

A Late Medieval and Post-Medieval Pottery Sequence from 199 Borough High Street, Southwark

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Excavations, under the direction of Mr Peter Marsden and the writer with Mr J. Vockings as site supervisor, took place at 199 Borough High Street, Southwark, in 1962 (Turner, 1967). The full report is under preparation, but has been delayed by the problems of processing the large number of finds, ranging from Romano-British to nineteenth-century, and of obtaining the necessary specialists reports. This note describes an interesting stratified sequence of late medieval and early post-medieval pottery that was excavated from one of the trenches. While much pottery from these periods has been recovered from excavations in Southwark and the City of London, little has been published and the note is offered as a small contribution to this neglected field of study.

Associated finds from the trench will be described in the final report.

TRENCH IV

This trench, cut from a cellar floor, exposed a sequence of late medieval and early post medieval pits that were dug into and through each other.

Sequence and Dating

Bedrock. Sand and gravel.

Level IVa. Layers of brown sand and grey clay containing mixed Romano-British and medieval pottery down to the late fourteenth century.

Feature IVP1. Truncated pit with a layer of burnt straw at the bottom; possibly a flat-bottomed ditch running north-south. Pottery down to the late fourteenth century.

Feature IVP2. Shallow pit cut into level IVa and overlaid by level IVb. Sterile.

Level IVb. Brown soil containing sherds of mid fifteenth-century date.

Feature IVP3. A deep cylindrical pit only partially within the trench. It was cut through level IVb and contained mainly derived pottery from earlier deposits.

Feature IVP4. Shallow pit cut into the top of the fill of pit IVP3. This contained considerable remains of waste from a bone-working industry and a series of pipkins and jugs. Early sixteenth-century.

Level IVc. Layers deposited after pit IVP4 had filled. Truncated by concrete

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cellar floor. Contained mixed material mainly derived from earlier deposits.

Concrete cellar floor.

The Pottery (Figs. 1-6).*Level IVa*

1. Cooking pot of fine grey ware with carefully fired, pinky-buff surface. Straight everted neck with thickened rim. Faintly smudged wave decoration inside neck.
2. Cooking pot of grey lightly shell-tempered ware. Flat flanged rim.
3. Sherd of decorated jug. Brick-red ware with raised ribs. Blobs of white slip and green glaze over all.
4. Bowl of fine grey-buff ware. Down-turned flange rim with inner beading, moulded at the outer edge possibly to provide a lid seating.
5. Jug of buff ware with slight sand temper. Spot (at least) of yellow glaze.
6. Rim, possibly from large jug or pitcher. Fine grey-buff ware.

Also from this level:

Sherds of sandy, oxidised wares, some with clear glaze.

Sherds with cream slip, probably from jugs. Pale yellow-green glaze on grey, light brown and brown-surfaced grey wares. Unglazed, bright red-pink ware.

Range of off-white to buff sherds. Patches of green glaze of varying colour and quality.

The cooking pot with the everted neck is, presumably, twelfth-century or very early thirteenth, while the shell-tempered vessel with the plain flanged rim should belong to the thirteenth. The slipped jug sherds and the decorated jug sherd can probably be dated to the century 1250-1350. The off-white to buff sherds, which resemble pottery from Kingston (Canham, 1969) and Cheam (Marshall, 1924), should be fourteenth-century. The bowl, 4 (with a more developed rim than Northolt 72-Hurst, 1962), is in a finer fabric than a similar rim, lacking only the edge moulding, found in a derived context elsewhere on the site and may, presumably, be dated late in the fourteenth century.

Feature IVPI Pit

7. Bowl with flanged rim, flange downturned and slightly undercut with incipient squared bead internally. Pinky-brown ware with light sand temper and pale yellow-green glaze inside base.

Also from this feature:

Several sherds of off-white to buff ware and two small sherds of thin, grey-buff ware with red-brown, painted decoration.

The painted sherds resemble fourteenth-fifteenth century Cheam pottery (Marshall, 1924) and there is nothing in the pottery from this pit to date it substantially later than Level IVa into which it was cut.

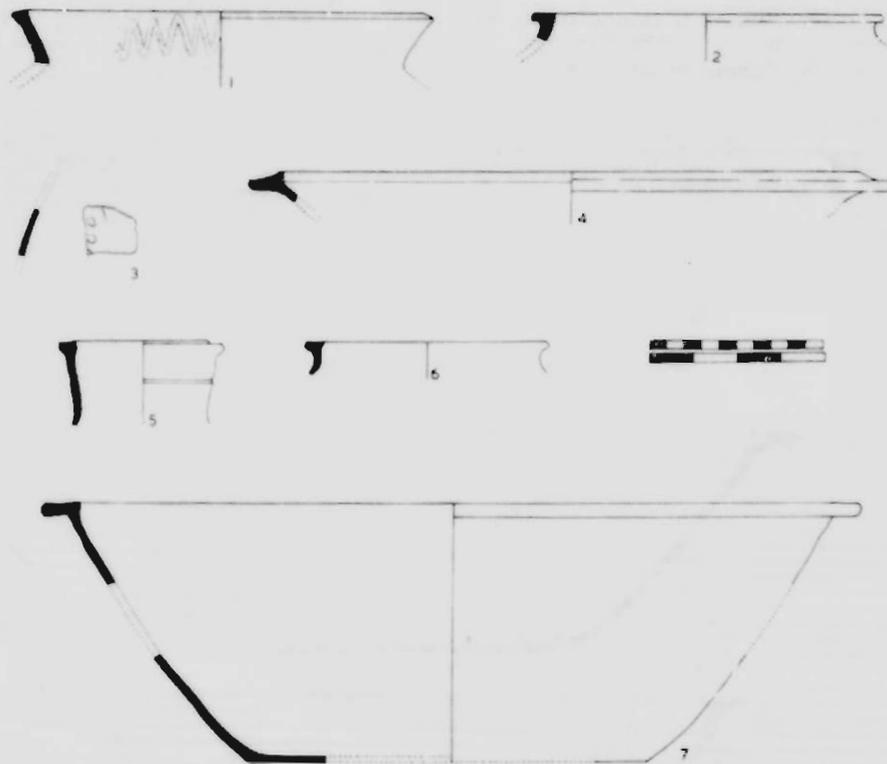
Late Medieval and Post-Medieval Sequence

Fig. 1. Pottery from 199 Borough High Street.

Level IVb

8. Cooking pot with thickened rim on an everted neck. Off-white sandy ware.
9. Skillet of buff ware with orange bloom to part of exterior. Fine sand temper.
10. Bowl with broad flanged rim, no internal beading. Light brown ware with very slight fine sand temper and mottled green-orange glaze inside the base.
11. Bowl with everted flanged rim. Buff-surfaced off-white ware with fine sand temper.
12. Bowl with everted flanged rim and internal beading. Buff-surfaced off-white ware with fine sand temper.
13. Similar vessel of similar ware. Internal beading undercut.
14. Pitcher of very thin, grey-buff surfaced, pinky-buff ware with very slight fine sand temper. Bib of thin yellow glaze speckled in green.

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15. Pitcher of thin pale buff ware with slight very fine sand temper. Bib of thin yellow glaze speckled in green. Rim of second similar vessel.
16. Pitcher of thin pale-buff ware with very slight very fine sand temper.

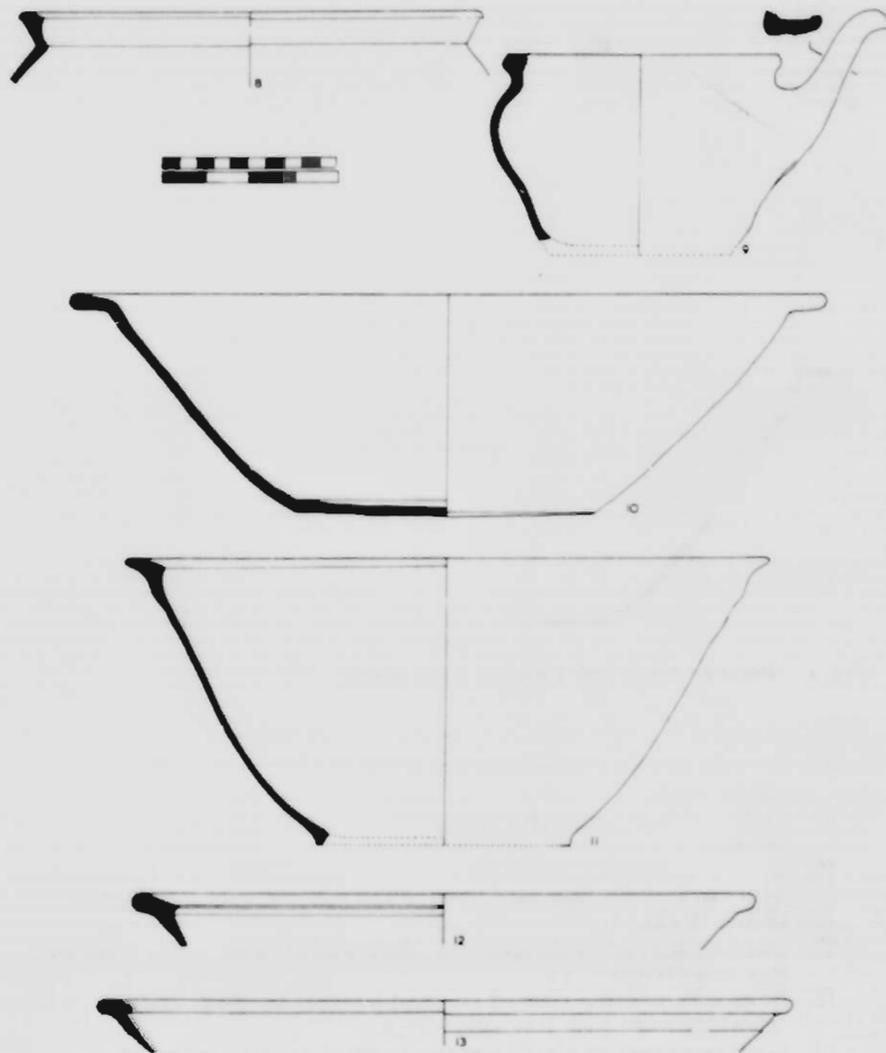


Fig. 2. Pottery from 199 Borough High Street.

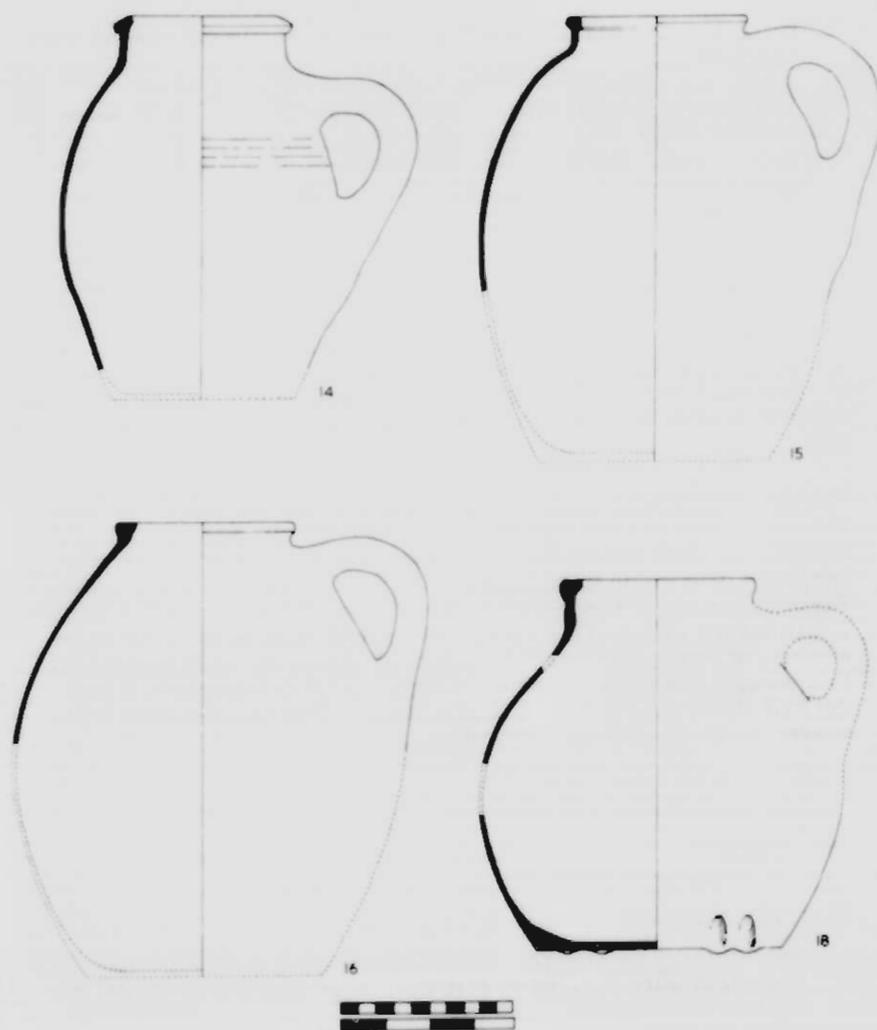
Late Medieval and Post-Medieval Sequence

Fig. 3. Pottery from 199 Borough High Street.

17. Pitcher of thin grey ware with light sand temper, decorated by girth grooves on the shoulder and glazed over part of the upper half. Continuously thumbled base angle; base sags below thumbing.
18. Pitcher of grey-buff surfaced, grey ware with fine sand temper.

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Irregular splashes of green to maroon glaze. Discontinuously thumbbed base.

The cooking pot, 8, is closely related to vessels found at the Ingledeu and Davenport site, Southwark (Kenyon, 1959, Fig. 27. 7) associated with fourteenth-century (probably early fourteenth-century) jugs; at the Bank of England (Dunning, 1937a); at West Humble (Dunning, 1938); and at Guildford (Dunning, 1937b)

The slack-profiled pitchers, 14-16, can be paralleled from London (London Museum, 1954, 228, Fig. 75. 3) and Westminster (Hurst, 1960, No. 6). The London parallel has a bifid rim which is claimed by Dunning to be characteristic of the fifteenth century. Hurst describes the Westminster parallel as 'Cheam Ware' but there is no close parallel to this form amongst the published material from Cheam (Marshall, 1924). The fabric of these Southwark pitchers is, however, closely similar to much of the Cheam pottery.

The stratigraphical position of this group, between the late fourteenth century sherds of Level IVa and Pit IVP1 on the one hand and the late fifteenth or early sixteenth-century pit group of Pit IVP4 on the other implies a date within the fifteenth century. The absence of white West Surrey ware and of the red and grey wares common in Pit IVP4, suggest a date before 1475, and the bracket 1425-1450 would seem to be, in the absence of direct evidence, the most comfortable dating at present for this group. It is possible, but not certain, that the cooking pot, 8, is a derived sherd from earlier deposits: the survival or otherwise, of this vessel form has not been established.

Feature IVP3 Pit

19. Handle-rim junction of a small pitcher, possibly similar in shape to 15. Badly burnt after breaking. *Not illustrated.*

Also from this feature.

Rim of large cooking pot (10 inch diameter) of grey, lightly shell-tempered ware with brown surfaces. Squared off, flat-flanged rim. Mid-to-late thirteenth century.

Rim-handle junction of a large pitcher of light grey, sandy ware. Everted neck, slashed strap handle. 5½ inches diameter mouth. Probably Limpsfield ware thirteenth-fourteenth century.

Head and part of the body of an unbearded figure modelled in the round. Buff ware with mottled dark green glaze. From a decorated jug, probably of Midland origin. Early fourteenth century?

Fragments of buff, sandy ware pitchers with thumbbed and plain base angles. Fragment of rim of buff, sandy ware bowl, similar to 13.

*Late Medieval and Post-Medieval Sequence**Feature IVP4 Pit*

20. Cup of thin, near-white ware with good green glaze. Fragments of others. Similar vessels published from Winchester (Cunliffe, 1964) and the Inns of Court (Mathews and Green, 1969). Probably from West Surrey or Hampshire kiln.
21. Pipkin of red-surfaced, grey ware. Splashes of glaze externally.
22. Pipkin of pink ware. Orange glaze on rim and inside base. Strap handle. (One handle only was found. The vessel may have had two handles and tripod feet.)

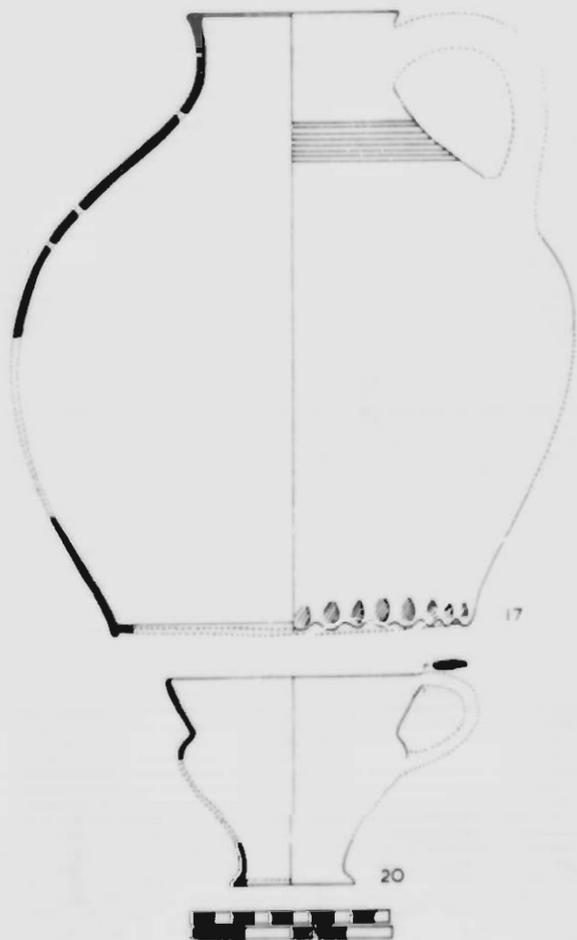


Fig. 4. Pottery from 199 Borough High Street.



Fig. 5. Pottery from 199 Borough High Street.

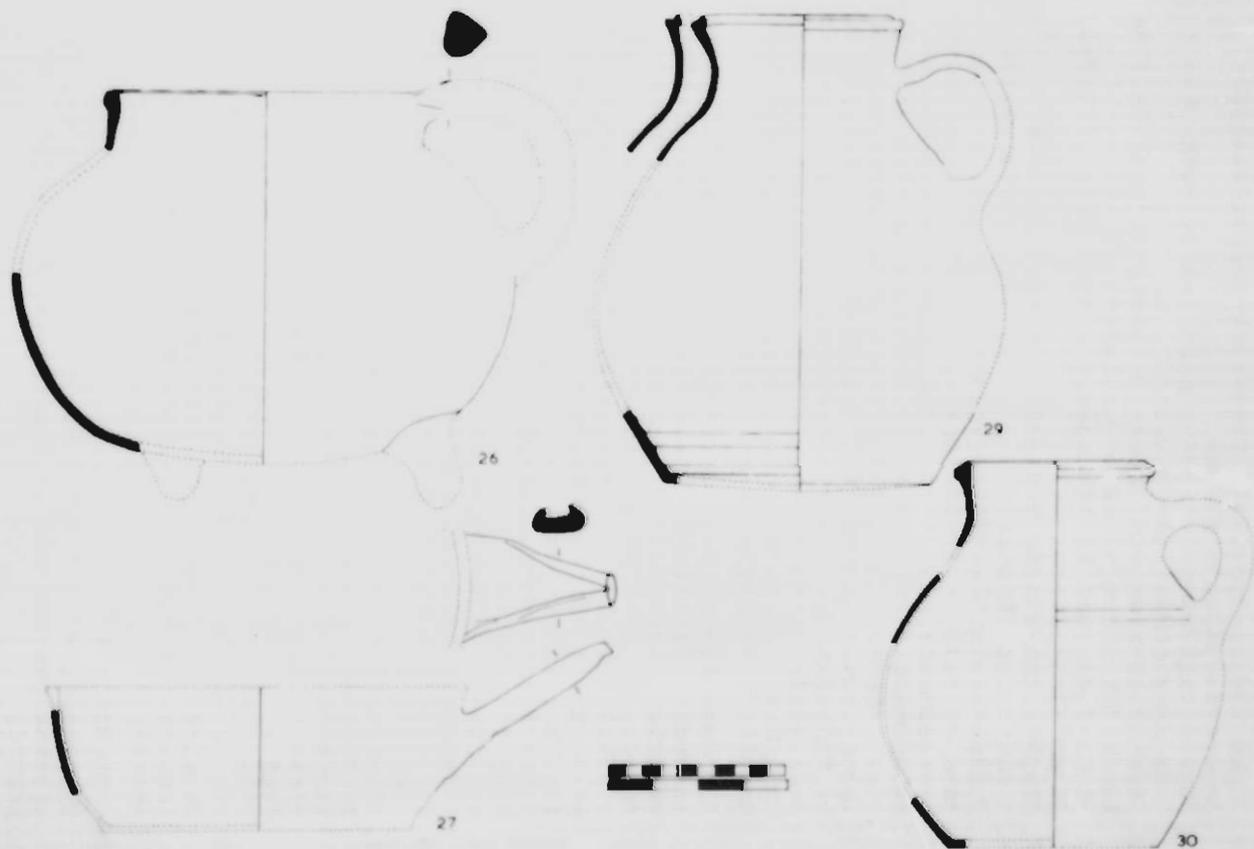


Fig. 6. Pottery from 199 Borough High Street.

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23. Pipkin of orange-brown ware. Patches of brown glaze externally. Decorated by rilling on shoulder.
24. Rim of orange-brown ware. Patchy yellow glaze internally. Feet from a larger tripod pipkin of identical ware.
25. Pipkin of red-brown ware. Splashes of brown glaze inside rim. Strap handle. Too little to reconstruct satisfactorily. *Not illustrated.*
26. Pipkin of pink ware. Rod handle joining to rim (c.f. Hurst, 1960, Nos. 15 and 16).
27. Simple up-turned handle from skillet of orange-brown ware.
28. Bottom half of a drinking jug of very finely-thrown, buff stoneware. Frilled foot ring. Entirely covered externally, including under the base, with a dull, creamy, transparent glaze. Inside there is a purple-grey sediment stuck to the walls. The fragment has been burnt after being broken. It is hard to be sure of the exact shape from the fragment preserved, but it has been reconstructed as a drinking-jug with flared rim and loop handle (Klein, 1949, Pl. 4 *right*; von Bock, 1969, 43, no. 102) rather than the more normal type of Jacoba jug with an ovoid body, cylindrical neck and larger strap handle (Klein, 1949, pl. 1; von Bock 1969, 39, No. 70) because the shape of the lower part of the body would fit more easily to the former shape.

The vessel falls into the group of Seigburg drinking jugs and beakers which date to the end of the fifteenth and beginning of the sixteenth centuries. There is no full publication of these simple, utilitarian forms as opposed to the more ornate art pieces but see Klein (1949), von Bock (1969) and also Jarret and Edwards (1963). They are hard to date exactly since the vessels have a long life and few have been found in stratified context.

(The writer is grateful to John Hurst for the foregoing note on the Seigburg vessel)

29. Jug of red-brown ware, incompletely oxidised. Bib of mottled red-brown glaze. Possibly from the 1969 Cheam kiln (Morris, 1969).
30. Jug of red ware incompletely oxidised. Probably bib of brown-green glaze.
31. Three jugs of grey ware, two with zones of bright red oxidation in the body. Same general shape and rim form as 29 but too fragmentary to reconstruct the profile satisfactorily. Decorated with trailed cream slip or paint in bold curvilinear patterns which may include large letters. One jug has a bib of brown glaze. They probably had strap handles. Possibly from the 1969 Cheam kiln (Morris, 1969).
32. Jugs of incompletely oxidised red ware and of grey ware with red surfaces. Some painted white slip decoration. Strap handles. Too fragmentary to reconstruct. Possibly from the 1969 Cheam kiln (Morris, 1969).

Also from this level:

Fragments of off-white and buff Surrey wares. A very low proportion of sherds recovered from the pit and possibly, although not certainly, derived.

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The pit was almost certainly rapidly filled with rubbish and the pottery group can be accepted as having a restricted date range. Its precise date is difficult to establish, however, although the presence of West Surrey white ware and the Seiburg drinking jug indicates a date later than 1475. It would be dangerous to argue from the absence of other imported vessels as the rubbish probably came from the nearby prison and exotic imports would be rare. The absence of yellow glazed brown ware (termed Guy's Hospital ware by Dawson (1970) and thought to have been made locally—possibly in Lambeth) may be more significant. A tentative date of c. 1500 to 1525 is the most that can be suggested at present.

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SMALL FINDS (Fig. 15)

CeramicFeature IV P3 [L6]

- 49* Part of figurine in hard buff/pink fine-sandy fabric (Surrey type) with glossy mottled green glaze. Probably a free-standing figure from a 14th century jug - a close parallel was reported from Waverley Abbey (Brakspear 1905, 88).

StoneLevel IVb [L8]

- 50* Chalk candle holder.

CoinLevel IVb [L8]

- 51 Irregular bronze radiate of later 3rd century.
[Coin no. 12]

IronLevel IVa [L22, 23]

- 52 Part of strap hinge, rolled at one end. 114 mm (4½") long by 22 mm (¾ in.) wide, with one nail. [IVai sent to Cuming Museum for treatment]
Nails.

Feature IV P1 [L13, 21]

Nail

Level IVb [L4, 8]

53 Key (?) 83 mm (3¼ in.) long. [IVbi]

Nails

Feature IV P3 [L6, 7]

54 Rod

Level IVc [L1, 2, 3]

55 Large nail, length 140 mm (5½ in.)

Nail.

BronzeLevel IVa [L22, 23]56* 'Brush', bound at one end with wire. Oval section at
brush end, round section at bound end.

57* Fragment of 'brush', similar to above.

Level IVb [L4, 8]

58 Spherical-headed pin.

Feature IV P4 [L5]

59 Spherical-headed pin.

60 Wire-headed pin.

61* Belt buckle. [S.f. no. 47]

Level IVc [L3]62* Buckle clasp for belt or dagger. Brass, copper-plated
to look like silver. Rectangular with large central hole
and two smaller holes on the longitudinal axis. Two letters
(I and N), a panel round the central hole and a border have
all been carved in outline. The rest of the surface has
been removed by long straight cuts, except in a few inaccessible
corners. Slightly bent but drawn as if flat. 14th

or (more likely) 15th century. (cf London Museum (1940) fig. 85.6, accession no. A2554.) [S.f. no. 58]

Lead

Level IVa

Fragment of glazing came, cut lengthwise.

Feature IVP3

Fragment of glazing came.

Unidentified metal

Level IVa [L22]

63 Button.

Bone

Feature IVP4 [L5]

64 Many fragments showing evidence of the manufacture of dice, etc., from long bones. The long bones were divided longitudinally and suitable lengths were then shaped into square sectioned rods. These were then cut into cubes (probably after some dice faces had been marked). Sections of long bones may have been used to hold the lengths steady during the process (see Plate I). The purpose of the holes drilled in these sections (see also Plate II) is not clear: they may have been practice pieces. The ends of rods and certain unsatisfactory centre sections remained as waste. See Appendix for a full study by R.E. Chaplin and Mary Harman of the domestic bone refuse from this pit.

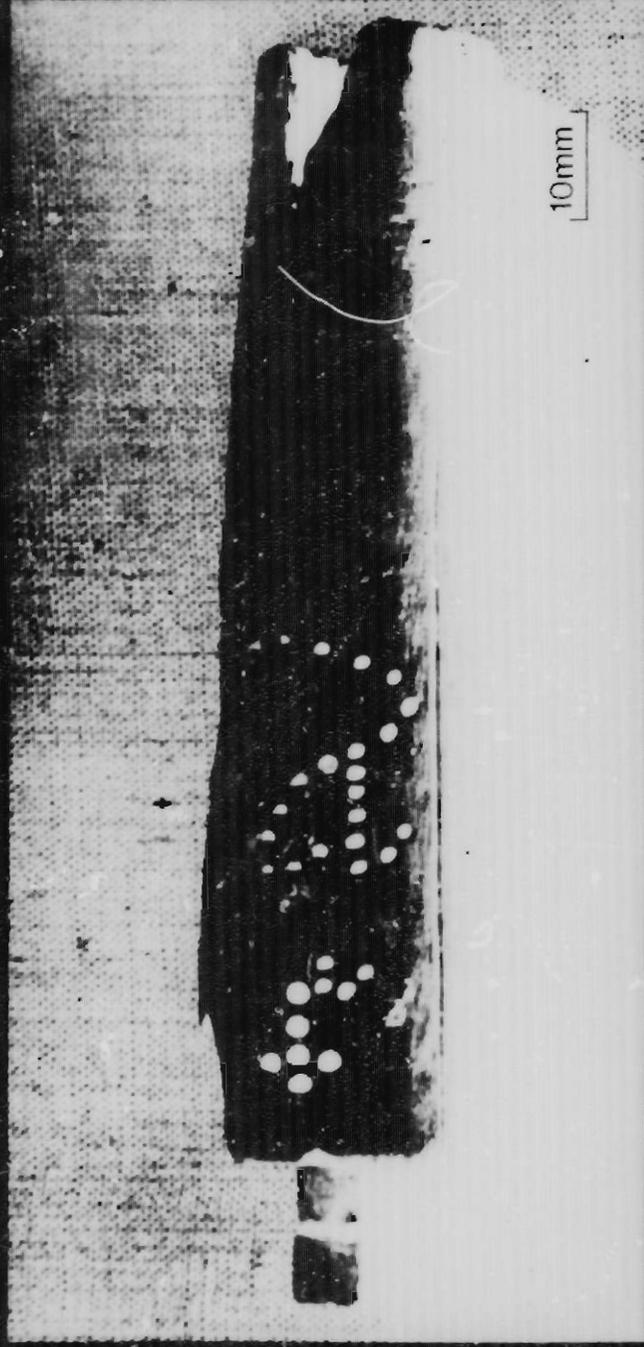


Plate I Piece of long bone used to hold steady another smaller piece, which has been prepared for making dice

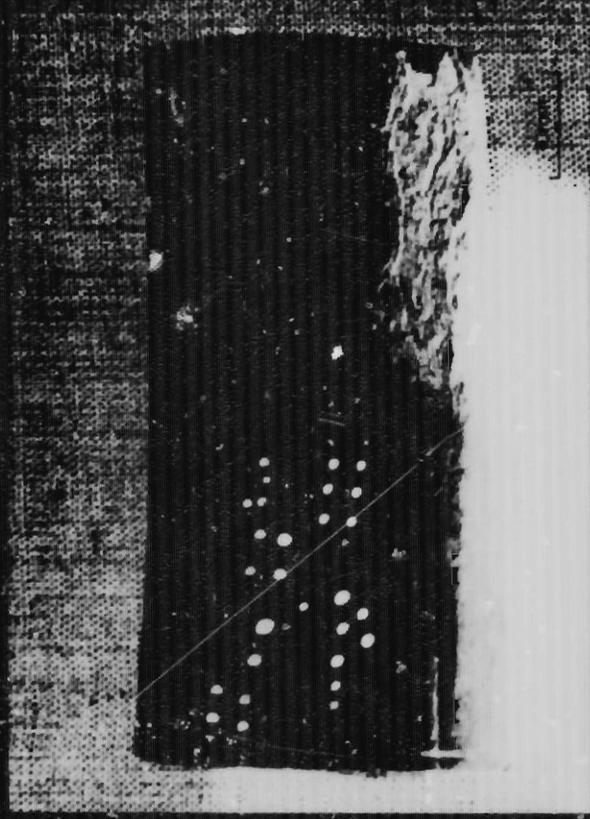


Plate II Piece of long bone showing holes

The following items are shown in Plates III and IV, they are described in order from top to bottom and left to right.

- A : needle [sf no. 39]
- B : die, 9 mm cube [sf no. 51]
- C : die, 6 mm cube [sf no. 46]
- D : unmarked cube
- E : unfinished ? peg. Handle turned and decorated [sf no. 48]
- F : crude figure of a knight (?). Legs missing probably unfinished. [sf no. 50]
- G : peg, c 37 mm high, surmounted by a crude carved human head, each side perforated by a slit 12 mm x 3 mm [sf no. 49]
- H : figure of a male in hat, doublet, etc., carrying sword. Bone tang attachment with two drilled holes. Possibly also remains of attachment on head. [sf no. 58]
- I : peg with spiral decoration, surmounted by crude carved human head, wearing mitre [no sf no.]
- J : peg with chevron decoration, as I [no sf no.]
- K : peg with double spiral decoration, surmounted by crenellation (?). Tang on lower end. [no sf no.]
- L : die, six only numbered, other sides plain [sf no. 52]
- M : die
- N : unmarked cube

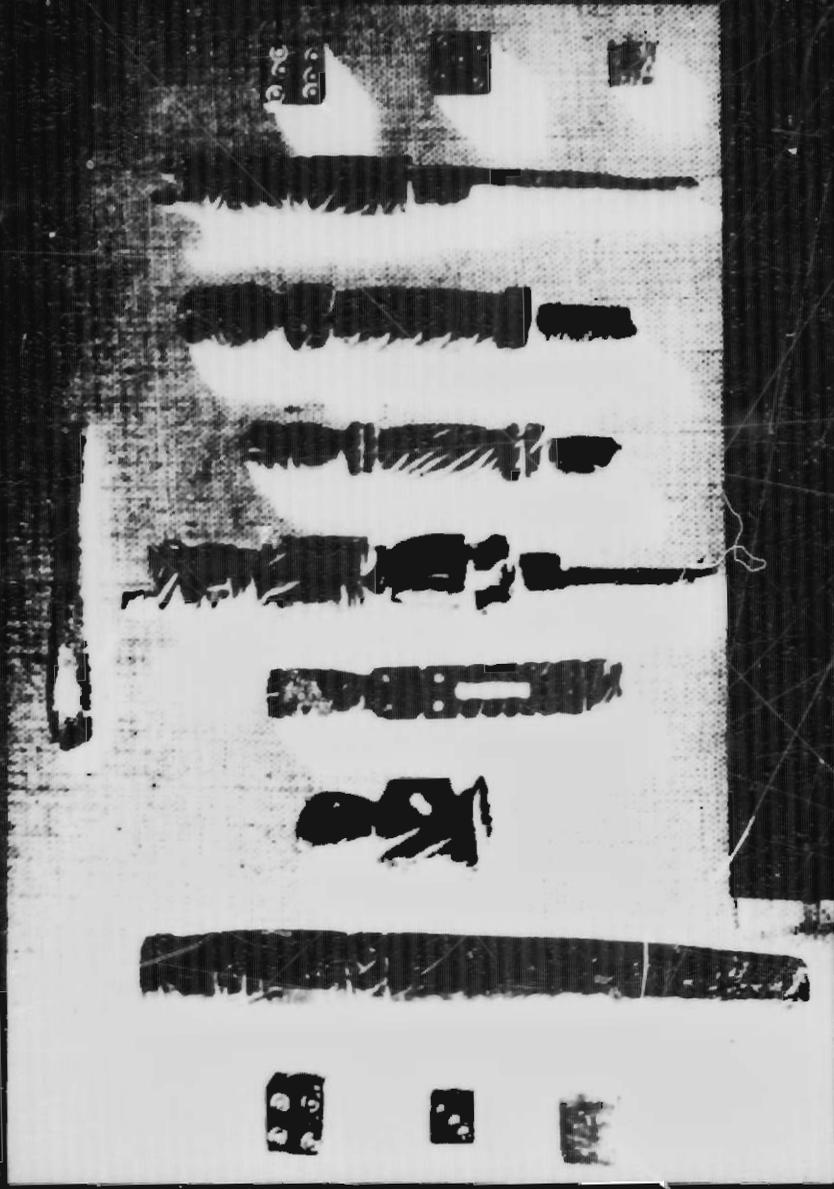


Plate III Items of worked bone, including chessmen, front view

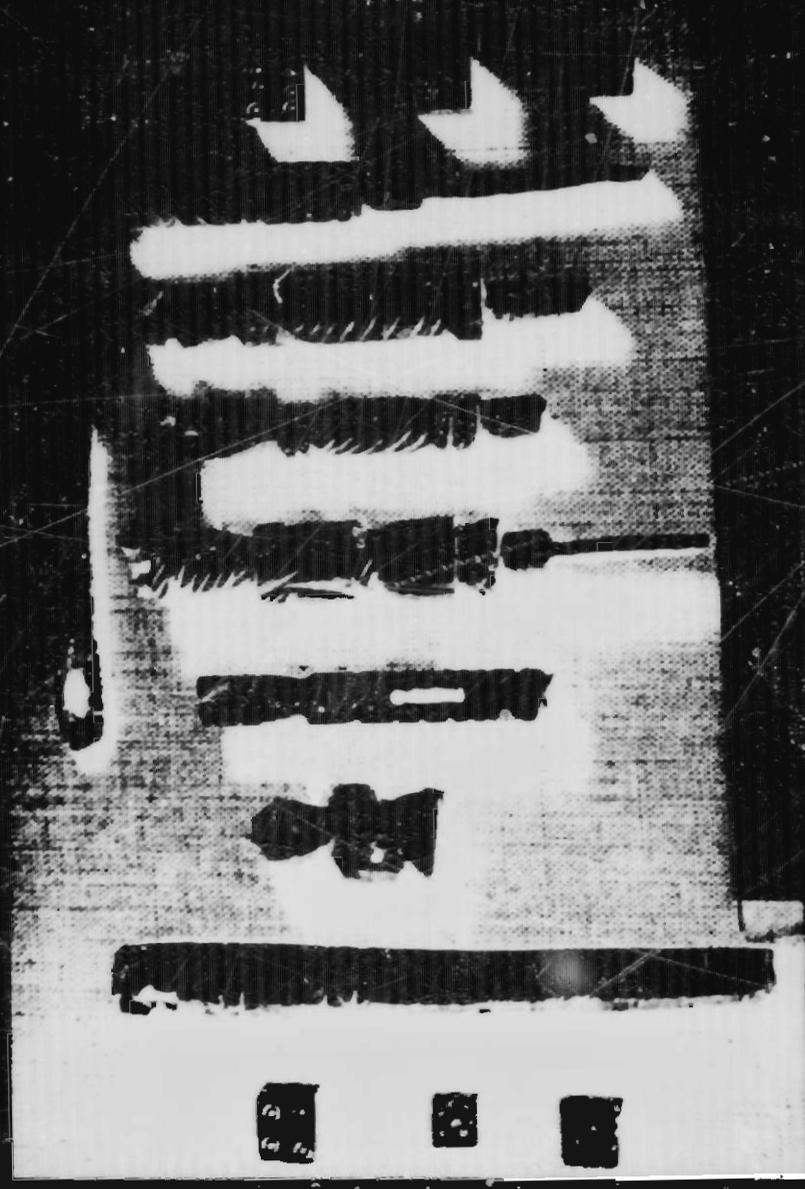


Plate IV The same, back view

The figures may be chessmen, with a knight, king, two bishops, rook and unidentified figure (? queen) represented. The tangs may be to slot into larger base sections. (Alternatively, if the game were played on the ground instead of on a board, the tangs could be stuck in the ground to hold the figures upright).

The box containing the noted carved bone from this deposit was lost when the finds were transferred from the Guildhall to the Cuming Museum.

There was much bone in the Pit apart from the worked material. The whole has been studied by Mr. R. Chaplin and Miss M. Harman (see Appendix). The bone can be regarded as of mixed origin but clearly the worked bone is predominantly refuse from handicraft work. The disproportionate number of metapodial bones found clearly indicates the acquisition of these bones for this work. The similarly disproportionate number of sheep heads also found is not so easy to explain, there being no indication of use. The mixture of the bones in the ground and their fragmentary nature indicates that the sheep heads were not discarded fresh, nor after simple extraction of the brain. The most probable explanation is that they were stewed either to provide food or to obtain fat, gelatin, etc. The other bones present appear to be food debris. This picture is in accord with the view that this pit was associated with the adjacent prison.

TRENCH V

This trench was a shaft dug at the rear of the site where there had been no cellars to truncate the sequence. Natural sand was reached at c. +1.68 m (5 ft 6 ins) O.D., cut by a water-course approximately 0.9 m (3 ft) deep, running approximately north-south, which had silted up in R-B times. The presence of several nails and two pieces of iron hinges in the ditch fill probably indicate that there was a building, possibly of timber, nearby. Rubbish began to be deposited here in quantities in the sixteenth century and there is no medieval sequence. Sherds of medieval pottery were found but they had no stratigraphical significance.

The trench is mainly significant for its post-medieval pottery series which is supported by a sequence of clay pipes. With the exception of the R-B water-course, the trench was devoid of features of note. (Fig. 12).

SEQUENCE AND DATING

Bedrock	[L16]	Sand at c. +1.68 m (5 ft 6 ins) O.D., cut into by ditch V D, above gravel at c. +0.53 m (1 ft 9 ins) O.D. R-B pottery on the surface of the sand.
Level Va	[L14]	R-B occupation layer, or topsoil disturbed in the R-B period, merging indistinctly with the ditch fill. Grey sand.

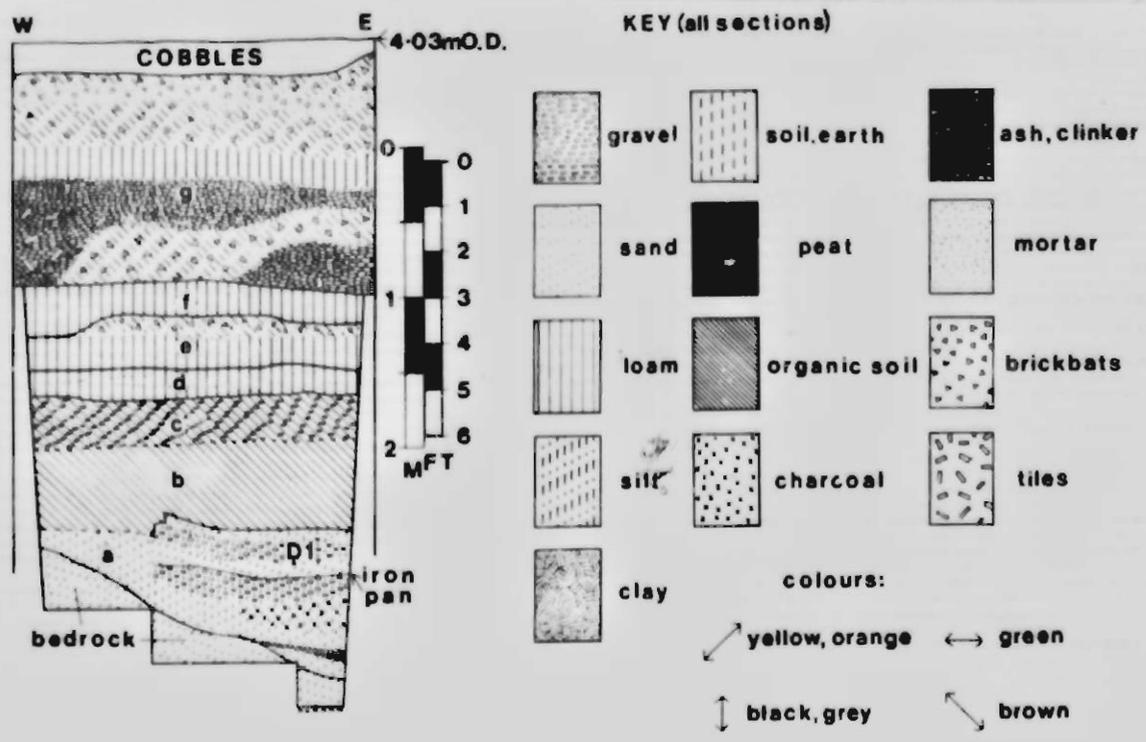


Fig 12 Trench V. North section, and key to all sections.

Feature V D	[L13, 15]	Water channel cutting level Va. Silting completed in R-B period. Finds only from upper gravelly silting.
Level Vb	[L12]	Sterile brown loam.
Level Vc	[L10, 11]	Brown loam and gravel above sterile brown loam and gravel. Tudor.
Level Vd	[L8, 9]	Black loam with mortar layers. c.1600-60.
Level Ve	[L6, 7]	Black loam covered by building refuse, pottery and clay pipes, probably derived from demolitions and clearances following the fire of Southwark (1670). Late 17th century.
Level Vf	[L5]	Black loam. 18th century.
Level Vg	[L1-4]	Made ground. Late 18th-19th century.

TRENCH V: FINDS

POTTERY

Romano-British (Fig. 13)Bedrock

- 500 One rim sherd of samian: Dr. 39 (no rouletting),
Neronian date.

Level Va [L14]Samian

- 501 One rim sherd, Dr. 15/17R.
502 One rim sherd, Dr. 18
503 One base sherd, Dr. 18 or similar.
504 One sherd, possibly Dr. 18
505 One rim sherd, Dr. 27.
506 One sherd, Dr. 29. Burnt.
507 One rim sherd, Dr. 33.

All South Gaulish, early Flavian date as a group.

Colour-coated ware

- 508* Two rim sherds of beaker Soft off-white smooth
fabric with worn brown colour-coat. Rough-cast.
(cf Verulamium Museum: beaker from Halsmead Cemetery,
late 1st or early 2nd century.) Not Nene Valley.
- 509 Sherd in white fabric with brown colour-coat. Rouletted,
probably from a bag-shaped beaker. Probably a late
1st or early 2nd century import.

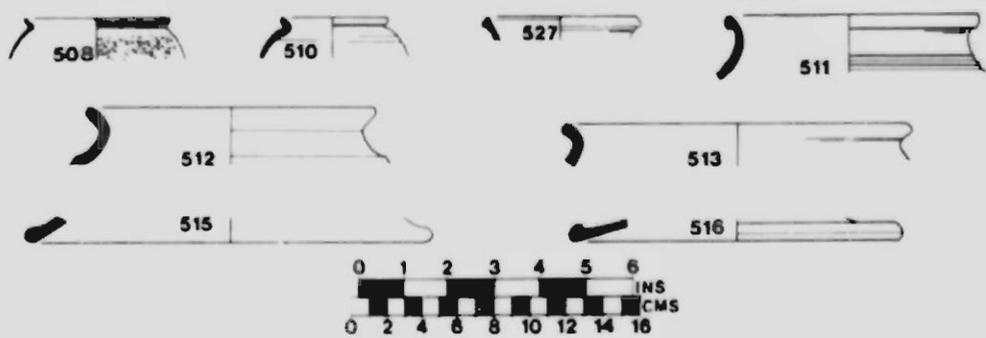


Fig 13 Romano-British pottery from Trench V. Nos 508-527

Other coarse ware

Beaker

- 510* Rim sherd Hard light grey fine-sandy fabric with lighter grey interior.

Jars

- 511* Two rim sherds Hard grey sandy fabric with burnished light grey exterior. Cordon at base of neck. Possibly from Highgate (Brown and Sheldon 1974), early 2nd century.
- 512* Rim sherd Hard light grey sandy fabric with brown margins and surfaces.
- 513* Rim sherd Hard light grey sandy fabric with dark grey exterior.
- 514 Base in similar fabric with groove on underside (cf Highgate jars).

Lids

- 515* Rim sherd Hard light grey sandy fabric with darker interior.
- 516* Rim sherd Hard dark grey/orange sandy fabric with black patches on surfaces.

Also from this level are sherds in the following fabrics - buff/grey gritty (amphora), grey gritty, buff sandy with white slip on exterior, pink/buff sandy, brown 'soapy', fine grey with red surfaces.

An early 2nd century dating is indicated.

Level V D [L15]Samian

- 517 One base sherd, Dr. 15/17 or 18. Stamped OF...
Not identifiable. Neronian-early Flavian.
- 518 One base sherd, Dr. 15/17R or similar.
- 519 One rim sherd, Dr 18.
- 520 One rim sherd, Dr. 18R.
- 521 One rim sherd, Dr. 24/25.
- 522 One sherd, Dr. 27.
- 523 One rim and one body sherd, Dr. 29.
- 524 One sherd, unidentified.

All are South Gaulish and of Flavian date, except for the Dr. 24/25 and 29s, which are Neronian.

Colour-coated ware

- 525 Sherd in fairly soft buff fine fabric with brown colour-coat. Rouletting separated by double horizontal groove on exterior, rough-cast interior.
- 526 Three sherds in fairly soft fine-sandy fabric, grey core and grey-brown margins and surfaces. Traces of black colour-coat (?) and rouletting on exterior. Worn (water-rolled?).

Other coarse ware

- 527* Rim sherd of flagon Hard dark grey coarse-sandy fabric with grey/black surfaces.
Also sherds in grey and grey/brown coarse-sandy fabrics.

Post-Medieval (Fig. 14)

The numbers of sherds of each fabric group (see Trench III) are shown in Table 4.

Level Vc [L10]

The slip-ware sherds (H) have red-brown fabric, with white slip and yellow glaze on the interior, and appear to belong to large dishes. Dawson (1970) has proposed the name 'Guy's Hospital Ware' for this pottery and a date from c.1475 to c.1600 is tentatively suggested. Two exceptions are a rim sherd of a jug, with slip and glaze on both surfaces and external glaze tending towards brown tones with green patches; and a body sherd, probably of a jar or jug, with white slip and yellow glaze on the exterior only.

The 'Tudor green' sherds (N) are small, thin, with good mottled green glaze.

Fabrics of group A are hard, sandy, brown rather than red and generally have a grey core. The glaze is olive or dull brown, usually on one side of the sherd only, and frequently patchy. The majority of the identifiable sherds belong to 'jar' shapes (probably pipkins) - see 528-532, although two plates or dishes (533, 534) and a small mug or cup (535) are also represented.

The unglazed sherds (B) are similar to the glazed and appear (where identifiable) to belong to jar or pitcher forms. Three have sparse white slip on the interior.

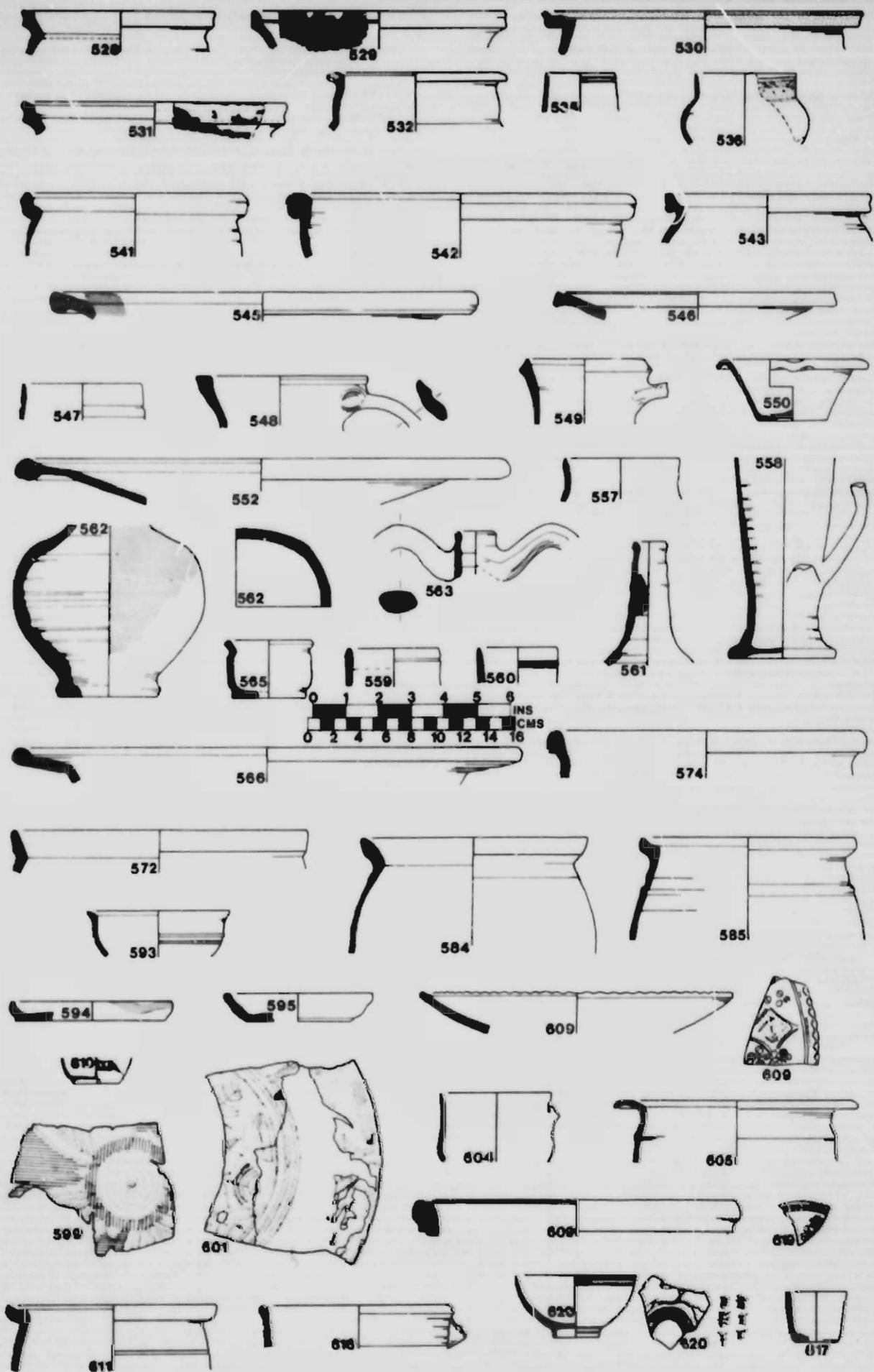


Fig 14 Post-medieval pottery from Trench V. Nos 528-620

Of the two C sherds, one is in an unusual gritty fabric, with yellow glaze on both surfaces, while the other is more typical of the Hants/Surrey fabric (Holling 1971), but it is very small and might be intrusive.

One of the two D sherds has a coarse red fabric, with greenish glaze on the exterior only. The other has thick purplish glaze on both surfaces.

The identifiable stoneware consists of five globular body sherds of Raeren type, first half of the 16th century, two sherds of Cologne type of similar date and five small sherds of Frechen type (including one of 'Tiger ware') of the second half of the 16th century.

There is one sherd with tin glaze (L), presumably imported (536).

Level vd [L8, 97

The slipware sherds (H) are similar to those from Vc, with the exception of a pan rim (537) which has green glaze.

The glazed red fabrics (A) continue in this level: two additions to the range are a red fabric with glossy olive glaze on both surfaces (eg 541) and a similar fabric with orange glaze on both surfaces (eg 543). As in Vc, 'jar' shapes (probably pipkins) are in the majority - see 538-544; there are also two plate or bowl rims (545, 546) and one mug or cup (547).

The unglazed sherds (B) resemble those from Vc and two pitcher rims (548, 549) confirm the form represented by them.

The glazed white wares (C) are of the Hants/Surrey type. Forms represented are platters (552-554), pipkins (555,556) and bowls (550,551). Most sherds are glazed on the interior only, and more have yellow glaze than green.

The black-glazed sherds (D) belong to one or more types (557, 558).

Stonewares of Raeren, Cologne (559,560) and Frechen types are present. There is also part of a 'bellarmine' mask, (Holmes 1951, type VI, c.1600).

There is one sherd of imported unglazed ware (J) (561) and nine of imported tin-glazed pottery (F), from Spanish costrels, probably of the early 17th century (562-564).

Three small sherds of trailed slipware (G). All have red sandy fabric and brown glaze, showing yellow over the slip.

There is one sherd of delftware (L) (565).

Level ve [L6, 7]

Group A fabrics are generally redder than in Vc and grey cores are less common. Yellow-brown and orange-brown glazes predominate; olive is also present. Platter/bowl forms (566-570) and 'jar' forms (571-576) are both common: there are also jugs (577, 578), possibly a strainer (579) and a chafing dish (580).

The unglazed sherds (B) are undiagnostic, but seem to come from large vessels.

The glazed white wares (C) cover a wide range of forms - platters (581-583), pipkins and/or chamber pots (584-591), a cup (593), small dishes (594,595) and possibly a candlestick (596). Most sherds are glazed on the inside only, and yellow glaze is in the majority.

The black-glazed sherds (D) have red sandy fabrics, and probably belong to tygs.

The stoneware (M) is of fabric and shapes associated with 'bellarmine' bottles, and includes one mask, Holmes (1951) type VIII, second half of 17th century.

The sherd of Spanish tin-glazed pottery (F) is very similar to those from Vd, to which it may belong.

The five sherds of trailed slipware (G) include two from 'Metropolitan' type platters or dishes (597,598).

A wide range of forms is represented in delftware (L) - plate (599), dish (600), bowls (601-603), mug (604), chamber pot (605) and jars (606, 607).

There are also two sherds of Staffordshire slipware (I) (608, 609).

The single sherd of porcelain (K) is Chinese and has been dated to the 18th century (610).

Level Vf /L57

In addition to the glazes noted in Ve, a mottled brown glaze is associated with fabric group A in this level.

The few sherds that can be identified belong to 'jar' (611-613) or cup (614) forms: there is also a pipkin handle.

The unglazed sherds (B) are again undiagnostic, except for two straight rims which might belong to plant pots.

The few sherds of glazed white ware (C) include the rims of bowl (615) and a cup (616). All have yellow glaze on the interior only.

The black-glazed sherd (D) has a greenish tinge to the glaze.

The two sherds of delftware (L) are both bases of jars (617, 618), while the two sherds of stoneware are not diagnostic.

Both sherds of porcelain (K) (619, 620) are Chinese and have been given dated in the 18th century.

There are four sherds of Staffordshire combed slipware (E), dated to the second quarter of the 18th century. Two are from the base of a plate.

Descriptions

Level Vc

528* Jar. Red sandy fabric with grey surfaces. Dark green glaze on internal surface of rim, and in patches on exterior. (Similar in form to Moorhouse 1970, no. 167, but smaller. Moorhouse's example is 'possibly earlier than the rest of the group (first half of 17th century), so it may be a late medieval form'.)

- 529* Rim of jar (or bowl?) Red sandy fabric with grey core. Patches of olive-green glaze, speckled with dark brown on interior.
- 530* Jar with out-turned horizontal rim, triangular at edge Red sandy fabric with grey core and spots of brown glaze.
- 531* Jar (?) with shallow internal lid-seating Red sandy fabric with grey core and patches of green-brown glaze.
- 532* Jar Red sandy fabric with grey surfaces and patch of dark brown glaze on rim.
- 533 Dish or platter with horizontal rim, slightly thickened at edge, with groove on upper surface beside thickening. Incised double wavy line on upper surface. Red sandy fabric with brown glaze on upper surface. Diameter 190 mm.
- 534 Dish or plate with horizontal rim, vertical thickened edge. Grey core and upper surface, red margins and lower surface. Patchy brown glaze. Diameter 330 mm.
- 535* Small mug Fine red fabric with green-brown glaze, speckled with dark brown, on both surfaces.
- 536* Mug (?) Pink/buff fine-sandy fabric. Bluish white/off-white glaze with blue decoration on neck. Possibly an altar vase.

Level Vd

- 537 Rim of heavy pan in red sandy fabric with white slip on interior, up to 20 mm below rim. Green glaze over all interior. Frilled edge to rim.

- 538 Jar in red sandy fabric with grey core. Green glaze on interior, patches on exterior. Form similar to 531. Diameter 144 mm.
- 539 Jar as 538, but with patches of brown glaze. Diameter 216 mm.
- 540 Jar in red sandy fabric with yellow-brown glaze on interior. Diameter 182 mm.
- 541* Jar Fine red sandy fabric with grey core. Smooth green-brown glaze on both surfaces. (Possibly similar in form to Mayes 1968, fig 29.4, mid 17th century.)
- 542* Jar with heavy square rim Red sandy fabric with opaque brown glaze, worn and flaked.
- 543* Jar Orange fine-sandy fabric with orange-brown glaze.
- 544 Three pipkin feet from different vessels. Red sandy fabric with brown glaze on interior and spots of glaze on exterior, which is soot blackened.
- 545* Bowl with thickened rim Red sandy fabric with grey core and patchy brown glaze on interior.
- 546* Dish with triangular rim Red sandy fabric with yellow-brown glaze on upper surface. Three horizontal grooves on upper surface and traces of knife trimming on lower surface. (Similar in shape to Mynard 1969, no. 46.)
- 547* Mug Grey-brown sandy fabric with lustrous dark brown glaze with very dark brown mottling. (cf Moorhouse 1970, no. 172.)

- 548* Pitcher rim Red sandy fabric with grey core.
White slip on exterior and top 20 mm of interior.
Strap handle with two ridges.
- 549* Pitcher rim As 548. No slip but spot of brown
glaze on exterior. Large strap handle with
thumb impression at upper end.
- 550* Small bowl with pouring lip Pink-buff fine-
sandy fabric with bright yellow glaze on interior
and dilute yellow glaze on exterior.
- 551 Bowl, possibly a chafing dish. Cream fine-sandy
fabric with green glaze on interior and top of rim,
and dilute yellow glaze on exterior. Scar on top
of rim, possibly a handle, but more likely the knob
of a chafing dish. Diameter 152 mm.
- 552* Platter Grey-white fine-sandy fabric with pink-
buff core. Green glaze on interior, shading
to yellow at rim. (cf Holling 1969, Ash type B1,
which however has steeper sides.)
- 553 Platter in pink fine-sandy fabric with yellow glaze,
dilute on exterior. Diameter 260 mm.
(cf Moorhouse 1970, no. 124, first half of 17th century.)
- 554 Platter or dish in thin pink-buff fine-sandy fabric.
Green glaze on interior and upper part of rim.
Diameter 190 mm.
- 555 Rim of pipkin with external lid-seating. Buff fine-
sandy fabric with yellow glaze (with brown patches and
specks) on interior and top of rim, and band and band
of similar glaze on exterior above lid-seating.
(cf Holling 1971, type E2a. Large collection of similar
forms in Moorhouse 1970.) Early to mid 17th century.
Diameter 150 mm.

- 556 Small jar or bowl with internal lid-seating.
Buff fine-sandy fabric with brown-speckled yellow glaze on interior and top of rim. Exterior soot-blackened. Diameter 132 mm.
- 557* Tyg rim Red fine-sandy fabric with glossy black iron glaze.
- 558* Base and body of a tyg Possibly of same vessel as 557. Fabric and glaze as 557, with grey core in thicker parts of base. Rilling on both surfaces. Part of one handle and the scar of a second survive. Underside largely unglazed, although on one side the glaze has run beneath the base, forming a large drip, which prevents the tyg from standing flat on its base. The glaze has formed a pool on the same side of the interior, indicating that the tyg was set at an angle for firing. Form C, mid 17th century. (cf Davis and Ashdown 1970, 19.)
- 559* Jug rim Light fabric with mottled light brown glaze on exterior and clear glaze on interior, over which is a dull buff coating, extending about 20 mm below rim. Cordon 10 mm below rim.
- 560* Jug rim Buff fabric with buff glaze, mottled on part of exterior. Interior glaze is darker for about 15 mm below rim. Groove 10 mm below rim.
- 561* Neck of a flask Hard orange-brown fabric with very little, very fine, sand tempering. Surfaces unglazed, exterior is grey on one side. The base of the neck has been knife-trimmed, presumably to make a cleaner join with a separately thrown body. The

neck has been bunged with a lump of very sandy yellow clay, pushed through from the mouth. The impression of a finger-nail is visible in the top of the bung. Type III flask (Hurst 1966). Probably French, mid 17th century.

- 562* Base and body Costrel, slightly flattened front and back. Fine buff fabric with 'bib' of thick cream-coloured glaze with greenish tinge where it is thickest.
- 563* Two sherds - handle/rim and handle/neck - of costrel, probably the same vessel As 562, possibly belongs to same vessel.
- 564 Base of a costrel, as 562.
- 565* Undecorated albarello Pink fabric with white tin glaze. (Form similar to Bloice 1971, no. 85, but more squat.)

Level Ve

- 566* Bowl with wide horizontal rim, thickened at edge Red sandy fabric with green-brown glaze on interior.
- 567 Dish with triangular rim. Red sandy fabric with brown glaze on upper surface. Groove on upper surface parallel to edge of rim. Similar to 546 in shape. Diameter 270 mm.
- 568 Rim of bowl or platter, thickened at edge. Red sandy fabric with brown/green glaze on upper surface. Diameter 158 mm.
- 569 Rim of bowl or platter, thickened at edge. Red sandy fabric with brown glaze on upper surface. Diameter 380 mm.

- 570 Rim of bowl or platter, folded into a bead. Red sandy fabric with yellow-brown glaze on upper surface. Diameter 224 mm.
- 571 Jar, or possibly chamber pot, with upright rim. Red sandy fabric with green glaze on interior. Diameter 208 mm.
- 572* Jar with upright rim Red sandy fabric with grey core. Olive-green glaze on interior.
- 573 Jar, possibly chamber pot, with upright rim. Red fine-sandy fabric with grey exterior and green glaze on interior. Diameter 156 mm.
- 574* Jar Red sandy fabric with brown glaze on interior. Exterior soot-blackened.
- 575 Rim of a large jar. Red sandy fabric with grey core and dark green-brown glaze. Row of thumb impressions on exterior below rim. Diameter 290 mm. cf 335.
- 576 Similar but smaller rim. Orange sandy fabric with orange-brown glaze on exterior and patches of dark brown glaze on interior.
- 577 Rim and lip of jug in red sandy fabric with orange-brown glaze on interior. Exterior soot blackened.
- 578 Rim and part of lip of jug in red sandy fabric with large patches of orange-brown glaze on interior.
- 579 Rim of bowl, possibly strainer, in red sandy fabric with dark brown glaze. Hole beneath the rim, pushed through from the interior. Diameter 255 mm.
- 580 Rim of chafing dish in red sandy fabric with grey core and orange-brown glaze. One of the knobs survives - a triangular lump of clay set on to the rim at an angle

of about 45° , with a thumb print in the upper surface.

- 581 Platter with rounded thickened rim in buff fabric with very little fine sand tempering. Brown-speckled olive-green glaze on upper surface. Diameter 216 mm. (cf Moorhouse 1970, no. 121.) Mid 17th century.
- 582 Platter with angular thickened rim in cream fine-sandy fabric with green glaze on interior and top of rim.
- 583 Platter with rounded thickened rim in cream fine-sandy fabric with green glaze on upper surface. Diameter 320 mm. (cf Holling 1971, type A2.)
- 584* Jar (or chamber pot) with rib on exterior below rim Buff fine-sandy fabric. Pale yellow glaze on interior and top of rim. (cf Holling 1971, type L2B.) Early to mid 17th century.
- 585* As 584 Buff fine-sandy fabric with thin patchy green glaze on interior and top of rim. Patch of soot on exterior.
- 586 Rim, similar to 585 but with yellow glaze with green mottling. Diameter 148 mm.
- 587 Rim, probably from chamber pot, with rounded thickened rim. Buff fine-sandy fabric with yellow-green glaze on interior. Ridge on exterior below rim. Diameter 176 mm.
- 588 Rim, perhaps of chamber pot, similar to 585. Cream sandy fabric with pale green-yellow glaze on interior. Diameter 178 mm.

- 589 Rim, perhaps of chamber pot, with upright rim, slightly concave on interior. Cream fine-sandy fabric with yellow-green glaze on interior. Diameter 176 mm.
- 590 Rim with internal lid-seating in cream fine-sandy fabric. Yellow glaze with brown patches on interior. Diameter 180 mm.
- 591 Jar (?) with out-turned square rim and internal lid-seating. Cream fine-sandy fabric with worn yellow glaze (with brown patches) on interior. Diameter 180 mm.
- 592 Steep-sided bowl in cream sandy fabric with yellow glaze on interior and top of rim. Diameter 172 mm.
- 593* Cup Hard white sandy fabric with green glaze on interior and streaks and spots of green glaze on exterior.
- 594* Small dish Cream fabric with very little, very fine sand tempering. Green glaze on interior, running over rim.
- 595* Dish, possible drip tray Pink sandy fabric with patches of yellow-green glaze. Possibly from a candlestick.
- 596 Rim and handle, possibly of a candlestick, in buff sandy fabric with yellow-green glaze. Diameter 40 mm.
- 597 Rim of dish or platter in red sandy fabric with brown glaze on upper surface and spots of glaze on lower surface. Wavy line of trailed white slip, appearing yellow beneath glaze, on rim.
- 598 Sherd in red sandy fabric with brown glaze on exterior. 'Chain' of white slip on exterior, appearing yellow beneath glaze.

- 599* Base of poychrome plate' Pink fabric with white tin glaze on upper surface and lead glaze on lower. Design consists of a blue spiral, from which radiates petals or leaves of blue, yellow and green. Dated examples: 1652-5 (Bristol) and 1600-75 (City of London). (cf Davis and Ashdown 1970, 1.)
- 600* Dish Cream fabric with white tin glaze on both surfaces. Linear decoration in blue on upper surface. There is part of a boss, pushed through from lower surface, and complete examples of this form have a 'cogged' rim. Dated example: 1636 (Fitzwillian Museum).
- 601* Bowl Cream fabric with tin glaze on upper surface and lead glaze on lower. Design of geometric and leaf motifs in blue, which was also associated with a sunflower design on similar examples. Also similar sherds, possibly from same vessel. Date not later than 1650. (cf Davis and Ashdown 1971, 4.)
- 602 Bowl in cream fabric with white tin glaze on both surfaces. Blue linear decoration on upper surface, with blue and yellow chain beneath. (Shape similar to Bloice 1971, no. 21)
- 603 Porringer handle in cream fabric with white tin glaze on upper surface and lead glaze on lower. Design in blue on upper surface. Very worn and probably residual.
- 604* Mug Pink fabric with tin glaze on both surfaces. Purple manganese mottling on exterior. Mugs of this

type have been found at the Vine Lane site Southwark, and a similar example has been dated to the 1630s.

- 605 Chamber pot in cream fabric with white tin glaze on both surfaces. The glaze has a pink tinge, which is uncommon. Diameter 193 mm. (Shape similar to Bloice 1971, no. 78.)
- 606 Base of a jar in cream fabric with very worn tin glaze on both surfaces. Part of blue horizontal line decoration on exterior, just above the base. Diameter 116 mm. (Shape similar to Bloice 1971, 83.)
- 607 Rim of jar in cream fabric with white tin glaze on both surfaces. Decoration of a purple line below rim on exterior. Diameter 70 mm. (Shape similar to Bloice 1971, 85.)
- 608 Rim of straight-sided vessel, the sides of which slope inwards towards a plain, slightly out-turned rim. Buff fabric with yellow glaze. Trailed slip decoration on exterior beneath glaze - two horizontal lines of brown slip with oblique 'stitches' of orange slip between horizontals. Too small to measure diameter. Date possibly c.1675-1725. (cf Celoria and Kelly 1973, no. 149.)
- 609* Rim of plate Fine buff fabric. Moulded design in white and brown slip, covered by yellow glaze, on upper surface. Edge of rim notched.
- 610* Base sherd Porcelain with thin red/orange line on interior and design in buff and brown on exterior.

Level Vf

- 611* Jar Red sandy fabric with dark green glaze on interior. Exterior soot-blackened.
- 612* Jar Red sandy fabric with grey core. Green/brown glaze on interior and patches of thin brown glaze on exterior.
- 613 Jar with heavy folded square rim in red sandy fabric with grey core. Brown glaze, worn along outer edge of rim. Diameter 340 mm.
- 614 Cup in red sandy fabric with green glaze. Diameter 140 mm.
- 615 Steep-sided bowl with out-turned rim. Buff sandy fabric with brown-speckled yellow glaze on interior and top of rim. Groove on upper surface of rim, close to inner edge. Diameter 170 mm.
- 616* Cup rim with handle scar Pink-buff fabric with very little, very fine sand tempering and worn yellow glaze on interior and top of rim. (cf Holling 1971, type B3.) Mid-later 17th century. See also 353.
- 617* Base of jar Cream fabric with white tin glaze on both surfaces, with a pinkish tinge. (Shape similar to Bloice 1971, 89, but vessel is smaller.)
- 618 Base of an ointment pot in cream fabric with white tin glaze on both surfaces. Diameter 37 mm. (Shape similar to Bloice 1971, 93.)
- 619* Rim sherd Porcelain saucer; brown ring around rim, rest of decoration is blue. 18th century.
- 620* Two joining rim/base sherds Porcelain, decorated in shades of blue. Yung-Cheng. (1723-35).

SMALL FINDS (Fig.15)

Clay pipes

The clay pipe evidence (Table 5) suggests the following dating for these levels:

Vd lower	:	down to c.1640+	[L9]
Vd upper	:	c.1640-60+	[L8]
Ve	:	c.1660-80	[L6, 7]
Vf	:	mid 18th century	[L5]
Vg	:	1780+ with much derived material	[L1-4]

Evidence from Ve suggests that type 25 may have been manufactured before 1700, possibly as early as 1680.

StoneLevel Va [L14]

65 Struck flint flake with a worked notch.

GlassLevel Va [L14]

66 Very thin shoulder fragment of vessel glass. Transparent, blue in section.

67 Fragment of blue-green translucent vessel glass.

Level V D [L13]

68* Handle fragment Blue-green transparent glass with elongated bubbles.

69* Fragment Blue-green transparent vessel glass. Ribbed, and with narrow groove.

Level Vh [L12]

70 Neck fragment of R-B vessel glass. Transparent, blue in section.

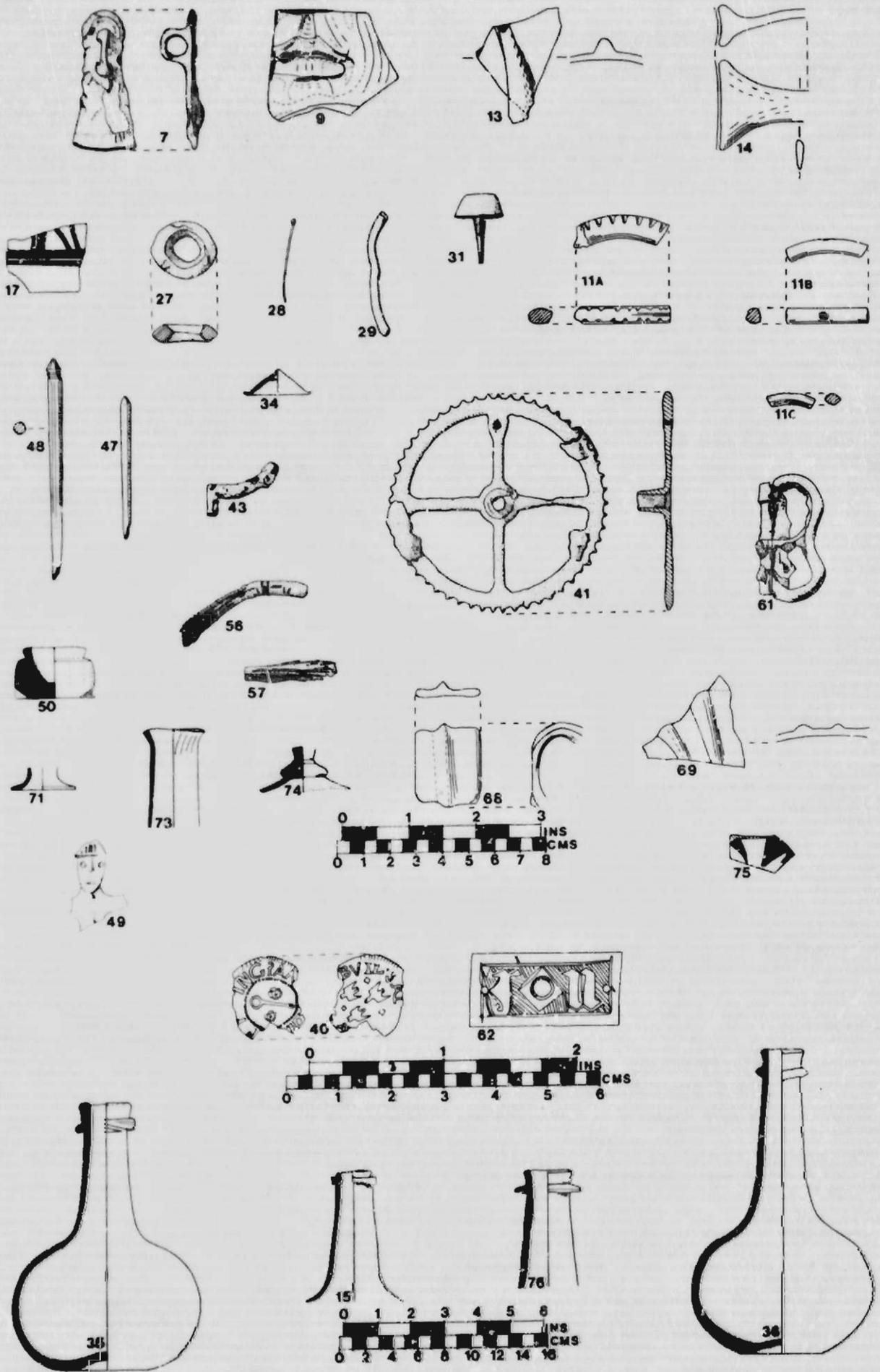


Fig 15 Small finds from all trenches. Nos 7-76

Level Vc [L10]

- 71* Foot fragment of vessel glass Opaque with black surfaces and yellow section. Probably medieval.
- 72 Fragment of R-B vessel glass. Transparent, blue in section.

Level Vd [L8, 9]

- 73* Neck and rim of small bottle Pale apple-green translucent glass. Flakey metallic decay. Irregular rim and twist marks for 10 mm below it.
- 74* Fragment Colourless transparent glass, probably base of wine-glass. (cf Moorhouse 1971, no. 13)
- Fragments of dark green bottle glass
- Fragments of flat glass, probably window.

Level Ve [L6, 7]

- 75* Fragment Painted window glass, as 17. Also unpainted fragments.
- 76* Fragments Dark green bottle glass, including neck/rim of latter 17th century. (Leeds 1241).
- 77 Base of small cylindrical bottle in colourless glass. Diameter 40 mm.

Coins and Trade TokensLevel Vg [L3, 4]

- 78 Trade token: Ob: WILLIAM LUCAS
Savage with club over shoulder
Rx: IN SOUTHWARK WML $\frac{1}{4}$ d [Coin no. 57
(Ref: Williamson 1889, Southwark 63.)
- 79 Unidentified coin.

IronLevel Va [L14]

Nail.

Feature V D [L13]

Nails with round sectioned shanks.

80 Two fragments of a hinge. Badly corroded.

Level Vc [L10]

Two nails with round sectioned shanks and flat round heads.

Level Vd [L8, 9]

Nails

81 Possible knife blade.

Level Ve [L6, 7]

Nail

82 Small plate.

Level Vf [L5]

83 Shank of nail, square section, Length 100 mm.

84 Flat object, perhaps knife-blade. Length 100 mm.

BronzeLevel Vc [L10]

85 Five spherical-headed pins.

86 Three lace tags.

87 Piece of wire.

Level Vd [L8, 9]

88 Ferrule.

89 Two pins, length 28 mm (1.1 in). [sf nos. 41, 42]

90 Lace tag, length 18 mm (0.7 in). [sf no. 43]

91 Fragment of hinge. [sf no. 45]

Level ve [L6, 7]

Lump

Level vf [L5]

92 Disc, possibly a button. [sf no. 34]

Lead

Level vc [L10]

Fragment of a glazing came.

Bone

Level vc [L10]

64 Seven pieces of bone waste similar to that found in the early 16th century pit IVP4 in trench IV (q.v.).

Level vd [L8, 9]

Pieces of bone industry waste from bottom of level.

TABLE I: Numbers of clay pipes from Trench II, by level and type

Date range	1640-70	1640-60	1640-80	1660-80	1660-80	1660-80	1690-1710	1680-1710	1680-1710	1730-60	1760-1800	1760-1800	1760-1820
Type no.	9	10	9/15	13	13/18	15	19	21	22	25	26	25/26	26/27
Level II f											1		
" II g						2							
over II g										2	1		
Level II h	1	1	2	1	1		1	1	2	1	1	1	1
" II D1										1			

TABLE 2: Post-medieval pottery from Trench III, numbers of sherds by level and by fabric group

Fabric Group	H	N	A	B	C	D	M	J	F	G	L	Total
Level III d	5	7	57*	2	19	1	2					93*
" III e	1		4	1	2			1			3	12
" III f			2	8	2		1		1	1		15
" III P			57	3	47	7	9				30	153

* includes 38 sherds from one complete vessel

TABLE 3: Numbers of clay pipes from Trench III, by level and type.

Date Range	1640-70	1640-60	1640-80	1640-80	1660-80	1660-80	1660-80	1690-1710	1680-1710	1680-1710	1730-60	1760-1800	1780-1820
Type no.	9	10	9/15	12/18	13	15	18	19	20	22	25	26	27
Level IIIId						1							
III S2			1			3					6		1
IIIe						2							
IIIg						9			1				
IIIP	1		3	1	8	104	1	2	1	3			
IIIL		1				1		1		2	2	1	

TABLE 4: Post-medieval pottery from Trench V, numbers of sherds by level and by fabric group

Fabric Group	H	N	A	B	C	D	M	J	F	G	L	I	K	E	Total
Level Vc	12	11	63	30	2	2	17		1						138
" Vd	11	5	86	13	48	3	14	1	9	3	1				194
" Ve			114	13	89	12	19		1	5	9	2	1		265
" Vf			37	14	5	1	2				2		2	4	67

TABLE 5: Numbers of clay pipes from Trench V, by level and type

Date Range	1580-1610	1600-40	1600-40	1600-40	1610-40	1610-40	1640-70	1640-60	1640-70	1640-70	1640-80	1640-80	1660-80	1660-80	1660-80	1660-80	1680-1710	1680-1710	1730-60	1780-1820
Type no.	4	5	5/7	5/10	6	8	9	10	11	11/12	9/15	10/13	13	14	15	18	20	21	25	27
Level																				
Vd (i)		1		1					1											
Vd (ii)	2				1	1	9	4	2	1		1		3						
Ve		1	1		1		5	2	1		2	1	2	2	11	4		2	4	
Vf					1										1		1		11	1
Vg											1				5	2	1		1	3

Anatomical and economic studies of
animals bones from post-medieval
refuse deposits in Southwark.

by

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The excavation of the site of 199, Borough High Street, Southwark, London, produced two post-medieval refuse deposits rich in animal bones. These bones are of considerable morphological interest and their nature and probable origin shed light on the economic and social activity of this bridge-head suburb of London and on the type of livestock utilised.

MATERIAL AND METHODS

Of the strata excavated, only two contained sufficient bone to merit a full study. Pit III P is a refuse pit which from the accompanying pottery and tobacco pipes is dated to circa 1680. Pit IV P4 is a refuse pit associated with an adjacent prison. This pit is dated to the sixteenth century.

After preliminary sorting the bones were identified to species and the number of bones and animals they represented noted. Subsequently we attempted to establish the sex and age of the animals from some of the bones. The criteria adopted are considered at appropriate points below. The findings and specific conclusions therefrom are most conveniently presented under each deposit. Sheep and goats (not found) were identified using the criteria of Boessneck, Müller and Teichert (1984).

RESULTS

Pit III P

The majority of the bones found in this deposit were the horn cores of cattle. The species found and the minimum number of animals represented are, with the exception of the cattle horn cores, summarised in Table A1. The frequency of the principal bones of these species is summarised in Table A2.

Cattle horn cores

A total of sixty-nine horn cores came from this deposit. The majority of them were incomplete. Each horn core had been detached from the skull fairly close to the horn base, so that in most cases the midline area of the cranium was lacking. Because of this, it was not possible to pair off horn cores from

the right and left sides. Twenty-seven horn cores were from the left side and forty-two from the right. This discrepancy is not, however, statistically significant.

On the basis of the size and shape of the horn core and nuchal crest, three groups of horn cores can be distinguished. These horn core types are referred to as D, E and F and the type examples are illustrated in figs. Dimensions of the horn cores were as follows : circumference of base of horn core in mm.

Type D 151, 165, 167 (2), 170 (2), 171 (2), 173, 178, 182, 183 (2), 184, 185, 187 (2), 190, 192, 193, 194, 199, 200 (2), 202, 203, 209, 210, 211 (2), 212 (2), 213, 214, 221, 223, 231, 238, 255, 283.

Type E 131, 135, 142, 160.

Type F 154, 160, 161, 167, 182, 184, 186, 188, 192, 197 (2), 201, 208, 210, 214 (2), 216, 217, 223, 225, 226, 231, 238.

There were forty-one examples of type D, four of type E and twenty-four of type F.

The significance of the horn core types

The reason for classifying these horn cores into types is to locate in time and place livestock showing common characteristics. Horn cores have an inherent variability in their size and form which makes them particularly useful in such studies.

The size and form of an individual's horns in a herd of cattle of common origin, is due to both individual variation and to the sex of the animal. Horns are moderately sexually dimorphic in most Bovidae. This was the case with the Aurochs (Bos primigenius) from which the modern European cattle are descended. The horns of females are normally slighter than those of the male. The horns of castrated males resemble those of the female but the degree of resemblance is affected by the age at castration. The horns of juveniles of both sexes are smaller and the growing bone is spongy in appearance. After burial in the soil it is more friable than that of an adult. In defining cattle types from a

potentially heterogeneous collection, it is necessary to consider both intra and inter-varietal variation. The sex structure of such a collection is likely to be biased by the economics of livestock production.

We have measured the circumference of the base of the horn core in order to discriminate between the sexes and compare the types. This dimension is shown for types D and F in fig. A1. In animals of types D and F this dimension with two exceptions, ranges from 150 - 240 mm. Only two animals of types D lay outside this range. The coincidence of the measurements between groups D and F strongly suggests that these are distinct varieties of cattle and not the sex classes of a single type. The dispersal of the measurements within each type shows no clear evidence that two sex classes are present, although it is possible that both females and castrates are present. Although on metrical grounds the four type E cattle might be considered as a separate class of either D or F, they are, on morphological grounds, a distinct type.

The origin of the animal bone

In addition to the animal bones, this pit contained much pottery and clay pipes. Bones other than horn cores are relatively few and most probably represent small portions of meat. Horn cores do not have any useful quantity of flesh about them and therefore these cannot be regarded as food refuse. The small portion of cranium attached to each indicates that they were carefully removed from the skull. This implies that they were detached for subsequent processing of the outer sheath of horn. Horn was an important commodity in the past and it seems most probable that the horn cores are the refuse from a horn worker's premises. This interpretation would also account for the limited number of the small horned type E cattle compared with the larger types F and D. A similar deposit of horn cores at Coventry was also interpreted as refuse from a horn worker (Chaplin 1966).

The cattle types

In a fourteenth century deposit at Coventry, four types of cattle were distinguished by the shape of the horns and nuchal crest (Chaplin, 1966). These

CIRCUMFERENCE OF HORN CORE AT BASE
(m m)

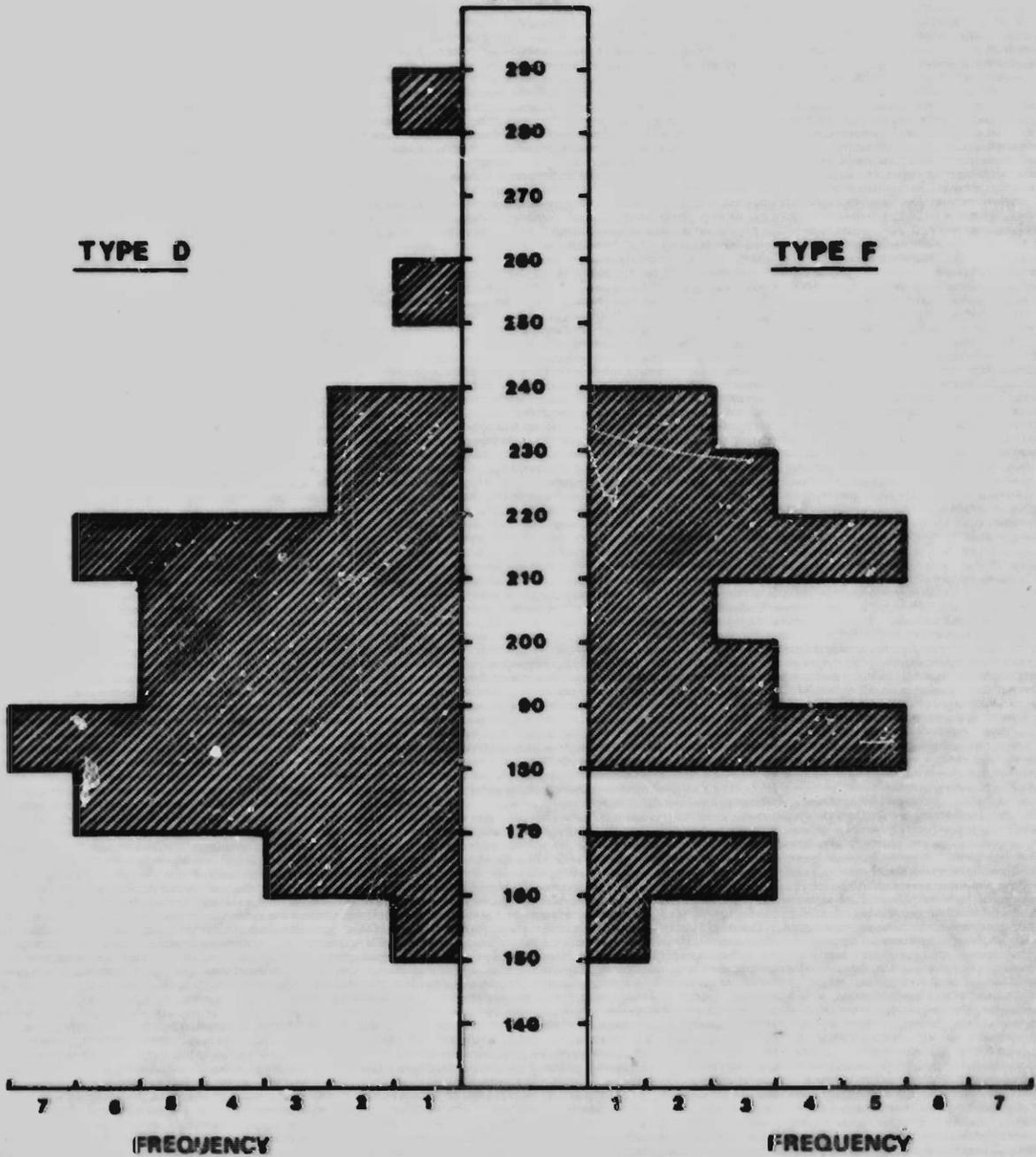


Fig Ai

animals are referred to as Coventry types A - D. Coventry type A is very similar to Southwark type F. The circumference of the base of the horn core in the Coventry animals ranged from 110 - 190 mm whilst the Southwark ones range from 150 - 240 mm and are clearly more massive. Cattle with very small horns are scarce at both Coventry and Southwark. The shorthorn (Coventry B and Southwark E) is difficult to interpret. That from Southwark shown in fig. A1 agrees with the example from Coventry in having the horn set below the nuchal crest. In the other example from Southwark, it will be seen from fig. A1 that the horn arises much closer to the nuchal crest. This variant is absent from the Coventry deposit. Because of the small size of the shorthorn sample at both sites, the significance of this variant cannot be established. At present we distinguish only a single shorthorn type, but it is possible that the variant noted on the present site may need to be given full type status. The Coventry type C is absent from Southwark but was, with type A, the most numerous of the forms at Coventry. In contrast, at Southwark, the Southwark type D is the most numerous type, yet at Coventry this type (Coventry D) is represented by only a single example.

Particular breeds of cattle often have horns of distinctive form and the illustrations here are clearly reminiscent of some of these. A breed is not, however, characterised by its horns. Modern livestock breeds were established from a variety of stock at a comparatively late date (mostly from the eighteenth century). It would therefore be unwise to apply breed names to these varieties. When many more deposits have been studied it may be possible to reconstruct the history of the lines which went into the modern breeds.

Pit IV P4.

The species found and the minimum number of animals represented are shown in Table A3. Compared with other bones, there is a disproportionate number of cattle skulls, jaws and metapodials and sheep skulls and jaws. Therefore, also given in Table A3 is the minimum number of animals determined from bones other than these. The frequency of individual bones of the principal species present is

shown in Table A4.

Age estimation of cattle mandibles

The most convenient index of the age structure of the sample is obtained from the frequency of certain stages in the eruption and wear of the cheek teeth. With intact mandibles, close classification is relatively straightforward. The present specimens were all fragmentary and therefore it was only possible to distinguish broad categories of age. We distinguished three age classes and the number of animals in each class is shown in Table A5.

Age classes of cattle mandibles

Class 1

This class is characterised by animals in which milk teeth are present or in which the milk teeth have recently been replaced by permanent teeth. The permanent teeth of such animals show almost no wear. The dental formula of the five animals is given in Table A6.

Class 2

All animals in this class have a full permanent dentition which shows moderate wear. Characteristically, the lingual crests of the molars are low but the infundibulae are distinct. In the most worn examples, the valley between the anterior and posterior cones of the molars is slight. There is a clear discontinuity between animals in class 1 and the least worn examples of this class.

Class 3

This group is characterised by molars and premolars with flattened occlusal surfaces, shallow infundibulae and extensive exposure of dentine. This is a terminal group covering animals of very different ages but distinct from those of class 2.

Age criteria from the most cranial bones of cattle

For modern stock the approximate time scale for the fusion of the epiphyses of long bones is known. Whilst the true age to be assigned to these events in

ancient stock is unknown, the indications are that they fused at a greater age. For this reason, we record here both the criteria and a modern time scale taken from Silver (1969). We have not used this information in determining the minimum number of animals because these ages are not easily or precisely correlated between different bones. In view of the disproportionate number of jaw bones, we consider it unwise to correlate the age structure derived from these two groups. Age criteria and data are detailed in Table A7.

Age classification of sheep mandibles

The sheep mandibles were divided into two classes. The first comprised animals with one or more milk molars or premolars and animals in which permanent teeth were still erupting. The remaining animals with permanent teeth formed the second class. The second class was examined in order to establish further classes defined by discontinuities in the pattern and amount of wear. Some complete jaws were present in the sample and a series of jaws from modern sheep of known age were available for comparison. The pattern and amount of wear in the ancient sample was so varied that we could not establish a sequence of wear patterns and were unable to divide this second class despite the obvious age variation in the sample. Because most of the jaws were fragmentary, a true minimum number of animals could not be determined between left and right halves. The final age division of the mandibles is therefore based on the number of bones and is given in Table A8.

Age criteria from post-cranial bones of sheep

The same problems of the absolute age of fusion of the epiphyses mentioned for the cattle apply to the sheep. The criteria of age and the modern time scale are given below. The disparity in numbers between the mandibles and post-cranial bones in the sheep, suggests that the two groups of age estimates may not be comparable, as they could in part represent different groups of animals. Age criteria and data are detailed in Table A9.

Sex estimation

Pit IV P4 cattle metapodials

Pit IV P4 cattle metapodials

There were no complete metapodial bones. The width and depth (a - p) of the proximal and distal ends of metapodials were measured and these are given in Table A10. These dimensions are frequently sexually dimorphic in ungulates. Of twenty proximal ends of the metacarpal, neither width, depth nor the width/depth index indicated dimorphism. The same applied to a sample of twenty-seven distal epiphyses.

Of the metatarsals, forty-seven proximal ends (dimensions given in Table A10) showed no certain evidence of dimorphism in their width, depth (a - p) or width/depth index. The latter, however, suggests an homogeneous sample. The width, depth and width/depth index of the distal epiphyses also suggests an homogeneous sample.

Higham (1969) has examined sexual dimorphism in the metapodials of modern Aberdeen Angus breed cattle. He found that a useful discriminant of sex in both metacarpals and metatarsals was the relationship between the distal diaphysial width and the distal epiphysial width. These dimensions are given in Table A10.

We have examined these relationships in the present sample and compared these with Higham's data for modern Aberdeen Angus cattle by plotting the two sets of data together. The distribution of the values from the present site is different from that for the Aberdeen Angus sample. Most of our values lie within or to the left of the 95% equiprobability ellipse for the steers and in the upper third of the female ellipse. Two, however, lay just outside the bottom left hand corner of the female ellipse. It may be inferred that these two animals are distinct from the others. The disposition of these dimensions suggests that they might also be bound by an ellipse of similar size and shape to those calculated by Higham, but with slightly different co-ordinates.

From the data it is impossible to sex the sample. The distribution of the dimensions and the husbandry techniques of the period favour the view that the majority of our samples are steers (castrated males) with a few females present. The alternative view that our sample consists of cattle of mixed type having different metapodial properties which obscure sex differences in any one type

seems improbable. The normal distribution of the single dimensions strongly suggests that we are dealing with a sample that is homogeneous in regard to metapodial characteristics.

Sheep mandibles Pit IV P4.

In the collection of sheep mandibles, the most frequent dimension available was the length of the tooth row. In sheep this dimension is of unknown value for sex determination. The length of the tooth row in mm. of twenty-six normal jaws was as follows : 67 (2), 68 (5), 69 (3), 70 (2), 71 (7), 72 (1), 73 (2), 74 (2), 75 (2).

There is no certain suggestion that more than one group is present.

Dental anomalies Pit IV P4.

The only dental anomaly noted was the congenital absence of the second premolar (the first of the cheek teeth). In eight of fifty-nine mandibles the second premolar was congenitally absent. In the remaining fifty-one mandibles some had lost this tooth in life.

Worked bone Pit IV P4.

The metapodial bones of the cattle all show evidence of post mortem working. It is clear from the large numbers of waste slivers of bone and artefacts found (chessmen, dice etc. ^{see find 64}) that the shaft of the metapodials (especially metatarsals) was a prime source of raw material. The shafts of the metapodials are thick walled and straight. No other bone provides strips of comparable thickness and length. It is clear from their numbers that metapodial bones were collected for this purpose. The ends having been sawn off, were discarded as waste. A selection of the debris from this work is shown in Plate A1.

DISCUSSION

Origin of the deposits.

Pit III P1 contained principally cattle horn cores along with a few other bones. It would appear that the former are workshop debris, the latter domestic debris. The method of detachment of the horn cores suggests deliberate removal. The most likely use of these horns when fresh would be for the removal of the

outer keratinous sheath of true horn. Horn at this time was an important raw material for vessels, ornaments and decorative work, having properties not unlike some plastics. A detailed argument for this interpretation of the origin of such deposits of horn cores is given for a medieval site in Coventry by Chaplin (1966). This useage could also explain the frequency of the different types of cattle already noted. Pit IV P4 can also be regarded as of mixed origin. Clearly the worked bone is predominantly refuse from handicraft work. The disproportionate number of metapodial bones clearly indicates the acquisition of these bones for this work. The disproportion of sheep heads is not so easy to explain, there being no indication of use. The mixture of the bones in the ground and their fragmentary nature indicates that the sheep heads were not discarded fresh, nor after simple extraction of the brain. The most probable explanation is that they were stewed either to provide food or to obtain fat, gelatin etc.. The other bones present appear to be food debris.

This picture is in accord with the view that this pit was associated with the adjacent prison.

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The minimum number of animals represented by post cranial bones in Pit III P1.

Cattle	Sheep	Pig	Horse	Dog
3	6	1	1	1

TABLE A2.

The frequency of the principal bones of the body found in Pit III P1.

Bone	Number of bones of				
	Cattle	Sheep	Pig	Horse	Dog
Horn core	69	1	-	-	-
Cranium	1	0	0	0	0
Dentary	1	4	0	0	2
Scapula	2	1	0	1	0
Humerus	0	2	1	0	0
Radius and Ulna	1	1	1	0	0
Metacarpal	1	0	0	0	0
Femur	1	0	0	0	0
Tibia	1	0	0	0	0
Metatarsal	1	1	0	0	0

TABLE A3.

The minimum numbers of animals found in Pit IV P4.

Minimum number of animals	Cattle	Sheep	Pig	Horse	Red Deer
(a) All bones	49	81	4	1	1
(b) Excluding skull, jaw and metapodials	13	13	4	1	1

TABLE A4.

Minimum number of animals represented by different parts of the body of cattle, sheep and pigs from Pit IV P4.

	Cattle	Sheep	Pig
Skull	15	22	0
Horn core	18	18	-
Mandible	43	84	2
Atlas	28	5	1
Scapula	6	14	2
Humerus	4	14	4
Radius and Ulna	7	12	4
Metacarpal p.	21	} 5	0
Metacarpal d.	30		0
Femur	20	10	0
Tibia	12	13	1
Metatarsal p.	52	} 2	0
Metatarsal d.	58		0

TABLE A5.

Age structure of cattle mandibles by age classes.

	Age Class		
	1	2	3
Number of animals	5	19	19

TABLE A6.

Dental formula of cattle in age class 1, Pit IV P4.

1.	- ↑ P2	P3	P4	M1	M2	- ↑ M3	
2.	-	- ↑ P3	-	-	-	-	
3.	-	-	-	- ↑ M1	-	-	
4.	-	-	P4	M1	M2	M3	freshly erupted
5.	-	- ↑ P3	-	M1	M2	-	

- ↑ = tooth erupting - = tooth missing
P = permanent premolar M = permanent molar

TABLE A7.

Age criteria for cattle from long bones, Pit IV P4.

Age (months)	Bone and epiphysis	Number fused	Number unfused
7 - 10	Scapula d.	4	2
	Innominate	-	-
12 - 18	Humerus d.	1	3
	Radius p.		
24 - 30	Metacarpal d.	27	3
	Tibia d.	10	1
27 - 36	Metatarsal d.	50	1
36 - 42	Calcaneum		
	Femur p.	7	0
42 - 48	Femur d.	4	10
	Tibia p.	6	2
	Ulna	0	1
	Radius d.	4	1
	Humerus p.	1	1

TABLE A8.

Age classification of sheep teeth, Pit IV P4.

	Class 1	Class 2
Left jaw alone	5	34
Right jaw alone	3	35
Pairs	3	1
Total of half jaws	<u>14 (18.5%)</u>	<u>71 (83.5%)</u>

TABLE A9.

Age criteria for sheep from long bones from Pit IV P4.

#	Age (months)	Bone and epiphysis	Number fused	Number unfused
	6 - 8	Scapula d.	-	-
	6 - 10	Innominate	-	-
	10	Humerus d.	12	1
		Radius p.	4	0
	18 - 24	Tibia d.	4	0
		Metacarpal d.	0	1
	20 - 28	Metatarsal d.	0	1
	30	Ulna	-	-
	30 - 36	Femur p.	6	1
		Calcaneum	-	-
	36	Radius d.	4	1
	36 - 42	Humerus p.	11	1
		Femur d.	7	2
		Tibia p.	1	2

Modern figures from Silver (1969).

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Res Vol SyAS *Research Volume of the Surrey Archaeological Society*

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Note

1. While this report was in the Press, the box containing the pieces of carved bone from Trench IV, F IV P 4 (Find 64, p 19, plates I-IV), noted in the report as having been lost in transit were found in a museum store. They will form the subject of a future note in *Surrey Archaeological Collections*.