# EXCAVATION OF A 15th-CENTURY WINDMILL MOUND IN SEWARD STREET, LONDON, EC1

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*With contributions by Nigel Jeffries, Nicola Powell, Kevin Rielly and Kate Roberts*

## SUMMARY

*In 1999, archaeological investigations by the Museum of London Archaeology Service (MoLAS) of the adjacent sites at 1–13 Seward Street and 15–29 Seward Street, London EC1 found evidence of a 15th-century windmill mound. The mound consisted of dumped refuse up to 4m thick which contained well-preserved organic remains overlying natural brickearth. The dump deposits, which dated from the 15th century, contained pottery, organic material (particularly leather off-cuts, leather shoes, straw and other plant remains), together with tools, clinker and metal off-cuts, indicating that the refuse was derived from both industrial and domestic sources. The pottery dates suggest that the various refuse deposits had been dumped over a relatively short time-span, perhaps of only a few years, and it would appear that the deposited material originated from within the City and possibly from monastic institutions in Clerkenwell, located c.400m to the west.*

*The site has a well-documented history. A windmill is known to have stood here in the late 15th/ early 16th century; it was destroyed by a storm. The mound was then used as the site of a chapel founded by Catherine of Aragon in 1530. The chapel was demolished at some point prior to 1547 and was replaced by a second windmill. As the mound occupied a strategic location on the Goswell Road, in 1643 it was incorporated into London's Civil War defences. It appears that after the Civil War the site returned to being used as a laystall, a place where refuse was dumped, until the area was levelled in the 18th century.*

## INTRODUCTION

During the summer of 1999 the Museum of London Archaeology Service (MoLAS) carried out archaeological evaluations on the adjacent sites at 1–13 Seward Street and 15–29 Seward Street. The sites are located in the south part of the London Borough of Islington on the north side of Seward Street, *c.*670m north of the walls of the historic City of London and *c.*1km south-east of Islington Green. Seward Street forms the southern boundary of both the sites. The sites are bounded to the west by Mount Mills, to the north by Telfer House, Lever Street, and to the east by the properties at 31–35 Seward Street. The centre of the sites is located at National Grid Reference NGR 531982 182523 (Fig 1).

The archaeological evaluation at 1–13 Seward Street (site code SDS99) consisted of three test pits and two trial trenches, excavated in the area of the site where the proposed buildings were to be constructed (see Fig 2). The trial trenches, which were stepped, were between 3 and 3.6m deep: Trench A was 13m in length, *c.*8m in width and 3.1m in total depth and Trench B was 9m in length, *c.*8m in width and 3.6m in total depth. The test pits were on average 3m by 1m.

The adjacent site at 15–29 Seward Street (site code SDT99) measured *c.*44m north–south and 50m east–west. Four trial trenches

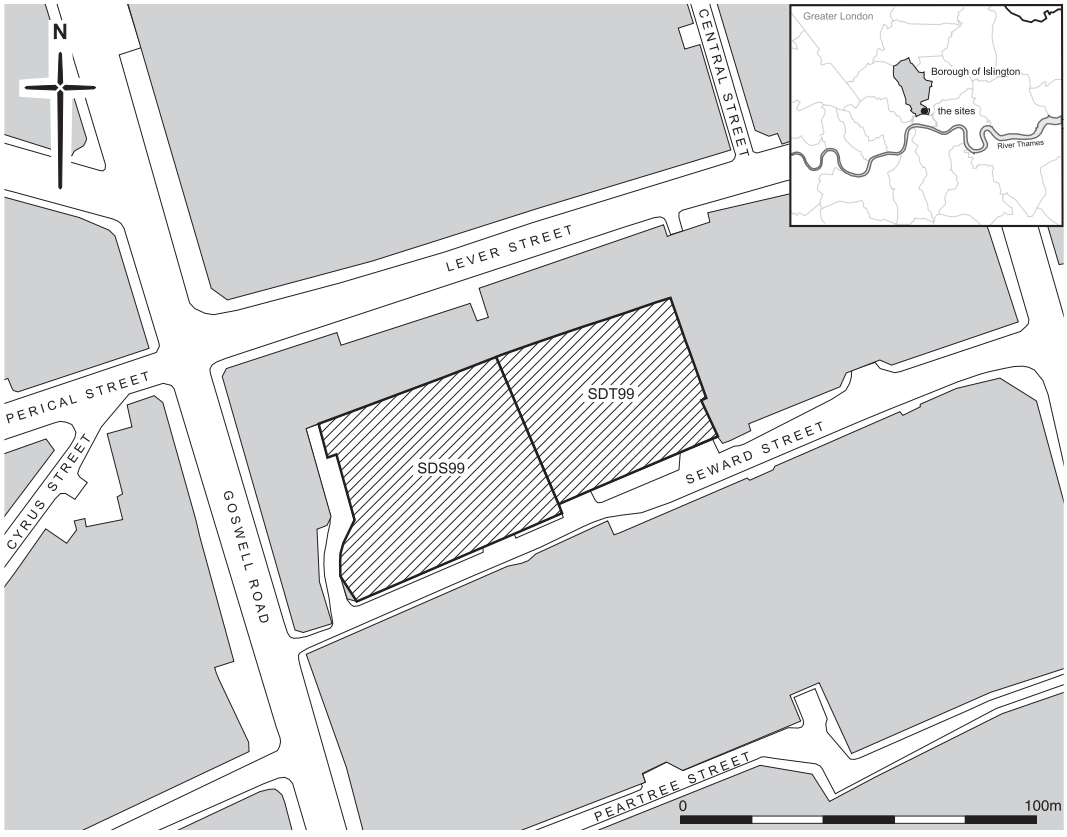


*Fig 1. Site location*

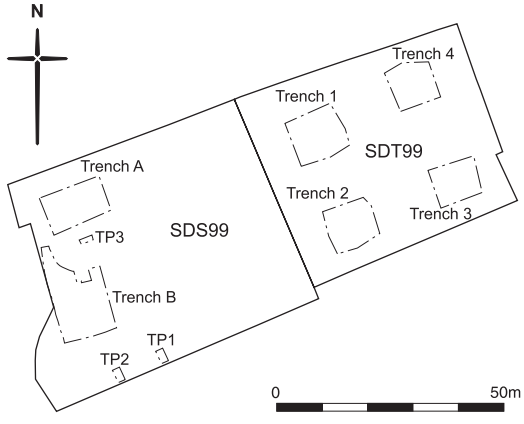


*Fig 2. Trench location*

were excavated in the footprint of the proposed buildings. All the trenches, which were also stepped, measured approximately 10m by 10m at the top and varied in depth between 3.2m and 3.8m.

Topographically both sites are elevated above the level of Seward Street, which in turn rises up to the east from Goswell Road. The underlying geology in this area is London Clay. This is overlain by Corbets Tey Gravel, which in turn is capped by brickearth. There is also a distinct downward slope from the north to the south along Mount Mills to the west of SDS99. At the northern end of Mount Mills the present ground level is 21.76m OD dropping to 20.96m OD at the junction with Seward Street.

## HISTORICAL BACKGROUND

In the medieval period the sites lay within an area known as 'No Man's Land'; its boundaries lay along the lines of the later Goswell Road to the west, Seward Street to the south, and Central Street to the east. This is not to be confused with the property of Charterhouse Priory on the west side

of Goswell Road, which was also called No Man's Land (Stow 1908, ii 81), but they may both have originally formed components of a wider tract of land of that name. In the *Domesday Book* survey of 1086, King William the Conqueror held 12½ acres of land called *Nanemaneslonde* in Ossulston Hundred in Middlesex, formerly belonging to King Edward the Confessor (Williams & Martin 2002, 358; CLRO Research Report 14.6). The name implies that the area lay outside any manorial structure.

To the west, the lane now represented by Goswell Road was the early medieval route from the north-west corner of the City at Aldersgate to the village of Islington. It was later superseded in importance by St John Street, running parallel further to the west between the monastic precincts of Charterhouse Priory, and St Mary's and St John's Priories at Clerkenwell (Pinks 1880, 282).

It is not clear when and how the Corporation of the City of London gained possession of this piece of land, but it was certainly the owner by the end of the medieval period (CLRO Research Report 14.6), at which time a windmill stood on the site, which, as Stow relates, was destroyed in a storm (Stow 1908, ii 80).

## THE REFUSE MOUND

The archaeological evaluation of both sites revealed a sequence of interleaving dumped deposits to a height of at least 4.2m above the natural brickearth. The dumped deposits consisted of dark brown to black organic silts containing metal, textiles, leather, animal bone, pottery, and ceramic building material. The finds were indicative of waste material from both industrial and domestic activity. The inclined deposits indicated that they had once formed the eastern side of a very large mound. At SDS99 the top of the dump deposits was directly below the modern concrete surface (Fig 3). These dump deposits were *c.*4m thick and were recorded in both trenches and all the test pits; however at SDT99 there was a distinct difference between the deposits on the western and eastern sides of the site. Trenches in the western half of the site, nearest SDS99, were found to contain medieval dump deposits sealed by 18th-century dumped material and garden soils (Fig 4). The natural brickearth, recorded at 17.3m OD, had been subject to staining by percolating suspended organic matter, while the eastern trenches did not contain the distinctive medieval dump layers that were present on the western side of the site. This, together with thick layers of garden soil on the eastern side, deposited in order to level the site in the 18th century, suggests that the pre-18th-century ground surface had a very distinct profile that sloped from the west down towards the east. The base of the garden soil on the eastern side was recorded at 18.70m OD, while the base of garden soil on the western side was recorded between 19.86m and 19.97m OD. This pronounced

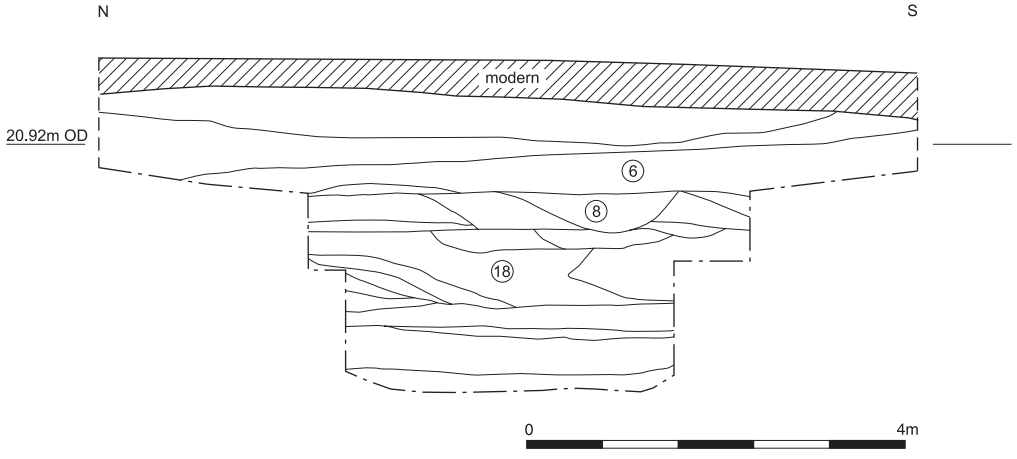


*Fig 3. West-facing section through Trench B (SDS99)*

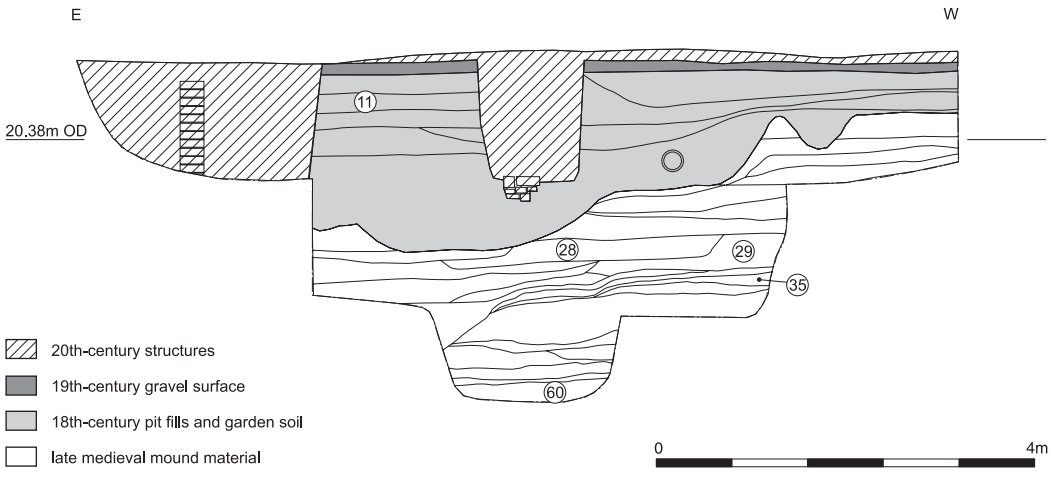


*Fig 4. North-facing section through Trench 2 (SDT99)*

slope would appear to be the remnant of the eastern side of a very large artificial mound, the top of which had been extensively truncated in the 18th century.

## FINDS AND ENVIRONMENTAL MATERIAL RECOVERED FROM THE MOUND

### The medieval and later pottery

*Nigel Jeffries*

Pottery collected from various dump levels is characterised largely by body sherds from fabrics and forms in contemporary use, with few rims and no profiles surviving. Most deposits contained no more than a few sherds each, with the 79 vessels found (from 123 sherds and weighing 1,980g) spread among some 30 contexts. Products of the Surrey whiteware industry, particularly coarse border wares (fabric code CBW), dominate and are supplemented by less frequent Cheam whiteware (CHEA) and Tudor Green wares (TUDG). Pearce and Vince's (1988) detailed précis of this industry enabled the establishment of a consistent 14th- and 15th-century chronology for much of this landuse (Table 1). Coarse border wares include domestic forms such as jars and bifid-rimmed jars for cooking, and when identified, conical (Pearce & Vince 1988, figs 106, no. 416; 107–8) and large rounded jugs/cisterns used for drinking, serving and storage (*ibid*, figs 31; 110–12). Tableware pottery is limited to coarse border ware and Tudor Green lobed cups.

The assemblages demonstrate the types of pottery Londoners were most commonly using, breaking, and therefore discarding, with Table 2 showing that nearly 90% of the ceramics by vessel count were acquired from local (London-type ware) and regional kilns (notably Surrey whitewares). The pottery presents no evidence of industrial practices and no forms associated with such functions, such as alembics or crucibles, were recovered.

Nevertheless, chronological differences can be detected between the two sites. Whilst both yielded mostly 14th- and 15th-century dated ceramics, the few contexts from SDS99 that yielded later 16th-century material provide evidence for the spatial development of this mound as an area for dumping unwanted material.

### The animal bones

*Kevin Rielly*

In total 120 fragments of animal bone were recovered by hand from the two sites and a further 480 from a series of relatively rich soil samples. All the animal bones have been dated by associated pottery to the 15th century and almost all of these bones

*Table 1. Terminus post-quem (tpq) and terminus ante-quem (taq) of the medieval and early post-medieval pottery from SDS99 and SDT99 by vessel count per context (ENV)*

| Vessel count | TAQ | | | | | |
|---|---|---|---|---|---|---|
| TPQ | 1350 | 1500 | 1550 | 1600 | 1700 | % Total |
| 1080 | 1 | | | | | 1 |
| 1270 | | 9 | | | | 9 |
| 1300 | | 1 | | | | 1 |
| 1340 | | 1 | | | | 1 |
| 1350 | | 10 | | | | 10 |
| 1380 | | 5 | | | | 5 |
| 1400 | | 32 | | | | 32 |
| 1430 | | 3 | | | | 3 |
| 1480 | | | 7 | 8 | | 15 |
| 1550 | | | | | 1 | 1 |
| 1580 | | | | | 1 | 1 |
| % Total | 1 | 61 | 7 | 8 | 2 | 79 |

*Table 2. Sources of supply for the medieval and early post-medieval assemblages from SDS99 and SDT99 by vessel count (ENV)*

| Broad sources of supply | Vessel count | % of vessel count |
|---|---|---|
| Germany | 6 | 7.59 |
| Italy | 1 | 1.27 |
| London | 24 | 30.38 |
| Spain | 1 | 1.27 |
| Surrey-Hampshire | 47 | 59.49 |
| % Total | 79 | 100 |

were taken from dump levels, with the exception of six of the hand-collected bones (from pitfills SDS99 [51] and [53]) and 51 fragments from pitfill sample SDS99 [8]. All of these bones were well preserved and there were no assemblages with high levels of fragmentation. It can be conjectured that the great majority of the bones were buried soon after deposition and that there has been only minimal disturbance of these bone-bearing deposits. There is a notable lack of any concentration of individual or groups of parts, strongly suggesting the presence of food/processing rather than industrial/craft waste. A great proportion of this food waste was derived from cattle, sheep/goat, and pig (Table 3), with the first of these forming the major part of each assemblage. Several of these bones display butchery marks. Both cattle and sheep/goat are mainly represented by older individuals (Table 4), strongly suggesting the use of animals employed principally for secondary products, as well as a possible preference for mature beef and mutton. The mandible evidence confirms the general trend, with one cattle and three sheep jawbones well beyond the 3–3.5 year age range. All of the pigs were rather young, perhaps signifying animals derived from herds intensively exploited for their meat. There are two pig mandibles and both are from animals less than 2 years old. There is a notable presence of young calves (4 bones), lambs (1 bone), and piglets (4 bones), which could possibly represent infant mortalities and therefore evidence of stock rearing, either locally or within the City. However, none of these bones are from very young animals, and though no butchery marks were noticed, they are more likely to represent food waste.

As well as the major mammalian domesticates, there is a relative abundance of domestic birds and fish, plus a reasonable proportion of wild game. The former group is largely composed of adult chickens, probably representing inefficient or surplus egg-layers. There are a few extremely young chickens, which are likely to have derived from local or City-based chicken coops.

*Table 3. Species representation by total fragment count from hand-collected and sieved assemblages*

| Recovery method | Hand-collected | | | Sieved | | |
|---|---|---|---|---|---|---|
| Site | SDS99 | SDT99 | All | SDS99 | SDT99 | All |
| *Species* | | | | | | |
| Cattle | 16 | 11 | 27 | 12 | 19 | 31 |
| Cattle-size | 10 | 3 | 13 | 15 | 18 | 33 |
| Sheep/goat | 10 | 3 | 13 | 17 | 27 | 44 |
| Sheep/goat | 3 | 6 | 9 | 1 | 6 | 7 |
| Pig | 5 | 4 | 9 | 7 | 12 | 19 |
| Sheep-size | 8 | 15 | 23 | 20 | 26 | 46 |
| Fallow deer | 2 | | 2 | | | |
| Dog | | | | | 1 | 1 |
| Cat | 1 | | 1 | | | |
| Rabbit | | 3 | 3 | 7 | 7 | 14 |
| House mouse | | | | | 1 | 1 |
| Mouse/vole | | | | | 1 | 1 |
| Chicken | 5 | 9 | 14 | 13 | 10 | 23 |
| Goose | | 1 | 1 | 1 | | 1 |
| Mallard | | | | 1 | 1 | 2 |
| Partridge | | | | 1 | | 1 |
| Crane | 1 | | 1 | | | |
| Woodcock | 2 | | 2 | 1 | 1 | 2 |
| Dove | | | | | 1 | 1 |
| Thornback ray | | | | 1 | 3 | 4 |
| Sturgeon | | | | 1 | 1 | 2 |
| Eel | | | | 4 | 7 | 11 |
| Conger eel | | | | | 4 | 4 |
| Herring family | | | | 4 | 40 | 44 |
| Herring | | | | | 3 | 3 |
| Trout family | | | | 2 | | 2 |
| Carp family | | | | | 24 | 24 |
| Roach | | | | | 1 | 1 |
| Cod family | 1 | | 1 | 33 | 70 | 103 |
| Cod | | 1 | 1 | 2 | 2 | 4 |
| Whiting | | | | 3 | 3 | 6 |
| Gurnard | | | | 1 | 4 | 5 |
| Mackerel | | | | 3 | 5 | 8 |
| Plaice/flounder family | | | | 10 | 19 | 29 |
| Plaice/flounder | | | | | 1 | 1 |
| Amphibian | | | | 2 | | 2 |
| Total | 64 | 56 | 120 | 162 | 318 | 480 |

This group may also include goose, duck and dove, although each of these, due to no discernible difference in size (during this period) between the wild and domestic versions, could equally represent game species. The fish bones include a relatively large array of species, encompassing the use of freshwater, estuary and, possibly, offshore fisheries. Certain species/species groups were obviously in greater demand or were easier to catch, including the herring family, flatfish (plaice/flounder), and especially the cod family. A few of the cod bones were from rather large fish, upwards of 1–1.25m in length, which could represent offshore catches. There is also a wide range of game species, with fallow deer and rabbit accompanied by several bird species, derived

*Table 4. Age of major domesticates by epiphysis fusion (hand-collected and sieved)*

| Age groups | Cattle | | Sheep/goat | | Pig | |
|---|---|---|---|---|---|---|
| | Age | N.epis(%F) | Age | N.epis(%F) | Age | N.epis(%F) |
| Early | 1-1.5 | 8(100.0) | 0.25-0.75 | 11(81.8) | 1-1.5 | 5(40.0) |
| Intermediate | 2-2.5 | 2(50.0) | 1.25-2 | 8(62.5) | 2 | 2(0.0) |
| Late | 3.5-4 | 10(70.0) | 3-3.5 | 10(80.0) | 3-3.5 | 3(0.0) |
| Vertebrae | 7-9 | 6(50%) | | | | |

Key: Age – (in years) equals age of fusion, taken from Schmid (1972, 75); %F – percentage fused *ie* proportion of animals older than the fusion age range.
Age groups following epiphyses: Early – scapula P, humerus D, radius P, pelvis acetabulum and 1st phalange P; Intermediate – tibia D and metapodial D; Late – humerus P, ulna P, radius D, femur P and D, tibia P and calcaneus P (where P is proximal and D is distal).

*Table 5. Comparison of the percentage relative abundance of the major domesticates from contemporary London site assemblages based on hand-collected total fragment counts*

| Site | Date | Cattle % | Sheep/goat % | Pig % | N |
|---|---|---|---|---|---|
| Seward Street | 15th–16th century | 46.6 | 37.9 | 15.5 | 58 |
| Finsbury Pavement | 16th century | 51.0 | 36.6 | 12.4 | 1836 |
| Chiswell Street | 15th–16th century | 55.3 | 28.0 | 16.7 | 246 |

from various hunting habitats. Amongst the game and fish, there are at least three high status food items — crane, fallow deer and sturgeon.

These dumps also provided a few non-food species, including the phalange of a large dog, possibly kept for hunting purposes or guard duties. There is a single cat bone, plus a selection of background fauna species — small rodents with some definite house mouse, and amphibians.

In conclusion, the bone assemblages clearly represent dumps of food waste, most probably derived from the City, featuring an obvious reliance on beef, followed by mutton and then pork. Similar meat preferences have been observed at near contemporary City dump sites, namely Finsbury Pavement and Chiswell Street (Table 5) (Rielly 1997; Rielly in prep). The similarities continue, with cattle and sheep/goat mainly represented by mature animals and pig by relatively young individuals. The age profile of the sheep at each of these sites probably conforms to the requirement for wool as well as meat, and in particular a preference for mutton. The best mutton, in the later 16th century, was apparently to be had from sheep 'not above four years old, or rather not much above three' (Wilson 1973, 80). Within the next two centuries, there is evidence to suggest that certain types of sheep were generally sent to the London meat markets between the ages of three and four, this coinciding with the end of their working life as wool producers (Armitage 1984, 140). It is conceivable that the same practice occurred during the Tudor era. The older cattle may have been used either for milk or work purposes. Each of these three sites also provided some evidence for the consumption of veal, which was a common commodity during this period as witnessed by the account of some 1,700–1,800 veal carcasses being sold in Cheapside every Saturday in the late 16th century (Rixson 2000, 172).

Fish, poultry and game clearly formed major supplements to the meat diet, with a wide variety of such species at all three sites. It can be assumed that a great majority of these meats was available to a wide selection of the London populace. This would probably have included most of the game species, including animals and birds which were previously classed as high status foods, probably supplied via hunting parks on landed estates (Grant 1988, 164). The lowering of the status of these commodities coincided with a change in the well-to-do meat diet during the Tudor and Stuart

period towards a much greater use of farm animals (Wilson 1973, 96). However, there is no doubt that the Tudor upper classes still favoured various game species (Sim 1997, 111), and that certain species continued to possess a particularly high value, including deer, crane and sturgeon.

## The registered finds

*Nicola Powell*

In general, the registered finds from both SDS99 and SDT99 are dated to the late medieval period, which is consistent with the pottery dates. The assemblage is small and the condition of the finds variable, with the metalwork corroded and the leather particularly well-preserved (a full catalogue is available in the research archive). The finds are also varied and disparate, and therefore consistent with the site being used for the dumping of material from the more populous areas of the City.

The metalwork included five copper-alloy accessions, nine of iron, and two pieces of lead waste (<13> and <15>) from dump layers [44] and [45] (SDT99). There was a single composite accession that included copper-alloy and iron. The copper-alloy accessions include three finds of wire of varying gauge. Those from dump layers [46], dated by pottery to the 15th century, and [52] are thick gauge, with <21> from SDS99 [6] (late medieval landfill) being a rolled bundle of very fine gauge copper wire. Wire had a variety of uses, including in the manufacture of pins. Of interest is a rim sherd from a cast vessel recovered from context [62] from SDS99; the rim is slightly out-turned. Cast vessels such as cauldrons, skillets and posnets were made and used over a long period of time, but pottery dates this context to the late medieval period. A medallion or token <12> came from an unstratified context at SDT99. It has the initials 'RA' in gothic script, and is probably post-medieval in date.

The sites produced nine iron objects, including waste <6> from the late medieval dump layer [35] at SDT99 and <17> and <23> from late medieval landfill [6]. All are fragments of trimmed sheet. The late medieval landfill [6] produced most of the iron finds, including a bent needle, a single leaf hinge with a rounded end and a nail still in place, and a tool <19> with spatulate head and handle formed by folding the object back on itself (Fig 5). Of note are two sub-triangular strap-ends <20> corroded together (Fig 5). Both appear to be made of a single sheet, folded at the wide end to an apex, each with a single rivet. Their form suggests a medieval date (Egan & Pritchard 1991). An incomplete key with an oval bow was recovered from levelling layer [11], and a second cast vessel fragment <29>, with slightly out-turned rim, from late medieval dump layer [48].

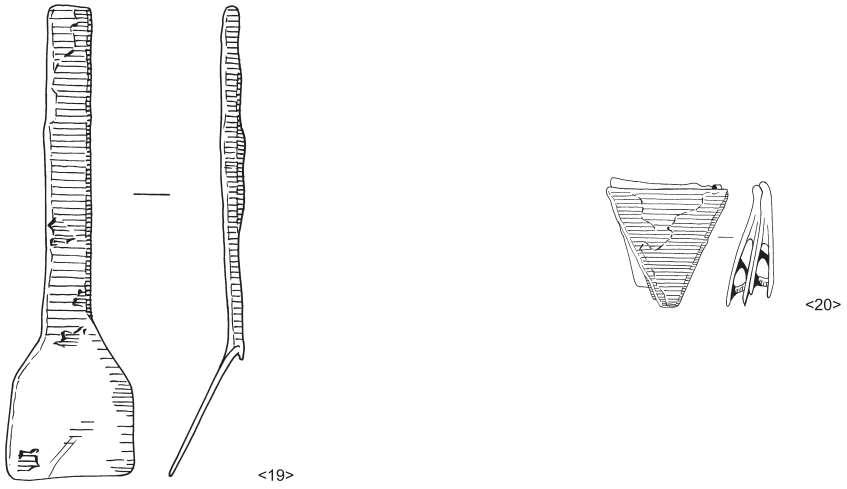


*Fig 5. Iron tool <19> and joined strapends <20> from SDT99 (scale 1:2)*

Two pieces of medieval decorated floor tile were recovered. The first, <16>, came from a dump deposit [64] at SDS99 and has a yellow design on brown (Holher 1942, design P153). It was manufactured at Penn in Buckinghamshire between 1350 and 1390. The second tile <17>, from an extensive landfill dump [61] at SDT99, is a fragment of relatively unworn Penn floor tile, with a partly sooted surface (Eames 1980, design E2334). Two other pieces of medieval decorated floor tile were recovered from unstratified contexts. A rim fragment from a crucible was recovered from dump layer [29]. This layer has been dated by ceramic building material to some time after 1666. The crucible fragment has areas of vitrification on the inside and outside surfaces, with what may be residue on the inside. A fragment of plain stamped tobacco pipe <14> came from dump layer [28], which was immediately below modern concrete. It is late 17th- to early 18th-century in date and closest to Atkinson and Oswald type 22 (1969); it is stamped 'O M'.

The composite accession <33> consists of a small piece of wood with part of a copper-alloy plate attached to it with three iron nails. It came from a late medieval dump deposit [62] and is likely to be from a piece of furniture or a casket, or to have formed part of a piece of door or window furniture.

SDS99 produced the only finds of textile or fabric. One piece <39> came from an unstratified context and includes some coloured cloth (red and brown). The medieval landfill deposit [6] produced a large piece of fabric <1>, probably wool, stained to a dark brown. A large piece of coarse woven cloth <2> came from a late medieval dump deposit [3]. It has a neatly sewn hole near one edge: some red colouring remains. A small piece of closely woven dark cloth <35> came from [18], a deposit from the 18th-century backfill of a pit.

The leather finds are in very good condition. Both SDS99 and SDT99 produced finds of shoes and boots. Context [3], a dark humic dump deposit rich in organic remains, produced five leather accessions. An ankle boot <3> with buckle fastening dates from the mid-14th century. A second ankle boot <10> belonged to a child (Fig 6); it is a left boot with a pointed toe and front lace or buckle fastening, and dates from the 15th century. The three other leather accessions from this context included strapping <5> and a strap or belt <7> with fastening holes. A large irregular cut and torn piece <6> remains unidentified. A strap or belt <8> with a large button, probably of iron, came from context [1]. Pottery analysis suggests it dates from the late medieval period (1400–1500). Undated is a sword scabbard <40>, the lower end is cut and torn away, and it is undecorated; there are seams centre-back and across the irregular top edge. It was recovered from an unstratified context, as was an ankle boot <41> with a pointed toe; the latter has a buckle fastening at the instep, although the buckle is now lost, and is 14th-century in date. A child's ankle shoe <2> came from 15th-century dump layer [35] — a right shoe, with a slightly pointed toe and a front lace or buckle fastening. A small adult or child's shoe <3> came from another 15th-century dump layer [46]. It was a left shoe and fastened by laces at the side. Of note is a child's ankle shoe <4> (right foot) with a slightly pointed toe from the 15th-century dump layer [50]. It once had a front lace or buckle fastening (buckle lost) and the sole has been repaired at the forepart and heel (Fig 6).

## The botanical evidence

*Kate Roberts*

Eight samples were taken from SDT99 and six from SDS99. Of these, five samples from SDT99 and one from SDS99 were selected for further analysis. The samples selected were intended to be representative of the richer samples with the highest seed diversity.

The commonest plant remains in these samples were fruit seeds and stones. These came from grape (*Vitis vinifera*), blackberry/raspberry (*Rubus fruticosus/idaeus*), cinquefoil/wild strawberry (*Potentilla/Fragaria spp*), plum/bullace (*Prunus domestica*), cherry (*Prunus avium/cerasus*), pear/apple (*Pyrus/Malus spp*), fig (*Ficus carica*), mulberry (*Morus nigra*), and elder (*Sambucus nigra*). The more exotic fruit remains, such as figs, grapes and mulberries, were only present in samples from SDT99.

Of these, it is likely that blackberry/raspberry, cinquefoil/wild strawberry and elder grew wild, and were gathered as needed. It is probable that the apples/pears were

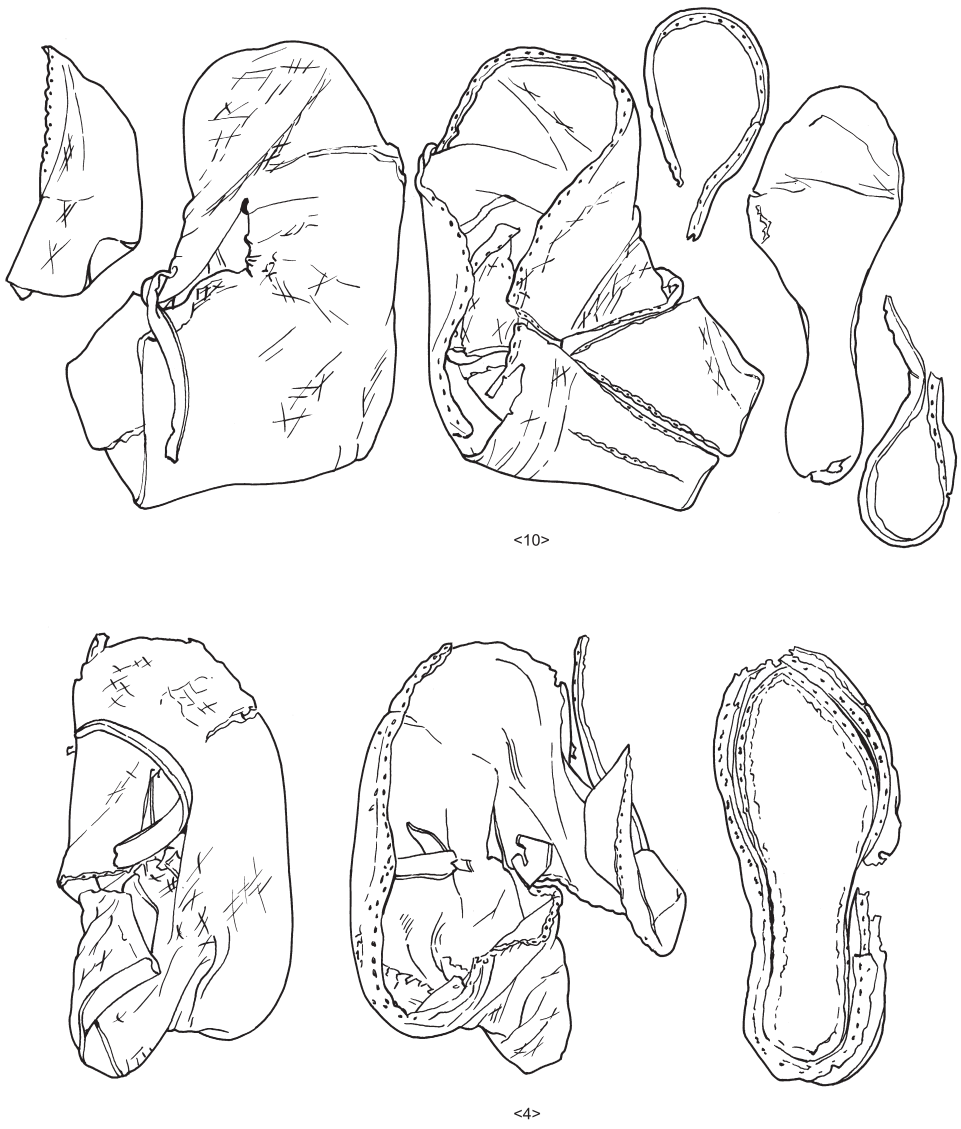


*Fig 6. Leather child's ankle boot <10> from SDS99 and child's ankle shoe <4> from SDT99 (scale 1:3)*

cultivated in gardens, as were the cherries and plums. Figs, according to documentary evidence (Greig 1988, 117), were not grown in Britain in the medieval period, although they were imported. Grapes too were imported, as raisins and currants, but were also grown in Britain in the medieval period. Both figs and grapes would have been imported as dried fruit, since they would spoil on any long journey. Mulberries do not travel well, due to their perishability (Kiple & Ornelas 2000, 1817) and are recorded as growing in Britain (Landsberg 1995, 81), although Greig (1996, 218) believes that the fruit was of minor importance in medieval Britain.

Whilst grapes were pressed into wines and verjuice, a kind of vinegar, they were also eaten dried. The moderate quantities of grape pips present in these samples do not suggest that these seeds were the remnants of wine making; it is more likely that they were eaten. Dried figs and grapes were included in pottages and pies, by the poor

around the time of Christmas and by the well-off throughout the year. Fruit was not generally eaten raw in the medieval period, being associated with diarrhoea and 'fluxes'; apples were cooked into pies and, along with other fruits, such as plums, cherries, mulberries, blackberries and elder, into pottages. Mulberries were sometimes made into 'murrey', a pottage with meat, although the colour was apparently more important than the flavour (Wilson 1973, 333–5).

The fruit found on this site is not unusual for medieval London and is similar to that found in the late medieval dumps at Finsbury Pavement (Giorgi 1999b, 49), although a wider range of fruit was found there. The fruit remains found in the samples from the dumps at Seward Street are very similar to those Giorgi (1997, 203) lists as the most commonly found on archaeological sites in late medieval London.

Both hazelnuts (*Corylus avellana*) and walnuts (*Juglans regula*) were found in the late medieval dump [60] at SDT99, and hazelnuts were found at SDS99. Both of these nuts grew in Britain, although there are also records of both being imported (Greig 1988, 118). Both were found at Finsbury Pavement (Giorgi 1999b, 50) and were common in medieval London (Giorgi 1997, 203).

Charred cereal grain was rare in these samples, which were dominated by waterlogged plant remains. Much of the grain was distorted and fragmented beyond recognition, and many samples only contained one or two cereal grains, the majority of which were wheat (*Triticum* spp). Sample {4} from dump [2] also included two bread/club wheat (*Triticum aestivum* L sl) rachis internodes, and grains of possible rye (cf *Secale cereale*) and possible oat (cf *Avena* spp). The cereal grains represented in these samples are typical of medieval London and indeed of medieval Britain (Greig 1991). Wheat and rye were used to make bread, with wheat the grain of choice for the upper classes (Wilson 1973, 238); it was also used to make pies and cakes. Oats were also used as animal food.

Large quantities of straw were present in samples from both sites, as well as the seeds of a few possible grassland flora, including self-heal (*Prunella vulgaris*), buttercups (*Ranunculus repens/ acris/ bulbosus*), and thistles (*Carduus/ Cirsium* spp). It is possible that these samples may contain the remnants of stable flooring. Similarly sedge (*Carex* spp) and rush (*Juncus* spp) seeds were common in a number of these samples. It is known that rushes and sedges were used as flooring in the medieval period and it is possible that these were disposed of in the same pits, the contents of which were cleaned out and dumped here.

Very occasional hemp (*Cannabis sativa*) seeds were present in the samples from late medieval dump deposits [60] at SDT99 and [18] at SDS99. Hemp was used to make cloth in the medieval period but the very low numbers of seeds may simply have originated as an escaped cultivar from gardens known to be in the vicinity.

## WHOSE RUBBISH?

The finds in general date from the mid-15th century and relate to household or light industrial refuse; the pottery dates would suggest that the various refuse deposits were dumped over a relatively short time-span, perhaps of only a few years. Understanding the processes behind rubbish disposal, its management in the City of London, and what medieval inhabitants considered disposable, is important in understanding excavated material culture from this period. Recent archaeological studies include an article by Jill Hooper (2006), although the subject was considered by historians as far back as the 1930s (Sabine 1937, 19–43).

The mid-15th century saw reclamation of the City waterfront (which entailed the dumping of refuse behind wooden revetments) coming to an end. This, together with the fact that the traditional dumping ground of the 12th and 13th centuries at Moorfields was being encroached upon, meant that the refuse generated by an ever-expanding city had to be disposed of elsewhere. An open area was needed outside the City limits, but not so far away as to prove logistically problematic, and it would appear that one area chosen for the discarding of refuse was Seward Street.

The finds and environmental assemblages from the Seward Street sites contain material from multiple sources, discarded away from the site of its use and no longer *in situ*, which must be classified as what Schiffer considered as 'secondary refuse' (1976). The condition

of the pottery shows that most vessels were already well-fragmented, perhaps after being swept from different yards and floors into external pits after breakage or collected from dust heaps. Despite its fragmented condition, however, the pottery displays little in the way of abrasion, suggesting that it was collected and disposed of quickly. The narrow range of fabrics, combined with a largely comparable sherd and estimated number of vessel count (123 sherds from 79 vessels, with a mean weight per vessel of 25.2g), indicates this material was deposited through discrete, if relatively rapid, episodes of refuse dumping.

Non-botanical matter included domestic waste, metal-working waste and clinker, while organic waste included possible flooring, stabling and cloth-working waste and cess material. Whilst it is possible that all of this could have ended up in the same cesspit and then been exported out of town to the dumps, it is equally possible that these different materials came from different sources. It was likely that much of this material was collected by rakers, individuals who were employed by each City ward and were responsible for gathering rubbish and dung from the streets (Hooper 2006, 97).

The presence of high status food waste, such as deer, crane and sturgeon, may also give an indication as to the origin of some of the rubbish. The presence of crane may signify food waste from falconry, an exclusively upper class pastime (Albarella & Thomas 2002; Prummel 1997, 336). Sturgeon, along with dolphin, porpoise and whale, were known as royal fish and were the property of the monarch, except for any found in the Thames above London Bridge — these belonged to the Lord Mayor (Wilson 1973, 35). Apart from the City of London, the nearest high status consumers were located in the monastic institutions of St Mary's Clerkenwell, 470m to the south-west, St John's Priory, 400m to the south-west, and the Carthusian monastery at Charterhouse which is located 400m to the south. The decorated medieval floor tiles found at SDT99 were of a type sold in London, and all could have come from a floor at one of the nearby monastic sites.

## POST-MEDIEVAL DEVELOPMENT

*Christopher Phillpotts*

### 15th-century and later buildings

The depth of deposits suggests that by the end of the 15th century a mound of refuse of considerable size had accumulated on the north side of Seward Street and it had become a prominent feature within the landscape. Records show that in August 1530 the *Wynde Myll Hyll* beside *No Mannys Land*, where the mill and its dwelling house had stood, was held on lease from the City by John Rawlyns, a mercer. He had a sub-tenant for the windmill who was Walter Mershe. A new lease was agreed in November of this year (CLRO Repertory 8 ff 123b, 138b). It was at this time that Henry VIII's first wife, Catherine of Aragon, built a chapel on the windmill mound. It was dedicated to Christ's Passion and called the Mount of Calvary (Stow 1908, ii 80). It was probably the Queen who applied anonymously as 'a good devout person' to the Court of Aldermen in March 1530 for a licence to erect a religious statue 'with other things' on Windmill Hill beside St John's. There was, however, no archaeological evidence from either SDS99 or SDT99 for the chapel or any activity with which it was associated.

The chapel was referred to as the Mount in the lease negotiations of August 1530 (CLRO Repertory 8 ff 95b, 123b). In July 1535 the chapel was described as le Mount in the parish of St Giles Cripplegate, in a presentation for a heresy offence. A tiler of St Sepulchre's parish called Thomas Muryell had declared openly at the chapel that Christ did not die to save Christians, but only for those that were *in limbo patrum*, the part of the borderland of Hell reserved for the righteous who had died before the time of Christ (*L and P Hen VIII* viii 443 no. 1129).

Before the end of Henry's reign in 1547, the chapel had been demolished, probably as a result of the Reformation, and it is unlikely to have survived the death of its patroness in 1536. Another windmill was built in its place (Stow 1908, ii 80) and it is this second windmill that is illustrated on the Agas map (Fig 7). The detailed depiction of the mound, windmill, and adjacent kiln

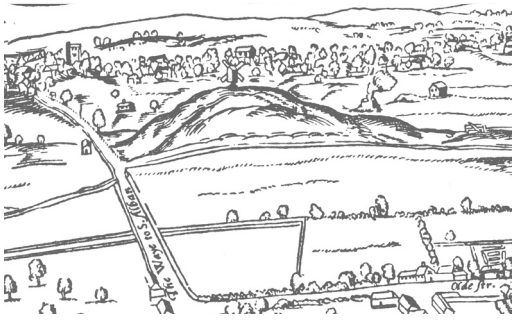

*Fig 7. Extract from Agas map of c.1562*

that appear on the margins of the Agas map suggests other peripheral details may not be purely pictorial. The brick-kiln shown to the north-east of the mound gave its name to Brick Lane, now called Central Street, which bordered the Windmill Hill property to the east. The evaluation of SDS99 and SDT99 found no structural evidence of either the first or second windmill or for the quarrying of brickearth, which probably took place further to the north or east where there was less accumulation of refuse.

The Corporation let out the land by a series of leases in the 16th and 17th centuries at the token annual rent of 6s 8d. Sir George Barne was granted a new lease for 99 years in 1558. He also held leases of the East Mill and West Mill windmills at Finsbury (NA PROB 11/40 quire 13). By the time the lease was approved in March 1559 Sir George had died, and it was delivered to his executors, his widow Dame Alice Barne and Christopher Carlyle. Technically the lease was invalid because it was issued by the Chamberlain of the City and not in the name of the Mayor, Commonalty and Citizens, but this was not noticed until much later (CLRO Repertory 14 f130). Later the ground was held by Christopher Carlyle alone, who was to follow Dame Alice under the terms of Sir George's will. By the 1580s the rent was being paid by the executors of Sir John Ryvers, George Barne's son-in-law (CLRO Chamber Accounts vol 2 f168). By the 1580s No Man's Land was generally called the Mount.

## 17th-century Civil War defences

By 1626 Barne's lease of the windmill ground had been purchased by William Reading, a salter; a new lease was issued to him in this year for the remainder of the 99-year term (CLRO City Land Grant Book 2 f44). The lease later passed to his son John Reading (CLRO City Land Grant Book 3 f26).

In 1642–3 the site of the extensive windmill mound was adapted for one of the forts which formed a defensive ring around London during the Civil War. In the early stages of the conflict Parliament understood the necessity of defending the capital city against the advance of the king's armies. In October 1642 the Committee for Militia ordered trenches and ramparts to be made near the main roads out of London; heavy chains were also strung between posts across the roads. Many of the citizens turned out to assist in the construction, including women and children, digging the ditches and building up the ramparts. In February 1643 the City authorities decided to build a more comprehensive ring of defence around London and its surroundings. The area chosen to be defended was based on strategic considerations rather than administrative boundaries.

The defences consisted of a series of forts, linked by continuous ramparts called the Lines of Communication. The forts were completed by May and the connecting ramparts had been started, and by the end of July had enclosed Southwark and Lambeth. This created an 11-mile ring around London, Westminster and Southwark. Engineers were brought in from Holland to design the works, large numbers of labourers were employed, and again the citizens zealously joined in the work with their servants and children. Sections of the ramparts were built by different Trained Band companies, parishes and livery companies (Brett-James 1928, 2–6, 9–12, 14; Smith & Kelsey 1996, 117, 121–2). Amongst the other forts the Common Council of the City ordered 'At the windmill in Islington way, a battery and brestworke round about'; this was on the Seward Street sites, a strategic position overlooking the route from Islington to the City (Brett-James 1928, 6).

Although the ramparts and forts were not a sophisticated system of defence and were unlikely to have withstood a serious siege, they did create a zone of control. The shape of the forts looked inward as well as outward;

the ramparts were intended to overawe recalcitrant elements amongst the populace of London, as much as to defend them against outside forces. They also governed access to the London area, and prevented the inhabitants from trading with Royalists (Brett-James 1928, 9; Smith & Kelsey 1996, 118–19, 193, 142, 145).

Despite the enormous extent of the fortifications they have proved very elusive in archaeological investigations, of which SDS99 and SDT 99 are no exception, and the historical evidence for their location presents difficulties. However there are some genuine contemporary drawings in a broadside of 18 August 1643 called *Malignant's Treacherous and Bloody Plot Against Parliament and Citty of Lo. wch was by God's Providence happily prevented 31st May 1643*, including the Mount Mill Fort on Seward Street (Fig 8). There is also a written description of the defences published as *The Present Surveigh of London and England's State; containing a Typographical Description of all the Particular Forts, Redoubts, Brestworks and Trenches newly erected round about the Citie, on both sides of the River, with the several Fortifications thereof* by the Scottish traveller William Lithgow in April 1643. It was based on a walking tour of the ramparts under construction, proceeding anti-clockwise from Wapping to Rotherhithe. Lithgow's account may be prone to some exaggeration but he describes the forts as constructed of turf, sand, wattles and earth, with timber-lined port-holes for cannon and palisades of sharp wooden stakes projecting from the bulwarks, and *court du guard* buildings of timber roofed with tile-stones, although brick and stone were also used in some parts of the Lines (Lithgow 1887, 161, 164–6). At the Seward Street sites he reached Mount Mill Fort, which protected the route to London from Islington along Goswell Road, and gave the following description:

> Mount Mil-hil Fort (for all the forts about are … in sight of other), where being arryved, I found it standing on the highway near to the Red Bull. This is a large and singular fortification, having a fort above, and within a fort, the lowest consisting of five angles, two whereof towards the fields are each of them thrice ported, having as many great cannon, with a flanking piece from a hid corner; the upper fort standing circular, is furnished with eleven pieces of cannon reall, which command all the rest; and upon the bosom top of all standeth a windmill; the lower bulwarks are first pallosaded round about and near their tops, and then in the middle flank between the two ditches strongly barrocaded; besides two counterscarps and three reboubts of lesser importance, yet all defensive. This is one of the chief forts about the city and first erected.


*Fig 8. Mount Hill Fort (after Brett-James 1928, facing p 18)*

The Lines of Communication here were 'three yards thick [*c.*2.7m] and on the ditch side twice as high [*c.*5.4m]' (Lithgow 1887, 162). Presumably the rampart's material was derived from the ditch dug in front of it. The illustration in *Malignant's Treacherous and Bloody Plot* shows a two-storey fort with a breastwork surrounding it, with a line of communication to the next fort on the site of the waterworks in Finsbury Avenue. This ditch and rampart ran along the line of Sebastian Street. A post-mill still stands on the crest of the fort, but no longer has its sails (Fig 8). The lessee of the land, John Reading, was obliged to pull down the windmill and his adjoining buildings by an order of the Militia of London (CLRO City Land Grant Book 3 f26). Although no archaeological evidence of the fort was found during the excavations, the irregular western boundary of 1–13

Seward Street adjacent to the roadway of Mount Mills probably represents the south-western bastion and western side of the fort. If the fort was symmetrical in shape, it would have stretched northwards to the north side of Lever Street.

During the tension between Parliament and the army in 1647 the forts on the south side of the Thames were readily surrendered by the inhabitants of Southwark to Lord Fairfax's troops. The Lord Mayor then made terms with Fairfax, surrendering the forts between St Giles in the Fields and the Thames. The army had no wish to leave the forts and the Lines of Communication in place, and so an ordinance was passed in Parliament in September 1647 for their complete demolition (Brett-James 1928, 32–3).

Almost all signs of the Lines of Communication had disappeared by the time of Rocque's map of London of 1746, but some of the line of the ditch is visible along the line of Sebastian Street to the north-west of the Seward Street sites (Fig 9). Some traces of the earthworks of the fort at Black Mary's Hole, between Grays Inn Road and King's Cross Road, 1.1km to the west, seem to have survived into the 18th century, and the mound at the core of Mount Mill fort remained (Brett-James 1928, 33–4). In 1652 a new 61-year lease of the ground was issued to John Reading at the old rent of 6s 8d per annum and an entry fine of £100; however there is no evidence that the windmill was rebuilt (CLRO City Land Grant Book 3 f26).

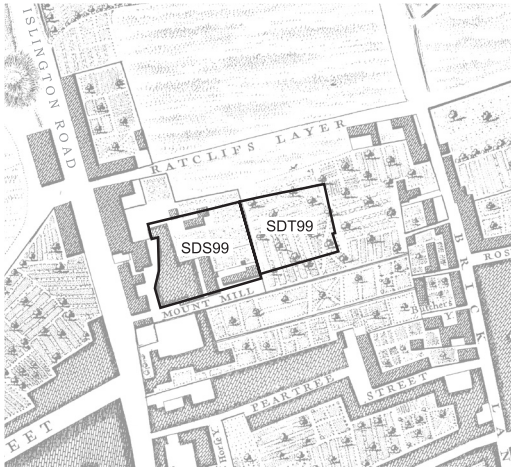


*Fig 9. Extract from John Rocque's map of 1746*

**18th-century development**

By 1706 John Reading's lease was in the hands of John Radcliffe, a grazier, who petitioned the City Lands Committee that there were several old and ruinous buildings on the ground, but he had no incentive to rebuild them without a lease for a longer term. A sub-committee examined the premises and it was agreed to grant Radcliffe a new lease for a further 61 years from the expiry of the old lease, for an annual rent of £10 and an entry fine of £100 (CLRO City Lands Committee Journal 11 ff 139, 146v–147v). The new lease was issued accordingly in April 1709. A marginal plan in the lease shows the Goswell Street frontage of the ground as built up with small dwelling houses and Radcliffe's own house, and some other small houses on the Brick Lane frontage, with a large house set back from the road in the centre. Radcliffe was also the tenant of the St Bartholomew's Hospital ground to the north (CLRO Comptroller's City Land Deeds Box 88 no. 11).

In 1720 the name Mount Mill was applied to the adjacent section of Goswell Street. There were buildings here and on the Brick Lane frontage of the leased ground. The line of the later Lever Street had been established, but the ground to the south on the excavated sites had not been built up. In 1729 an inventory of the goods of the recently deceased John Joliffe of Mount Mill shows that he had a two-storey house with garrets and a cellar, and stables to the rear, which he probably ran as an inn.

In 1747 there was a 'Turpentine House' at Mount Mill (Pinks 1880, 283). This was probably the L-shaped group of buildings on the site of 113 Seward Street which appear on a faded and damaged plan of No Man's Land in 1758, although by that time they were listed as 'Storehouses for beer by Jabbs'. An 18th-century cobbled surface recorded at SDS99 probably relates to the yard to their west. To the east of them the ground was still open as far as the houses and backyards on the Brick Lane frontage. On the Goswell Street frontage there was a public house and some small dwelling houses, with other small houses and sheds to their rear (CLRO Comptroller's City Land Plan 111).

From the late 17th to the mid-18th century

the Seward Street sites were once again used as a rubbish heap or laystall, one of a number of mounds of material dumped to the north of the City. The former fort of Black Mary's Hole, *c.*1.1km to the west, was also used as a laystall (Brett-James 1928, 25, 33), as was Mount Pleasant, an ironically named piece of land *c.*800m to the west (Knight & Vuolteenaho 2005, 15). At this period the City was using laystalls in a number of other places to deposit rubbish and dung, including Mile End Green, Dowgate Dock, Puddle Dock, Brownes Wharf, and Dung Wharf at Whitefriars Dock (CLRO Misc MSS 11.50, 85.14, 108.3). The material was transported away from the waterside sites by barges.

In 1729 John Joliffe, the probable innkeeper at Mount Mill, deposited night soil on the nearby laystall by an agreement with a Mr Harrod (NA PROB 3/28/113). To the north of the Seward Street sites the road later named Lever Street was called Ratclif's Layer in 1746, but was still not built up (Fig 9). This name implies that it had been a route used by the Radcliffs for the tipping of rubbish. In 1761 two men were undermining one of the heaps near Goswell Street to obtain material to raise the level of the road, when most of it collapsed. The mounds were levelled off at some point in the mid-18th century, or as late as about 1780 according to Pinks (1880, 283). This corresponds to the archaeological evidence which shows the sites were subject to levelling with earlier deposits being truncated at around this time.

The ground between Goswell Street and Brick Lane was leased out for 61 years by the City Lands Committee of the Corporation of London by public auction in October 1774. A projected building plan was drawn up showing a central street running through the ground, the street frontages being divided into a series of lots (Comptroller's City Land Plans 600, not illustrated). The successful bidder for the lease of the whole ground was James Halliday, butcher, who went into partnership with Edward Seward, saddler. The terms of their lease required them to make a street 25 feet (7.62m) wide from Goswell Street to Brick Lane, and to pull down the old buildings on the two main street frontages and rebuild them as brick dwelling houses within the following three years. By 1779 Halliday and Seward had rebuilt the two street frontages, except for part of the Brick Lane frontage and the Windmill Alehouse on the corner of Goswell Street and the new street, which they had extensively repaired; they had also put up some new warehouses, sheds and buildings in the interior of the plot, all at an estimated cost of £5,000. The L-shaped group of buildings had been rebuilt as a starch factory. They had agreed to partition the premises, and surrendered their lease so that new leases might be made (CLRO City Lands Committee Journal 71 ff 93–4, 150–1, 185–7; Comptroller's City Land Deeds box 59 nos 24b and 24c). A plan had been drawn up for a complicated division of the leases in 1777, although finally the plot was simply divided into west and east portions. Haliday's part (which included the site of 1–13 Seward Street) was leased to him in February 1781 for 55 years (CLRO Comptroller's City Land Deeds box 25 no 18). Seward had a lease of his part (which included the site of 15–29 Seward Street) in the same month, which was renewed by Willoughby Brewer of Islington for 61 years in December 1794 (CLRO Comptroller's City Land Deeds box 16 no. 33).

By the time of the 1794 lease a new street had been laid out east–west across the plot, and was called Seward Street. 40 new houses and a factory had been built on Seward's part of the ground. To their north lay a ropewalk and garden, stretching westwards from Brick Lane, and by 1774 there was a burial ground on the south side of Seward Street, belonging to St Bartholomew's Hospital (CLRO Comptroller's City Land Deeds box 59 no. 24a).

### 19th-century industrial expansion

In the 19th century a short street running north from Seward Street to the west of the excavated sites retained the name of Mountmills, and a rise in the ground here indicated the position of the former rubbish heaps (Pinks 1880, 283). In 1848–9 there were factories and warehouses in Seward Street, including ancillary coal sheds, stables, cowhouses and sheds. The 19th-century brick and granite set yard surface found at SDT99 was part of the factory established by Edward Seward. Later in the 19th century the street

included drug mills, chemical works, and millwright's premises (Pinks 1880, 283).

## CONCLUSIONS

Disposal of waste is still and has always been a major issue faced by urban authorities and it appears that one solution in medieval London was to remove it the outskirts of the City and pile it high. This not only removed refuse from populous areas but also changed the topography of the surrounding areas. As a result, from the late 15th to the mid-17th century the site on the north side of Seward Street had gone from being an open dumping ground on the margins of habitation to a place of religious worship and then to a fortification.

The sites had for several centuries been part of No Mans Land, land outside of any manorial structure but next to the early medieval route from Aldersgate to Islington, now known as Goswell Road. It is probable that it was the position of this low grade land in the possession of the City of London close to a main thoroughfare that made this site a suitable location for a rubbish dump.

It is not absolutely certain, from either documentary or archaeological evidence, whether the mound was deliberately constructed in order to form the base for a windmill or if the windmill was built on a convenient readymade mound. However the size of the mound would appear to have been excessive if its primary function was to provide a base for a windmill. It seems that the enormous mound was constructed from the simple need to dispose of waste from an ever-expanding city, and the construction of the first windmill on the site in the late 15th century took advantage of the artificial hill, as did the subsequent 16th-century chapel and mill and 17th-century fort.

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