test Pit 3. All contained well-preserved waterlogged plant remains, which were dominated by twigs and other wood (buds, thorns and plant stem fragments) as well as containing large and diverse assemblages of fruits and seeds. The majority of the latter were similar in all fills, and came from wild plants, most of which are weeds of cultivated or waste ground, with a much smaller component of wetland plants. All samples also included a small element suggestive of garden plants and one, [1233]/{7}, contained a substantial amount of food remains.

The disturbed-ground plants, whose seeds make up the majority of all assemblages from the ditch, can be divided into several overlapping groups, each indicating a slightly different environment. Many came from plants, including thistles (*Carduus/Cirsium* sp), bristly ox-tongue (*Picris echioides*) and white horehound (*Marrubium vulgare*), which are found in relatively dry waste places, such as roadsides and rubbish dumps. If these seeds come from plants growing locally, they provide confirmation that drainage of the area had been successfully achieved by this period. Stinging nettle (*Urtica dioica*), burdock (*Arctium* sp) and hemlock (*Conium maculatum*) are also common in waste places but prefer damper conditions. Both groups are found in soils that are relatively rich in nitrogen. The largest group, however, is from plants such as dandelion (*Taraxacum* sp), docks (*Rumex* spp), oraches (*Atriplex* spp), smooth sow-thistle (*Sonchus oleraceus*), dead nettle (*Lamium* sp) and chickweed (*Stellaria media*), which are common in a variety of disturbed ground situations, including cultivated fields and gardens. These plants may have grown close by, or the seeds may have been included in organic material dumped into the ditch.

While many of the wild plants could have grown as garden weeds, more convincing evidence for garden waste came in the form of seeds from a variety of cultivated plants. Seeds of rose (*Rosa* sp), marigold (*Calendula* sp) and two species of violet (*Viola* spp), which were found in several ditch samples, represent well-documented ornamental plants, while bryony (*Bryonia dioica*), buttercup (*Ranunculus acris/repens/bulbosus*) and mallow (*Malva* cf *sylvestris*) are wild plants with decorative flowers that were often brought into cultivation. Occasional seeds of wild strawberry (*Fragaria vesca*) were found in all samples, as well as fruits of spinach (*Spinacia oleracea*) in [1218]/{9} and parsnip (*Pastinaca sativa*) seeds in [1221]/{10} and [1237]/{8}. The latter could be from the wild parsnip, whose seed is indistinguishable, but this plant has very rarely been identified from London sites, so it is unlikely that it is part of the natural flora of the city habitat. Black mustard (*Brassica nigra*) seeds were common in [1221]/{10}, as were those of unidentified brassicas, which could be from varieties of cabbage or turnip. Parsley seed (*Petroselinum crispum*) was also identified from [1237]/{8}. Many of these plants had medicinal as well as nutritional uses in the past, as did feverfew (*Tanacetum parthenium*) and milk thistle (*Silybum marianum*), both of which were also found in the ditch fills, and were cultivated in gardens specifically for this purpose.

All the ditch samples contained abundant twigs and wood fragments, and single seeds of hawthorn (*Crataegus* cf *monogyna*) and lime (*Tilia* sp) were also found, as well as a leaf of box (*Buxus sempervirens*). These remains may provide clues to the type of plants used for the hedging shown in contemporary maps of the area.

A small component of the ditch assemblages, but the one that is most likely to represent plants growing *in situ*, consisted of seeds from wetland plants, including celery-leaved crowfoot (*Ranunculus sceleratus*), fool's watercress (*Apium nodiflorum*) and gipsy-wort (*Lycopus europaeus*), all of which grow in, and on the banks of, streams and ditches. These plants require soils that are saturated with water, and indeed very occasional seeds of aquatic species such as horned pond-weed (*Zannichellia palustris*), and water-flea eggs (*Cladoceran ephippia*), suggest that standing or running water was present in at least some parts of the ditch. Remains of these plants

were very much in the minority and were no more common in the primary fills than in later ones, possibly because the growth of a substantial *in situ* flora was prevented by the dumping of large quantities of material from elsewhere.

The composition of all sampled ditch fills was similar, except that a great many remains of food plants were found in [1233]/{7}. These included, in addition to fig (*Ficus* sp) and wild strawberry pips which were found in all the fills, remains of grape (*Vitis vinifera*), gooseberry (*Ribes uva-crispa*), apple (*Malus domestica/sylvestris*), blackberry/raspberry (*Rubus fruticosus/idaeus*), plum (*Prunus domestica*), cherry (*P avium/cerasus*) and sloe (*P spinosa*). Shell fragments of hazelnut (*Corylus avellana*) and walnut (*Juglans regia*) were common, and occasional seeds of the spices coriander (*Coriandrum sativum*) and fennel (*Foeniculum vulgare*) were seen. Cereal bran and fragments of corn cockle (*Agrostemma githago*) seeds, both likely to be from wholemeal bread, were also present, and may indicate that the deposit includes faecal material. These food remains probably represent a single episode of domestic refuse disposal, perhaps from the cleaning of a nearby privy. Apart from this one sample, there is little sign of domestic plant food waste in the ditch fills.

Period 3 (1600–30): Sub-Rectangular Pits

Environmental samples were studied from the backfills of four pits, [1141]/{103}, [1146]/{4}, [1152]/{5} and [1150]/{6}, all of which produced clinker, coal and a little slag as well as relatively small assemblages of waterlogged plant remains. It may be that little plant material was dumped in these pits in the first place, but it also seems that preservation conditions were less favourable than those in the 16th-century ditch, so only a small proportion of the original flora has survived.

Although very few remains were found, which could be linked to the function of these pits, two species which may be relevant were found in small quantities; it may be no coincidence that they were restricted to two pits known to have been used for dyeing cloth. Several seeds of weld (*Reseda luteola*), a plant used in the past to produce a yellow dye, were found in the fills of pits [1150]/{6} and [1152]/{5}, and a few broken seeds of hemp (*Cannabis sativa*), also from pit [1152]/{5}, could have come from textiles dyed in the pit. While these could be residues from use of the plants in cloth dyeing, however, weld is a common weed of waste ground and hemp was widely cultivated in the medieval and post-medieval periods; neither is unusual in archaeological samples from London.

Remains of food plants were also found in small numbers in all the pit fills, most being from grape, fig, wild strawberry and blackberry/raspberry. More interestingly, however, the fill of pit [1150]/{6} included fragmentary seeds of a large cucurbit (*Cucurbita* sp), either pumpkin or marrow, and four seeds of red or chilli pepper (*Capsicum* sp).

Both of these plants originate in Central and South America, and although large cucurbit seeds have been found on several sites of this date in London, this is thought to be the first find of chilli pepper.

The remaining plant remains from these pits came from some of the same disturbed-ground species that were found in fills of the earlier ditch, namely chickweed, thistles, orache, stinging nettle and elder (*Sambucus* sp). Very occasional seeds of wetland plants were also found, but all are common finds on London sites of all periods, and are likely to represent the urban environment around these features, rather than any specific activities taking place.

Period 6 (1700–1876): Structure 6, Horncore-Lined Pit

Sample {3} from fill [1049] of pit [1047] consisted mainly of clinker and coal, but also contained small assemblages of charred and waterlogged plant remains. The latter included seeds of grape, fig, blackberry/raspberry and hemp, as well as occasional seeds of common disturbed-ground weeds. The charred assemblage included a number of burnt seeds from species not usually preserved in this way, as well as a grain of wheat and several unidentified seeds. Mustard/cabbage *etc* (*Brassica/Sinapis* sp), hemp and blessed thistle (*Cnicus benedictus*), all of which were represented, are all plants that were used medicinally in the past, and the last of these, which is a native of the Mediterranean region, was cultivated in

gardens specifically for this purpose (Hanf 1983, 220). Blessed thistle was reputed to have numerous therapeutic properties, including providing a remedy for vertigo, jaundice, ringworm and the 'French pox' (Culpepper 1995, 57). Seeds from this plant have not previously been found on London sites. Hemp and mustard have other uses, but are listed by Culpepper as having numerous medicinal properties and, found together with blessed thistle, these seeds may indeed have been intended for this purpose (*ibid*). In fact, these remains may be related to the discovery of several ointment jars in backfills of the same pit. The reason why these seeds became charred is obscure, but they may have been burnt as surplus to requirements.

ACKNOWLEDGEMENTS

MOLA would principally like to thank the British Land Company for supporting the excavation and publication of this site. Bovis Lend Lease and M3 Consulting provided valuable on-site assistance. MOLA is also grateful to Kathryn Stubbs, Assistant Director Historic Environment, Corporation of London, for her advice on the project.

For MOLA, the site was project managed by Robin Nielsen and excavated by the author with Kevin Appleton, Emily Burton, Gary Evans, Helen Holderness, Andrea Masi, Mike Morley, Theresa Rowell, Jon Sygrave and Tom Wilson. Julian Hill managed the production of this article and acted as editor. Thanks to Bruce Watson for his assistance with the documentary research. The illustrations are by Judit Peresztegi and Faith Vardy.

Beth Richardson is grateful to the British Library for permission to reproduce text from Alcock & Cox 2000 which appears on p 287.

ihowell@mola.org.uk

NOTES

[1] MOLA Resource Library, www.mola.org.uk/resource-library (accessed 20 December 2016).
[2] Further information on these excavations can be obtained from the Museum of London Archaeological Archive, http://archive.museumoflondon.org.uk/laarc/catalogue/ (accessed 13 March 2017).

BIBLIOGRAPHY

Agas, R, *c* 1562 'Civitas Londinum' reproduced in Margary 1981

Alcock, N W, & Cox, N, (eds) 2000 *Living and Working in Seventeenth Century England: An Encyclopedia of Drawings and Descriptions from Randle Holmes's original manuscripts for the Academy of Armory (1688)*, London

Allan, J, 1984 *Medieval and Post-Medieval Finds from Exeter, 1971–1980*, Exeter

Anderberg, A L, 1994 *Atlas of Seeds and Small Fruits of North-West European Plant Species, Part 4 Resedaceae–Umbelliferae*, Stockholm

Armitage, P L, 1982 'A system for ageing and sexing the horncores of cattle from British post-medieval sites (17th to 18th century) with special reference to unimproved British longhorn cattle' in B Wilson, C Grigson & S Payne *Ageing and Sexing Animal Bones from Archaeological Sites* British Archaeological Reports (British Series) 109, Oxford, 37–54

Atkinson, D, & Oswald, A, 1969 'London clay tobacco pipes' *J Brit Archaeol Ass* 3rd series 32, 171–227

Beijerinck, W, 1947 *Zadenatlas der Nederlandsche Flora I–II Veenman and Zonen*, Wageningen

Berggren, G, 1981 *Atlas of Seeds and Small Fruits of North-West European Plant Species, Part 3 Salicaceae–Cruciferae*, Stockholm

Blackmore, L, 1994 'Pottery, the port and the populace, the imported pottery of London 1300–1600, part 1' *Medieval Ceram* 18, 29–44

Blackmore, L, 2009 'The medieval and post-medieval pottery' in K Pitt with J Taylor *Finsbury's Moated Manor House, Medieval Land Use and Later Development in the Moorfields Area, Islington* MoLAS Archaeology Studies Series 20, London, 49–62

Brandon, S, 2000 *Buttonhooks and Shoehorns*, Princess Risborough

Brett-James, N G, 1935 *The Growth of Stuart London*, London

Britton, F, 1987 *London Delftware*, London

Brooks, C M, 1983 'Aspects of the sugar-refining industry from the 16th to the 19th century' *Post-Medieval Archaeol* 17, 1–14

Cameron, R A D, & Redfern, M, 1976 *British Land Snails* Linnean Society of London Synopses of the British Fauna 6, London

Crummy, N, 1988 *Colchester Archaeological Report 5: The Post-Roman Small Finds from Excavations in Colchester 1971–85*, Colchester

Culpepper, N, 1995 (1826) *Culpepper's Complete Herbal and English Physician* Wordsworth Editions, Ware

Davey, P, 1997 *Clay Pipes from Bolsover Church*, unpub report

Egan, G, & Forsyth, H, 1997 'Wound wire and

silver gilt, changing fashion in dress accessories *c.*1400–*c.*1600' in D Gaimster & P Stamper (eds) *The Age of Transition: The Archaeology of English Culture 1400–1600* Society of Medieval Archaeology Monograph Series 15/Oxbow Monograph 98, 215–38

Faithorne & Newcourt, 1658 'An Exact Delineation of the Cities of London and Westminster and the Suburbs thereof together with the Borough of Southwark' reproduced in Margary 1981

Forsyth, H, 1990 'Medicinal and kitchen gardening' in Galinou (ed) 1990, 56–65

Galinou, M, (ed) 1990 *London's Pride: The Glorious History of the Capital's Gardens*, London

Gerard, J, 1994 (1597) *Gerard's Herbal: The History of Plants* (ed) M Woodward, London

Giorgi, G, 1997 'The plant remains' in G Malcolm 'Excavations at Island site, Finsbury Pavement, London EC2' *Trans London Middlesex Archaeol Soc* 48, 44–9

Hanf, M, 1983 *The Arable Weeds of Europe with their Seedlings and Seeds*, Hadleigh

Harding, V, 1990 'Gardens and open space in Tudor and early Stuart London' in Galinou (ed) 1990, 44–55

Harvey, J, 1981 *Medieval Gardens*, London

Hayward, P, Nelson-Smith, A, & Shields, C, 1996 *Seashores of Britain and Europe*, London

Higgins, D A, & Davey, P, 1994 *Draft Guidelines for using the Clay Tobacco Pipe Record Sheets*, unpub rep

Horne, J, 1989 *English Tin-Glazed Tiles*, London

Horwood, R, 1813 [Horwoods's map, compiled 1792–9] Plan of the Cities of London and Westminster, the Borough of Southwark 3 edn reproduced in Margary, H, 1985 *The A–Z of Regency London* Margary in assoc Guildhall Library, Kent

Hughes, M, & Gaimster, D, 1999 'Neutron activation analysis of maiolica from London, Norwich, the Low Countries and Italy' in D Gaimster (ed) *Maiolica in the North: The Archaeology of Tin-Glazed Earthenware in North-West Europe c 1500–1600* British Museum Occasional Paper 122, London, 57–91

Huijg, A, 1978 *De bijbel op tegels*, Boxtel

Hyde, R, (ed) 1982 *The A–Z of Georgian London* London Topographical Society 126, London

Hyde, R, (ed) 1992 *The A–Z of Restoration London* London Topographical Society 145, London

Kerney, M P, 1999 *Atlas of the Land and Freshwater Molluscs of Britain and Ireland*, Colchester

Kerney, M P, & Cameron, R A D, 1979 *Land Snails of Britain and North-West Europe*, London

Laxton, P, (ed) 1985 *The A–Z of Regency London* London Topographical Society 131, London

Leake, J, 1667 'A map of the City of London showing the extent of the damage caused by the Great Fire of 1665' reproduced in Margary 1981

Lisle, E, 1757 *Observations in Husbandry* 2nd edn 2 vols (reprint 1970), Farnborough

Macan, T T, 1977 *A Key to the British Fresh- and Brackish-Water Gastropods* Freshwater Biological Association Scientific Publication 13, Ambleside

MacGregor, A, 1985 *Bone, Antler, Ivory and Horn: The Technology of Skeletal Materials since the Roman Period*, London

Margary, H, 1981 *A Collection of Early Maps of London* Margary in assoc Guildhall Library, Kent

Margeson, S, 1993 'Norwich households: medieval and post-medieval finds from Norwich Survey excavations 1971–8' *East Anglian Archaeology Report* 58, Norwich

Morris, C A, 2000 *Craft, Industry and Everyday Life: Wood and Woodworking in Anglo-Scandinavian and Medieval York* The Archaeology of York 17/13, York

Mould, Q, 1997 'The leather' in J W Hawkes & P J Fasham *Excavations on Reading Waterfront Sites, 1979–1988* Wessex Archaeology Report 5, Salisbury, 108–41

Ogilby, J, & Morgan, W, 1676 'Large and Accurate Map of the City of London' reproduced in H Margary *'Large and Accurate Map of the City of London' by John Ogilby and William Morgan, 1676* Margary in assoc Guildhall Library, 1976, Kent

Oram, M H, 1978 'The Common Hunt and the Dog House' Guildhall Historical Association lecture 31 October 1978, www.guildhallhistoricalassociation.org.uk (accessed 23 May 2016)

Oswald, A, 1975 *Clay Pipes for the Archaeologist*, British Archaeological Report (British Series) 14, Oxford

Pearce, J, 1994 *The Pottery from Excavations at Boston House, 90–94 Old Broad Street, London (BRO90)*, unpub MoLSS report

Pearce, J, 2013 'How does your garden grow? Ceramic watering pots from Tudor and Stuart London' in E Klingelhofer (ed) *A Glorious Empire: Archaeology and the Tudor-Stuart Atlantic World, Essays in Honour of Ivor Noël Hume*, Oxford, 91–105

Pearce, J, & Martin, J, 2004 'Oriental blue and white porcelain found at archaeological excavations in London: research in progress' *Trans Oriental Ceram Soc* 67, 99–109

Porter, S, 1996 *The Great Fire of London*, Stroud

Prockter, A, & Taylor, R, (compilers) 1979 *The A to Z of Elizabethan London* London Topographical Society 122, London

Schauer, T A, 1982 *Field Guide to the Wild Flowers of Britain and Europe* (trans) R Pankhurst, London

Schmid, E, 1972 *Atlas of Animal Bones for Prehistorians, Archaeologists and Quaternary Geologists*, London

Shepherd, J, nd *The Vessel and Waste Glass, Old Broad Street* (BRO90) unpub MoL report

Stenton, F, 1934 *Norman London by William Fitz Stephen* Historical Association Leaflets 93 & 94 (reprinted 1990), New York

Stephenson, R, 1997 'The pottery' in G Malcolm 'Excavations at Island site, Finsbury Pavement, London EC2' *Trans London Middlesex Archaeol Soc* 48, 44–9

Stow, J, 1908 (1603) *A Survey of London* 2 vols (reprinted 1971) C L Kingsford (ed), Oxford

Swann, J, 1982 *Shoes*, Princess Risborough

Thomas, C, 2004 *Life and Death in London's East End: 2000 Years at Spitalfields*, London

Thompson, A, Grew, F, & Schofield, J, 1984 'Excavations at Aldgate 1974' *Post-Medieval Archaeol* 18, 1–148

Veeckman, J, 1999 'Maiolica in sixteenth and seventeenth-century Antwerp: the archaeological evidence' in D Gaimster (ed) *Maiolica in the North: The Archaeology of Tin-Glazed Earthenware in North-West Europe c 1500–1600* British Museum Occasional Paper 122, London, 113–23

Vince, A, 2004 *Chemical Analysis of Pottery from the Broadgate Centre, Finsbury Avenue Square, City of London (FNB02)*, AVAC report 2004/121, 1–11, http://archaeologydataservice.ac.uk/archiveDS/archiveDownload?t=arch-1000-1/dissemination/pdf/AVAC_reports/2004/avac2004121.pdf (accessed 20 December 2016)

Weinreb, B, Hibbert, C, Keay, J, & Keay, J, 2008 *The London Encyclopaedia* 3rd edn, London

Weinstein, R, 1990 'Feeding the City: London's market gardens in the early modern period' in Galinou (ed) 1990, 80–101

Wheeler, A, 1979 *The Tidal Thames: The History of a River and its Fishes*, London

Williams, D, & Peacock, D P S, 2011 'The quernstone assemblage' in J Hill & P Rowsome *Roman London and the Walbrook Stream Crossing: Excavations at 1 Poultry and Vicinity, City of London (Part 2)* MOLA Monograph 37, London, 452–7

Willmott, H, 2002 *Early Post-Medieval Vessel Glass in England c 1500–1670* Council for British Archaeology Research Report 132, York

Wilson, C A, 1991 *Food and Drink in Britain: From the Stone Age to Recent Times* 2nd edn, London