Fig. 1: site location showing extent of development, location of excavation areas, selected sections and major features mentioned in the text, including the city wall, possible gate and bastion, defensive ditches and hurdle fence

Roman and medieval defences north of Ludgate: excavations at 42–6 Ludgate Hill and 1–6 Old Bailey, London EC4

Peter Rowsome, with contributions from Lyn Blackmore (pottery) and Chiz Harward (graphics)

Introduction

The excavations at 42–6 Ludgate Hill and 1–6 Old Bailey, London EC4, were carried out by the Department of Urban Archaeology (DUA) between April and December 1982 under the site code LUD82. The site lies at National Grid Reference 531770 181200 (Fig. 1).

Redevelopment involved demolition of several Victorian buildings east of Old Bailey and north of Ludgate Hill. Antiquarian work and excavations in 1974 (site code LH74) had shown that the City's defensive ditch survived beneath Victorian basements.[1] The 1982 archaeological investigations included three east-west aligned trenches (areas A1, B and C1/C2) across the projected line of the defensive ditch, as well as smaller trenches, test-pits and underpinning holes (areas C3/C4, D, E and F). Excavation in the eastern and south-eastern parts of 6 Old Bailey (areas A2 and A3) sought

evidence of the Roman city wall and medieval Bastion 21,[2] but both structures had been truncated by Victorian basements. Areas C3 and C4 overlay the butt end of the defensive ditch. Underpinning holes in the basement of 42 Ludgate Hill (areas E and F) were monitored in an effort to locate Ludgate itself. Watching brief work recorded the Roman and medieval city wall along the eastern side of the site in area C2 and to the south along the side of St Martin-within-Ludgate (Fig. 2).

The archive report includes analysis of the sequence, which was grouped into Text Sections assigned to seven periods (periods I–VII), as well as specialist reports.[3] A recent review of the archive has included reorganisation and updating of the chronological sequence, with each context now assigned to a unique group (1–39), groups to land-uses (Open Areas 1–8, Structures 1–4 and Buildings 1–6) and land-uses to seven revised periods of activity (periods 1–7). The finds, reports and other records are archived under the site code LUD82 and available for study by arrangement with the London Archaeological Archive and Research Centre (LAARC). In the text below, selected context numbers are given in square brackets [X], while illustrated pottery and accessioned finds numbers are shown in angled brackets <X>.

Fig. 2: view of the north side of Ludgate Hill showing, from left to right: the 1980s offices built on the redevelopment site at the south end of Old Bailey, the refurbished Ye Olde London pub at 42 Ludgate Hill and the church of St Martin-within-Ludgate

Archaeological and historical background

The site is located *c.* 120m east of the Fleet River, on the western flank of Ludgate Hill. The natural geology at Ludgate consists of quaternary river terrace sands and gravels forming a ground surface at *c.* 11.5m OD and sloping down to the Fleet.[4]

The construction and maintenance of the western side of the City's defences dominated the development of the Ludgate area in the Roman and medieval periods. Parts of the Roman city wall, thought to have been built in *c.* AD 200, were recorded between Ludgate and Newgate during work at the Central Criminal Court in 1903, Warwick Square in 1880 and 1922, and 7–10 Old Bailey in 1900 and 1907–8.[5] Further excavation at 7–10 Old Bailey in 2007 (site code ODY03) found more evidence of the Roman city wall, also published in this issue of *London Archaeologist*.[6] The north–south alignment of the city wall at these sites indicated that it forms the eastern boundary of 1–6 Old Bailey and 42–6 Ludgate Hill. Antiquarian work found no direct evidence for a Roman gate at Ludgate, though Roman tombstones and statues were found at the nearby London Coffee House[7] and it has been suggested that another tombstone, recovered during the 1669 rebuilding of St Martin-within-Ludgate, had been re-used in the gate.[8] Although it is conceivable that the Romans did not build a gateway south of Newgate this seems unlikely. A gate at Ludgate would have provided access between the south-western part of the settlement and the industrial and waterfront development of the lower Fleet valley as well as nearby burial grounds.[9]

The abandoned Roman settlement's defensive circuit was repaired in the Late Saxon period. Documentary evidence for the medieval and later City defences at Ludgate and extramural development along Old Bailey is supported by archaeological findings. Hollow, semi-circular bastions were added to the landward wall in the medieval period; this work included two new bastions between Newgate and Ludgate. The southernmost bastion (B21) is first mentioned in a document of 1235 and Leybourn's 1676 survey shows that it remained largely intact.[10]

Alterations to the back of the London Coffee House at 42 Ludgate Hill in 1792 revealed a 'barbican tower' and in 1806 John Carter noted a circular tower with a staircase at the same location.[11]

The earliest documentary reference to Ludgate itself dates from 1116–39.[12] John Stow, writing in the 16th century, refers to major repairs of the gate in 1216, 1260 and 1586, as well as construction of a prison block against the southern gate tower in 1463.[13] Maps by Leake (1667) and Ogilby and Morgan (1676) show the position of the gate and depict a smaller northern gatehouse with its longer side aligned east-west. A detailed summary of the evidence for a gate at Ludgate is published as a separate paper.[14]

Stow says that the City ditch was redug in 1211–13 and required regular cleaning and maintenance, but eventually became clogged with rubbish and fell out of use.[15] The 1974 excavations at Ludgate, which took place within basements at 1–5 Old Bailey, found evidence of a flat-bottomed medieval defensive ditch with a butt end on the southern part of the site, indicating that the ditch did not extend beneath the road at Ludgate.[16] The 2007 excavation at 7–10 Old Bailey recorded more evidence of the medieval ditch sequence to the north.[17]

The earliest documented medieval properties along Old Bailey were situated to its west. The land to the east of the road, described as being on the City ditch or 'Houndsditch', was developed more slowly, with the first documented property dating from 1251–2.[18] Houses are mentioned as lying outside and immediately to the north of Ludgate by the early 14th century. A City survey of 1352 indicates that a vintner had encroached the ditch at Ludgate by establishing a building and gardens extending *c.* 111 feet north from Ludgate Hill, though the ditch remained open further north. The vintner's 'improvements' were not removed by the authorities but he was charged additional rent.[19] By the end of the 16th century the City was considering filling in the entire ditch to improve hygiene and provide gardens. Post-Great Fire rebuilding at Ludgate included narrow properties along the east side of Old Bailey, with the roadside buildings having rear gardens

St Martin-within-Ludgate

ragstone facing

tile string course

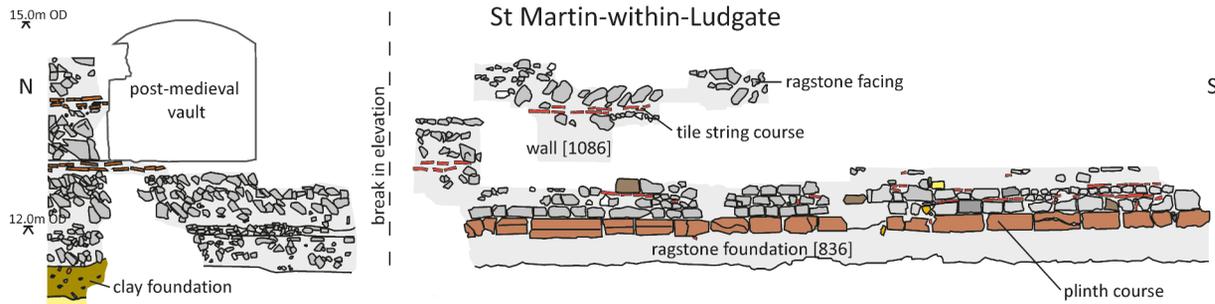wall [1086]

ragstone foundation [836]

plinth course

Fig. 3: north-south aligned, west-facing elevation (Section 15) showing the foundation and surviving superstructure of the Roman city wall at Ludgate, where parts of the Roman wall were incorporated into the west wall of St Martin-within-Ludgate; areas of damaged or obscured city wall facing are shown as blank

that extended across the former ditch to the line of the City wall.

The excavated sequence
Natural deposits of sand and gravel were truncated by Victorian basements at *c.* 11.0m OD (period 1; Open Area 1) but probably formed a pre-Roman ground surface between 11.5m and 12.0m OD. The earliest evidence of human activity at Ludgate was associated with the construction of the Roman defences (period 2). An 18m-length of the Roman city wall (Structure 1) was recorded along the eastern boundary of the site (Fig. 3), where part of the wall was incorporated into the west side of the church of St Martin-within-Ludgate.

The city wall was set on a trench-built foundation [836] in a construction cut *c.* 1.0m deep and 2.45m wide. The base of the foundation lay at 10.95m OD and was composed of silt mixed with tile, chalk, ragstone, plaster, mortar and *opus signinum*, possibly demolition debris from an earlier Roman structure, overlain by courses of ragstone. The wall's superstructure [1086] began at 11.96m OD and had a red sandstone plinth on its western (external) side and a triple tile course on its eastern side (Fig. 4). The superstructure of the wall survived to a maximum truncated height of 2.6m, with courses of ragstone interrupted by double tile courses 0.7m and 1.4m above the plinth level. A Samian bowl from the wall's foundation rubble was dated to the mid- to late-2nd century, consistent with a construction date of *c.* AD 200.

Ragstone foundation [844] (Structure 2) was recorded at the southern end of the site *c.* 8m west of the line of the city wall in underpinning

hole E (see Fig. 1). The foundation extended south beyond the limit of excavation but was at least 2.7m wide and 1.1m deep, with a base at 8.75m OD. It was constructed of courses of roughly-squared ragstone in a compact mortar. The overlying brick basement wall included blocks of masonry, possibly from a demolished Roman or medieval structure. No dating evidence was recovered from Structure 2 and its purpose remains a mystery, though it is tempting to speculate that it is the foundation of Roman or medieval Ludgate itself.[20]

Truncated, inter-cutting pits in areas A and B on the northern part of the site may have been gravel quarries (Open Area 2). Cut [1174] had a base at 8.5m OD and its fills contained a small amount of 3rd- and 4th-century pottery (Fig. 5; area B Section 14). There was no evidence of the expected V-shaped defensive ditch contemporary with the city wall's construction, perhaps due to truncation. The western side of a north-south aligned, wide, flat-bottomed late Roman defensive ditch (period 3; Open Area 3, Ditch 1) post-dated the quarrying. Ditch cut [1115] had a base at *c.* 8.2m OD and a maximum truncated depth of 0.8m (Fig. 5; area C, Section 13) but would have been over 3m deep and 10m wide in its original form. Ditch 1 fills contained a few sherds of 3rd- and 4th-century pottery.

An early medieval flat-bottomed ditch (period 4 phase 1; Open Area 4, Ditch 2) was recorded in areas A–C and lay slightly closer to the city wall than Ditch 1, which it truncated (see Fig. 5; Sections 13 and 14). The base of Ditch 2, represented by cuts [1182] and [1155], lay at *c.* 8.5m OD. Ditch 2 fills contained a few sherds of Late Saxon and early medieval pottery dated to

c. 1000–1150. An equivalent section of Saxo-Norman ditch [132] was recorded on the southern part of 7–10 Old Bailey.[21] The eastern side of Ditch 2 was cut by a deeper, narrower ditch recorded in areas A and B (period 4 phase 2; Open Area 5, Ditch 3). Ditch 3 cut [1151] had a more pronounced V-shaped profile with a base at 8.3m OD (see Fig. 5; Section 14) and may have been *c.* 3m deep and 5m wide in its untruncated form. Its fills contained pottery dating to *c.* 1170–1270.

The latest phase of the medieval ditch at Ludgate (period 4 phase 3; Open Area 6, Ditch 4) survived as a large, flat-bottomed cut in areas A–C (see Fig. 5; Sections 13 and 14). The bottom of the Ditch 4 cut [1096]/[1069] and [1152] lay at *c.* 7.5m OD, a truncated depth of 1.3m, but it may have been 4m deep and 17m wide before truncation, with a 5m wide berm between the eastern edge of the ditch and the city wall. An equivalent medieval ditch [123] was recorded at 7–10 Old Bailey.[22]

An east-west aligned, well-preserved wattle fence (Structure 3) lay across Ditch 4 in excavation area A (Fig. 6). The fence survived over a 7m length and was constructed from coppiced wood, including at least four

Figure 4: part of the east face of the Roman city wall revealed in a post-medieval vault just to the north of St Martin-within-Ludgate; view looking west
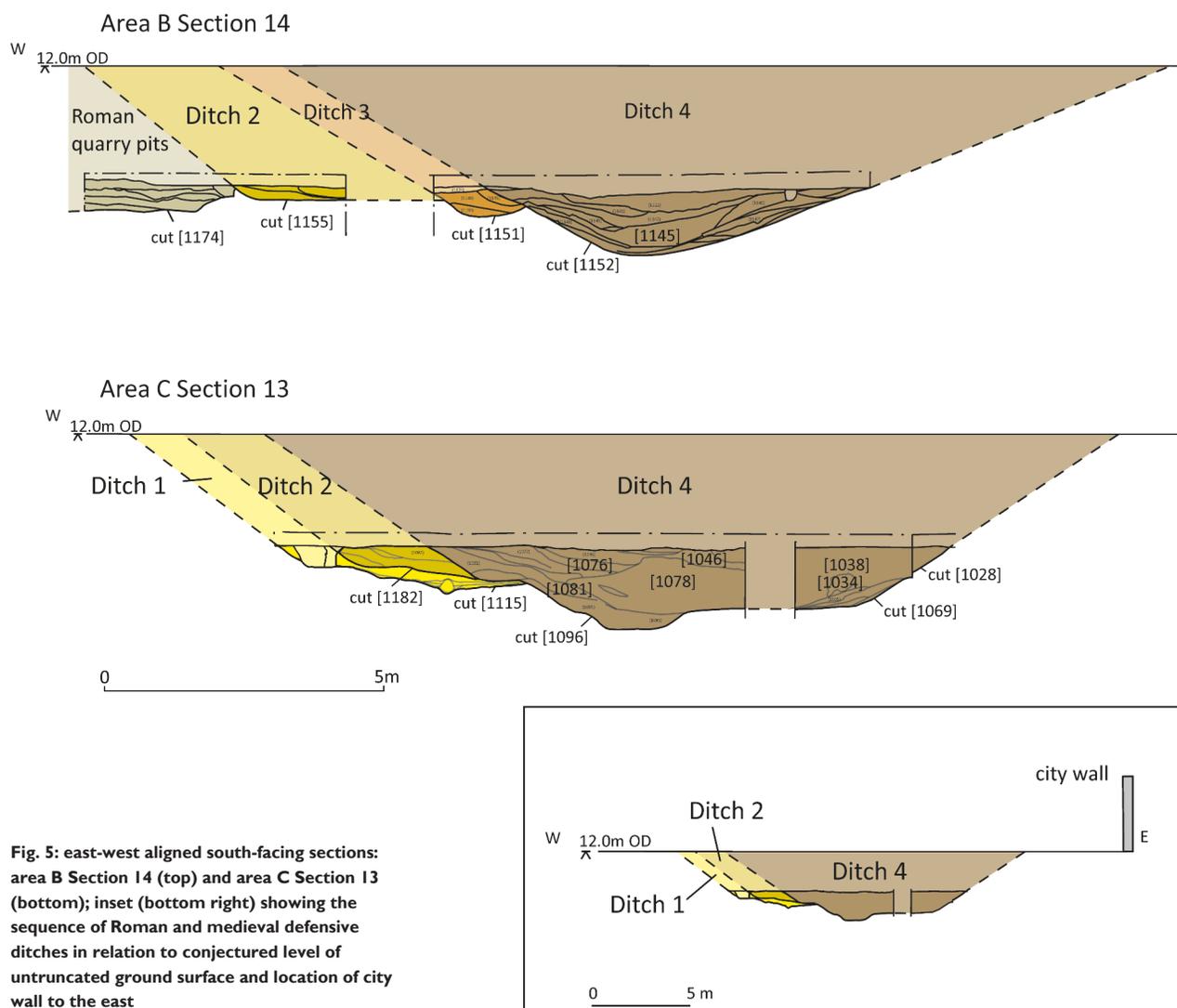
Area B Section 14

W 12.0m OD   E

Roman quarry pits   Ditch 2   Ditch 3   Ditch 4

cut [1174]   cut [1155]   cut [1151]   cut [1152]   [1145]

Area C Section 13

W 12.0m OD   E

Ditch 1   Ditch 2   Ditch 4

cut [1182]   cut [1115]   cut [1096]   [1076]   [1081]   [1078]   [1046]   [1038] [1034]   cut [1028]   cut [1069]

0   5m

Fig. 5: east-west aligned south-facing sections: area B Section 14 (top) and area C Section 13 (bottom); inset (bottom right) showing the sequence of Roman and medieval defensive ditches in relation to conjectured level of untruncated ground surface and location of city wall to the east

city wall

W 12.0m OD   E

Ditch 2

Ditch 1   Ditch 4

0   5 m

pre-fabricated hurdles attached to the north sides of alder posts driven into the sides and base of the ditch. Hurdles [599] and [640] were complete and measured *c.* 2.3m long and 1.7m tall. Each hurdle was formed by weaving together *c.* 100 horizontal rods and a smaller number of vertical sails. The rods included hazel, oak and birch while the sails were made of oak poles cut at 6 to 12 years of age.[23] At least one leather thong had been used to attach a hurdle to a post, though twine bindings may not have survived. The fence supports documentary evidence of property encroachment on to the area of the ditch. A trampled surface [674] and traces of possible hoof-prints in the base of Ditch 4 immediately to the south of the fence may indicate animal penning.

The Ditch 4 fill sequence included gravels eroded from the ditch sides, rubbish dumping and accumulated organic matter. Domestic and industrial

refuse had been thrown into the ditch, particularly at the butt end of the ditch next to the roadway at Ludgate. Notable amongst the ditch fills was an extensive organic dump [1078] forming a deposit over a metre thick (see Fig. 5; Section 13). A large roll of grass or other vegetation [1034] was sealed by organic dump [1033]. Finds included a very large assemblage of pottery, mostly jugs and other vessels used for storing and serving drink, followed by those used in cooking. Most of the pottery can be dated to *c.* 1200–1300 but study of ware types suggests a deposition date between 1270 and 1340. Interesting individual pots include a complete biconical bottle (Fig. 7).

Seven leather scabbards, shoes, straps and other leather waste came from ditch fills [1047], [1060] and [1078]. Five of the scabbards carry heraldic devices, one is decorated with interlace and dot, and one with an interlocking geometric design.[24] A total

of nine turned wooden bowls and one turned wooden lid were recovered from organic fills [1060] and [1078].[25] Five were made of alder, two of field maple, one of ash and one of beech. The maple bowls were decorated with concentric rings on their outer sides, suggesting that they were of greater value than the plainly-made bowls.

Waste material recovered from Ditch 4 fills may have come from nearby industries. Large amounts of animal bone included horse skulls and an articulated horse skeleton from fill [1079]. Cuts above the hoof on leg bones may indicate that the skeletons were waste from a knacker's yard, with hooves sent for glue manufacture and the hides for tanning.[26] Small bone offcuts were identified as unfinished buttons and beads. Hearth-lining fragments and smithing slag were interpreted as debris from a site where iron-working and the melting of copper or copper alloys took place.[27] Other

Fig. 6: the beautifully-preserved hurdles of a partially collapsed 13th-century wattle fence (Structure 3) aligned east-west across the base of the medieval ditch (period 4 phase 3; Ditch 4)

industrial evidence included a large assemblage of unused Norwegian ragstone hones, waste chippings and offcuts, suggesting that Ludgate may have been a centre for hone stone manufacture and distribution.[28] Hones were also recovered from the medieval ditch at 7–10 Old Bailey.[29]

The dating evidence suggests that Ditch 4 was cleaned out regularly for most of its life but suffered a decline in maintenance in the early 14th century and fell out of use. A silver farthing of Edward I or II from fill [1047], dated to 1302–18, supports this chronology. Rubbish pits cut into the southern end of the backfilled medieval ditch also contained sherds of early 14th-century pottery (period 4 phase 4; Open Area 7).

The pitting was sealed by a chalk foundation (period 5; Structure 4) which was probably part of a 14th- or 15th-century building that fronted on to Ludgate Hill or Old Bailey. Broadly contemporary activity included repairs to the west face of the City wall. A stone footing cut into the wall at the south-western corner of St Martin-within-Ludgate may have been associated with a rebuild of the church (Building 1). Post-medieval activity (period 6) was heavily truncated, surviving only as a few brick-lined refuse pits (Open Area 8) and brickwork associated with Wren's post-Great Fire rebuilding of St Martin's (Building 2). Later foundations and cut features (period 7) were associated with 19th-century basements (Buildings 3–5) and the cellar of 42 Ludgate Hill (Building 6).

The medieval pottery from the City ditch

A large amount of medieval pottery was recovered from the Ludgate site, filling 62 boxes, most of it from the butt end of the ditch in area C.[30] Most of the assemblage was quantified by fabric and form type, weight and estimated vessel equivalent.[31] Due to its size and close dating, the finds assemblage has been used in studies of individual ware types[32] but has never been published as a single group. The pottery from the medieval ditch sequence (period 4 phases 1–3; Ditch 2–4) amounts to c. 118 kg, although its distribution varies, with the vast majority coming from phase 3 Ditch 4. The finds from Ditches 2 and 3 mainly comprise small groups of 11th- and 12th-century material, whereas those from phase 3 Ditch 4 are generally much larger groups with larger, mostly 13th-century sherds, the major concentrations coming from fills [1078] (18.7kg), [1073] (17.1kg), [1060] (16.6kg) and [1046] (15.6kg); fills [1048], [1076] and [1077] contained c. 5kg or more, the others less, with only 17g from [1081], but the presence of sherds from the same vessels in different fills suggest that most of the ditch was filled as one operation.

London-type wares are the most common, with over 46.1kg present.[33] Kingston-type ware is in second place (c. 27.8kg),[34] followed by South Herts-type greyware (c. 21.8kg),[35] Mill Green ware (c. 10.1kg)[36] and coarse Surrey-Hampshire border ware (c. 6.2kg). Minor categories comprise residual

early medieval wares (1.6kg), shelly-sandy ware (335g), Scarborough ware (844g) and a few imports (616g), including North French monochrome ware. Based on documentary evidence, the Edward I/II coin date, types of shoe and knives,[37] the presence of ware types datable to after c. 1270 (Mill Green ware, Andalusian lustreware, archaic maiolica, Saintonge polychrome ware and Siegburg stoneware), and the absence of certain styles of coarse Surrey-Hampshire border ware and late medieval Hertfordshire glazed ware which date to after c. 1340, the Ditch 4 assemblage can be dated to c. 1320–40. While most of the pottery probably dates to before 1300, the small rounded jug <P8> (see below) and one sherd of Siegburg stoneware are later[38] and suggest a date of c. 1310–20 for the final filling of the ditch, lying between Trig Lane groups G3 (c. 1290) and G7 (c. 1340).[39]

The Ludgate assemblage is dominated by jugs (c. 68.1kg), mainly of 12th- to early 14th-century date and in the Rouen, north French and typical 13th-century styles. In addition to pots <P3>–<P10> (Fig. 8), finds of note include a pear-shaped jug apparently reused as a lantern,[40] a large Kingston-type ware baluster jug in the north French style[41] and a large Mill Green ware squat jug.[42] A relatively high number of drinking jugs and bottles are present. Biconical bottle <P16> is an unparalleled example and until now unpublished; being complete, the fabric is difficult to determine, but as rouletting is rare on South Herts greyware,[43] it could be from another source. Cooking vessels amount to
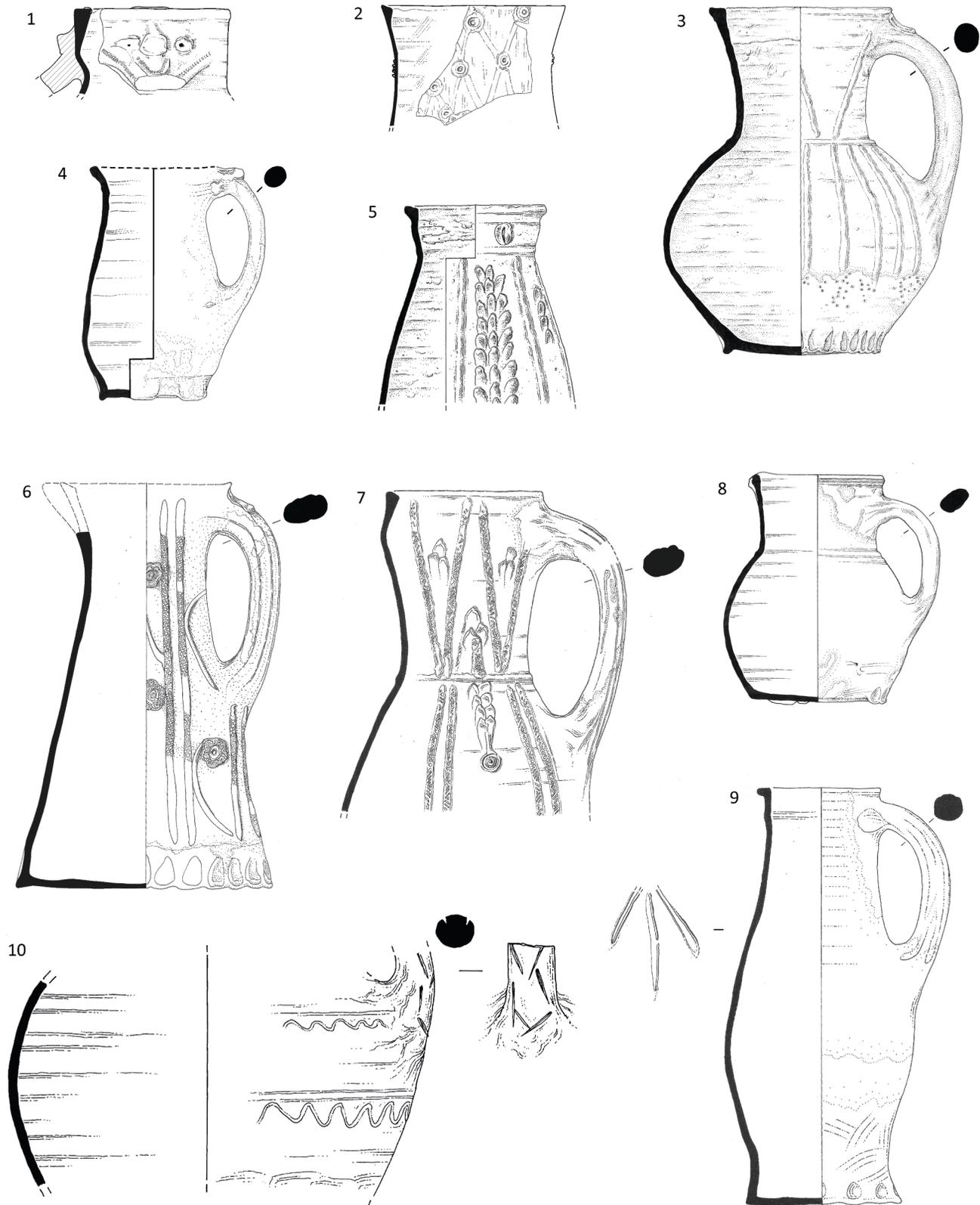

Fig. 7: a complete South Herts-type greyware biconical bottle with rouletted decoration <P16> from Ditch 4 fill [1078]

c. 27.5kg, and include cauldron <P12>, pipkin <P13>, frying pans and dripping dishes. Also present are a very large Kingston-type ware two-handled storage vessel,[44] a few other storage jars (see <P14>) and bowls (see <P17>). Other forms include a curfew, a finial and two near-complete, unused crucibles.

The overall composition of the assemblage from Ditch 4 (period 4 phase 3)[45] is consistent with that from early fill [112] of ditch [123] at 7–10 Old Bailey, dated to *c.* 1270–1300,[46] and similar to the early finds from a later fill [102] in the same ditch, which are dated mainly to *c.* 1270–1350.[47] The Ditch 4 group is, however, slightly

earlier in date than the finds from King Edward Buildings, Newgate,[48] which contained a higher proportion of coarse Surrey-Hampshire border ware and other later ware types dated to 1340–1400, closer in character to Trig Lane groups G7 (*c.* 1330–40), G10 (*c.* 1360–70) and G11 (*c.* 1370–80).[49] Given the emphasis on vessels used for serving
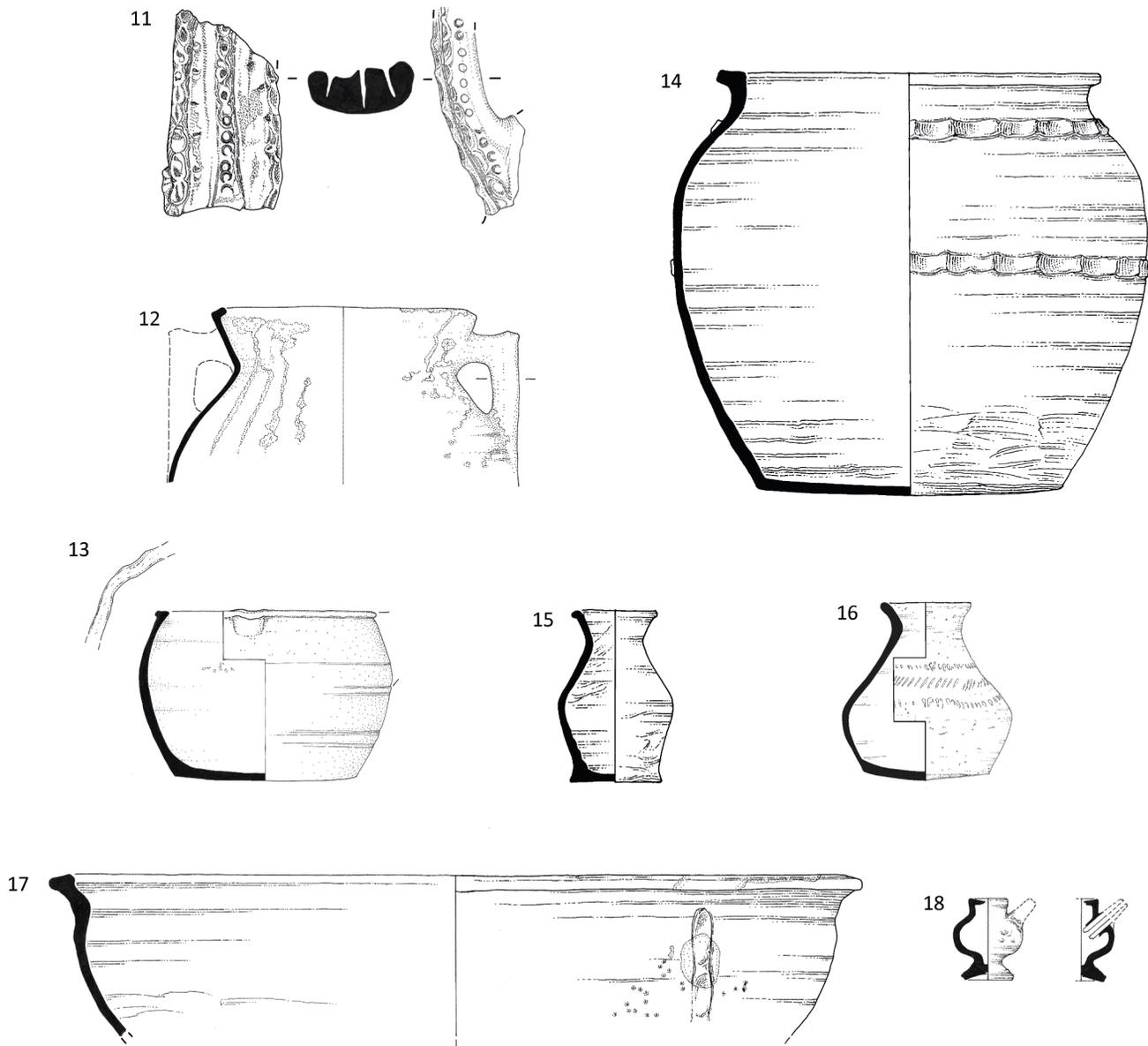
Fig. 8: medieval pottery from Ditch 4 fills (period 4 phase 3): Scarborough ware anthropomorphic jug <P1> [549]; North French monochrome ware highly decorated jug <P2> [1145]; London-type ware rounded jug in the north French style <P3> [1145], small pear-shaped jug <P4> [1060], barrel-shaped jug in the North French style <P5> [1075], highly decorated conical jug <P6> [1060], cauldron <P12> [1046] and pipkin <P13> [1078]; Kingston-type ware highly decorated jug in the north French style <P7> [1041], small rounded jug <P8> [1041], plain pear-shaped jug with incised maker's or merchant's mark <P9> [1078] and large bowl <P17> [1041]; South Herts-type greyware rounded jug with incised decoration <P10> [1076], storage jar <P14> [1046], baluster-shaped bottle <P15> [1078] and biconical bottle with rouletted decoration <P16> [1078]; Mill Green ware massive handle with thumbed and stabbed decoration from a large jug or jar <P11> [1060]. Post-medieval pottery from a brick-lined pit in Open Area 8 (period 6): 16th-/17th-century Surrey-Hampshire border whiteware yellow-glazed whistle <P18> [1017] (all shown at scale 1:4)

drink in these and other City ditch assemblages, the rarity of non-local and imported wares is of interest, as such wares are not uncommon along the waterfront.[50] This difference may reflect the peripheral location of the defensive ditch sites, or, as suggested for the Newgate pottery, indicate a single source (in that case the nearby Greyfriars); the Old Bailey and Ludgate finds could conceivably come from comparable institutions or properties.[51]

Of particular note among the small assemblage of later pottery is a small 16th-/17th-century whistle <P18> made in yellow-glazed Surrey-Hampshire border ware[52] (see Fig. 8), found in a brick-lined pit assigned to period 6.

Conclusion
The 1982 excavations revealed a well-preserved section of the Roman and medieval City wall, tentative evidence for a gateway at Ludgate and a sequence of defensive ditches. The research value of the evidence is significant, providing new information on the archaeology and history of the City's defences. The defensive ditch sequence included evidence for a late Roman ditch as well as three phases of medieval ditch. The latest of the medieval ditches contained a large assemblage of pottery as well as other important groups of finds, some of which may relate to local industries.

Documentary evidence can be related to the archaeological findings to identify incremental encroachment on to the line of the defensive ditch in the 13th and 14th centuries. This included a well-preserved hurdle fence which crossed the latest of the ditches and may have defined a property boundary or cattle pen. Rubbish dumping at the

butt end of the ditch on the southern part of the site produced dating evidence that indicated the early 14th-century disuse of the ditch just north of Ludgate, which is also described in documents. Later, post-medieval evidence was heavily truncated.

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16. *Op cit* fn 1.

17. *Op cit* fn 6.

18. *Op cit* fn 10.

19. *Op cit* fn 10.

20. *Op cit* fn 14.

21. *Op cit* fn 6, fig 5.

22. *Op cit* fn 6, fig 5.

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26. P. Armitage 'The ditch: (a) industrial evidence at Ludgate' in Ford *op cit fn* 24.

27. P. Wilthew *Examination of technological finds from Ludgate Hill, London* unpub rep, nd.

28. Ford *op cit* fn 24.

29. *Op cit* fn 6, fig 5.

30. There is no quantified data for Area D.

31. A. Vince and B. Ford *LUD82 Level III pottery report* unpub rep, nd. Sherd count, estimated number of vessels and weight are now routinely recorded. Gaps in the LUD82 quantified data, missing vessels and bulk bagging of sherds make it difficult to isolate different vessels. For this project all the pottery was scanned and repacked where possible to aid future access, but there was not time to fully check and update the digital records.

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33. For illustrated ditch finds see Pearce et al 1985 *op cit* fn 32, figs 32.99, 36.120, 36.121, 36.123, 47.160*, 49.167, 53.195, 53.196*, 54.202, 54.204, 55.209*, 57.223, 60.246, 60.247, 60.250*, 61.276, 62.280, 62.285, 62.286, 62.287, 63.291, 63.292, 68.352*, 68.359, 68.362, 69.365, 69.368, 69.369, 70.372; see also fig 32.90. Asterisked finds shown in Fig. 8 of this paper.

34. For illustrated finds see Pearce and Vince 1988 *op cit* fn 32, figs 40, 49.3, 50.7*, 68.93*, 81.175*, 92.277, 94.299, 94.300, 94.301, 94.304, 96.321*, 96.330, 97.336, 101.395, 102.401. Asterisked finds shown in Fig. 8 of this paper.

35. For illustrated finds see Blackmore and Pearce 2010 *op cit* fn 32, figs 69.852, 69.856, 69.865, 69.884, 69.897, 69.898, 70.910, 70.911, 70.925, 70.934, 70.935, 70.953, 70.969, 70.970, 71.990, 71.992, 74.999, 76.1026, 77.1034*, 83.1052, 87.1067, 87.1069, 89.1074, 90.1090, 92.1113, 96.1131, 96.1135, 96.1141, 97.1155, 97.1157*, 100.1169, 100.1171, 100.1175, 100.1185, 100.1203, 104.1208, 104.1218, 106.1225, 114.1279, 121.1225, 127.1297. Asterisked finds shown in Fig. 8 of this paper.

36. For illustrated finds see Pearce *et al* 1982 *op cit* fn 32, figs 13.33, 15.43.

37. Cowgill *et al* 1986 *op cit* fn 24, 4; F. Grew and M. de Neergaard *Medieval Finds from excavations in London: 2 Shoes and pattens* (1988) 133.

38. Pearce and Vince 1988 *op cit* fn 32, 28.

39. Vince and Ford *op cit* fn 31; C. Orton 'Pottery evidence for the dating of the revetments' in G. Milne *Medieval waterfront development at Trig Lane, London* London Middlesex Archaeol Soc Spec Pap 5 (1982) 92–9, fig 60.

40. Pearce *et al* 1985 *op cit* fn 32, fig 53.195.

41. Pearce and Vince 1988 *op cit* fn 32, fig 49.3.

42. Pearce *et al* 1982 *op cit* fn 32, fig 13.33, fig 15.43.

43. Blackmore and Pearce 2010 *op cit* fn 32, 149.

44. Pearce and Vince 1988 *op cit fn* 32, figs 40, 102.401.

45. See Vince and Ford *op cit* fn 31, 27; L. Blackmore *The pottery from the city ditch at Ludgate* unpubl MOLA rep (2013).

46. Askew *op cit* fn 6, fig 5.

47. Askew *op cit* fn 6, fig 5.

48. J. Lyon *Within these walls: Roman and medieval defences north of Newgate at the Merrill Lynch Financial Centre, City of London*, MoLAS Monogr Ser 33 (2007).

49. Orton *op cit* fn 39; L. Whittingham 'Pottery from Southwark' in S. Blatherwick and R. Bluer *Great houses, moats and mills on the south bank of the Thames: medieval and Tudor Southwark and Rotherhithe* MOLA Monograph Ser **47** (2009) 177–95; Askew *op cit* fn 6.

50. Vince 1985 *op cit* fn 32; L. Blackmore 'Pottery, the port and the populace: the imported pottery of London 1300–1600 (part 1)' *Medieval Ceram* **18** (1994) 29–44; J. Pearce *Medieval pottery from Old Bailey (ODY03)*, unpubl MOLA rep (2011).

51. Jacqui Pearce, *pers comm*.

52. *Cf.* J. Pearce *Post-medieval pottery in London, 1500–1700: Vol 1, Border wares* (1992) 40, fig 45.428, 45.429.