

APPENDIX V

BUILDING MATERIALS AT HARTS HOSPITAL, WOODFORD

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The building materials retrieved during the excavations at Harts Hospital were examined using the London system of classification. A fabric number is allocated to each object which specifies its composition, form, method of manufacture and approximate date range. The material will be discussed by archaeological phase. A list of the objects will appear at the end of this section of the report. Examples of the fabrics can be found in the reference collections of the Newham Museum Service and/or the Museum of London Archaeology Service.

TRENCHES 27-30

Trench 27

Phase 6:

The evaluation trench for Trench 27 revealed the wall (2006) of a building dating to 1450/1480-1700. The wall was built with unfrogged dull orange brick, less than 60mm thick of fabric 3033 with uneven bases with that date range. The lower brick courses were built with thinner bricks than the upper courses and there was a levelling course separating the two types. Medieval tiles were present in the soil dumps to its south. It is possible that the wall was part of Handford House which was probably built between 1617 and 1619. This wall may have been built at one time, the levelling course separating the bricks from two different sources, though it is possible that the wall was rebuilt during the building's development, the levelling course representing the base of the later addition. This possible addition may represent the construction of the 1617-1619 building on top of an earlier building or (if the lower wall was built in 1617-1619) a later 17th century to early 18th century wall rebuild. The medieval tiles in associated layers may have derived from a medieval phase of the building or a predecessor.

Phase 12:

Most of the building materials in this trench were retrieved from phase 12, which has a 19th to early 20th century date. The brick used was mostly purple, of fabric 3032 and was frogged. An example 225mmx101mmx66mm (in context (2614)) was kept. Others 92mm to 95mm wide and 61mm, 68mm and 72mm thick were kept. One frogged orange brick of fabric 3046 with yellow surfaces (222mmx104mmx67mm), a similar size to the purple brick in (2614), appeared in context (2570).

Trench 28

Phase 10:

All the building materials in this trench derived from phase 10, which dates to the late 18th century. The bricks in the possible retaining walls (contexts (2368) and (2369)) were unfroged and mostly of fabric 3032 (though some were of fabric 3033 and were 225mmx111mmx63mm). They were mostly 236-240mmx93-100mmx69-70mm, though one incomplete example was 110mm wide and 66mm thick. In the area of north east London, bricks approximately 70mm thick tend to date to the late 18th to early 19th century. This slight thickening of bricks may have been a response to the introduction of the Brick Tax in 1784, though this is by no means certain. The wall of the structure in the south of the trench was made with unfroged light orange bricks of fabric 3033. Much of this was thin possible paving brick which was 224mmx103-4mmx49-52mm. The rest was 226mmx103mmx62mm in size.

The drains were built with a variety of brick fabrics reflecting the fact that the drainage system developed gradually to accommodate the gradual development of the buildings and their change in use. Drain (2366) was constructed of post-late 18th century froged and unfroged orange brick of fabric 3033 212-4mmx98-112mmx65-69mm. Drains (2358) and (2362) were built with shallowly froged examples of fabric 3032 218-220mmx101-107mmx60-63mm, though the difference in the composition of their mortar bonding suggests that they were not contemporary¹ with each other. The bricks in drains (2364) and (2360) were longer and of fabrics 3033 and 3032, though fabric 3032 predominated. The latter were mostly froged though some unfroged examples appeared in (2364). The size range was 228-230mmx96-105mmx65-71mm. As with the purple brick that of fabric 3033 was froged in the case of (2360) and both froged and unfroged in (2364). The froged brick was 228-230mmx101-109mmx62-67mm, while the unfroged brick (much of which was re-used) was 226mmx105mmx65mm in the case of the 18th century example and 220mmx110mmx57mm in the case of a pre-18th century brick.

Trench 29

Phase 4.1:

The building materials retrieved from this trench were all from pit fill (2424). A large quantity of medieval roof tile was present confirming that demolition and repair material derived from a medieval building. Fabrics 2816, 2271, 3204, 3094, 2273, 2586 and 2587 were represented. The latest known start date for one of these fabrics is 1270, for fabric 2586, indicating that the pit was filled after that date.

Phase 7:

In the evaluation trench for Trench 29 a structure composed of walls (2001/2066), (2069), (2075) was found, which was probably part of the same building as that detected in the north

¹ The mortar in (2362) is very limey, containing abundant charcoal <3mm, occasional sand patches and flint, while that in (2358) is sandy with occasional chalk and frequent flint.

east of Trench 26 (contexts (1645) and (1646)). The bricks were of the same fabric and the same size.

Trench 30

Not all of the material kept is listed in the database. Some (though a minority) of the objects referred to only appear on building material recording sheets, while some was only observed in-situ.

Phase 4.1:

The late medieval to early post-medieval hearth is constructed of pitched peg tiles of fabrics 2271 (two were complete and were 267x146x14mm and 262x152x15mm, eight showed a tile's complete width of 143mm, 149mm 150mm, 152mm, 153mm (three examples) and 155mm), 2276-near-2271, 2276 (150mm and 146mm wide), 3204 (165mm wide), 3094 (with less sand than usual 158mm wide), 2273, 2586 and 2587. Many tiles of fabric 2271 contain more calcium carbonate than is usual for this fabric. This may represent a local variation in techniques of manufacture or the composition of the brickearth.

The exact dating of the earliest development of this hearth is not certain. Though the majority of these tiles are medieval, fabric 2276 has a start date some time between 1480 and 1520. This fabric and 2276-near-2271 only definitely appears in context (2427) in this phase (though there is a tile fragment which may be either fabric 2271 or 2276 in context (2344)). It is possible that the other contexts in this phase of the hearth's development represent a late medieval hearth, later repaired in the early post medieval period in the area covered by context (2427), though this is by no means certain, as it is possible that all or some of the hearth's tiles are earlier roof tiles reused in a later hearth.

The hearth is likely to be contemporary with the brick walls in this phase, though it is possible that they may be later. The component bricks are orange, of fabrics 3033, 3046, and 3065. One brick of fabric 3033 is 199x106x58mm, the rest are 224-231mmx100-108mmx52-55mm. they are dark to dull red and have uneven bases. The date range of these bricks is 1450/1480 to c.1700, which means that it is possible that these walls are contemporary with a hearth which dates towards the end of the fifteenth century.

Phase 4.2:

The extension and repairs to the hearth were conducted using peg tile of fabrics 2276 (150mm, and 163mm wide), 2271 (147mm, 149mm, 150mm, 151mm, 152mm, 153mm, 155mm and 156mm wide), 3201-near-2276 (152mm wide), 2816-near-3201 (247mm long), 2816 (143mm and 156mm wide) and 3204 (158mm wide). As with the tile in phase 4.1, many examples contained a greater calcium carbonate content than is usual in the fabrics. However, fabric 2816 did not appear in the hearth in phase 4.1, the tile of fabric 3204 was narrower than in that phase and fabrics 3094, 2273, 2586 and 2587 which appeared in the earlier phase of the hearth's development were absent from this phase. Contexts (2343), (2426), (2434) and (2503) contained only medieval tile.

The hearth's edging was laid after c.1550 using unglazed floor tile of fabric 2320, 32mm to 34mm thick, two of which showed complete widths of 249mm and 258mm.

The possible chimney breast (2433) is built with brick of fabric 3033, two fragments were kept 116mm and 100mm wide by 67mm and 61mm thick respectively, while the others may have been either medieval or post-medieval, possibly containing reused tile.

Phase 4.3:

The definitely post-medieval tile (of fabric 2276) was confined to contexts (2289), (2293).

Wall (2214) was built with medieval tile and orange sandy brick (fabric 3065, 97 and 110mm wide and 52 and 54mm thick respectively. The wall (2158) along the western side of the hearth in this phase is built with 'Tudor' dull red bricks of fabric 3033 with uneven bases 218-220mm long, 105mm wide and 50-57mm thick.

The earlier part of one of the two walls of this phase (2599) was originally built with 'Tudor', dull red unfrogged bricks of fabric 3033, 225mm by 100mm and 53mm thick). The easternmost wall (2231) was built with unfrogged 'Tudor' brick of fabric 3033 229mmx112mm and 55mm thick. Either the western wall was repaired in the 18th century or both walls were 18th century and were built with reused brick.

Phase 8:

The brick structures in this phase were built with orange brick of fabrics 3033 and 3046. They were 225-7mmx104-6mmx62-66mm. They conform to the size specifications laid down in the 1729 Act of Parliament for bricks made within 15 miles of London and probably date to the 18th century. The tiles were mostly reused medieval peg tiles, one of which (of fabric 2271, context (2298)) was complete and was 222mmx152mmx13mm. Only one post-medieval peg tile was kept from this phase.

Phase 10:

This phase is also 18th century in date. The bricks are of fabric 3033, have a high iron oxide content, are unfrogged and are 214-5mmx100mmx62-3mm. These bricks were probably made later in the century than those in phase 8 and conform to the size specifications of the 1770 and 1776 Acts of Parliament (8½ inches by 4 inches by 2½ inches).

One of the drains in this phase (2152) was built using yellow bricks (fabric 3035, but with pink lensing throughout the fabric). They were frogged and were 228mmx105mmx65mm, dating from the late 18th century at earliest. Drain (2151) was composed of unfrogged orange bricks of fabric 3033, 214mmx101mmx65mm.

CONCLUSION

Three late medieval to early post-medieval buildings were found during the excavations.

The pitch tile hearth in the late medieval building in trench 30 was constructed after 1270 using a mixture of peg tile fabrics², some of which dated to the late medieval to early post-medieval period, the latest post-dating c.1480³. It is not certain if the later tiles represent later repairs to the hearth or date the hearth to post-1480, which would have been built with re-used and/or stored tiles. The early brick in this building is orange of three fabrics⁴ and dates to the second half of the 15th century at earliest. One is 199x106x58mm while the others are 224-231x100-108x52-55mm

The sizes of the bricks in the building in the evaluation trench for Trench 27 are not available. The medieval roof tile fabrics found in association with this building were observed to be of fabrics 2271, 2271-nr-2276, and 2276-nr-2271. There were no sandy tiles present.

The medieval pit in Trench 29 contains a quantity of medieval roof tile of a fabric mix very like that of that in the hearth associated with the building in Trench 30⁵, except that it also contains fabric 2816. It is possible that the pit contains tiles discarded from the construction of the hearth or from the possible demolition of a structure, the tiles of which later found their way into the hearth. The tile concentration in Trench 26 (Beasley, 1996), which formed part of a possible beamslotted structure contained a quantity of medieval tile. If it can be established that this tile derived from the demolition and/or repair of one of the buildings in Trenches 30 or 27, it may be possible to establish the sequence of the development of the buildings during the medieval and early post-medieval period. The relative development of the features and structures may also be able to be traced by examining and comparing the dimensions of the tiles in the three structures and in features

Roof tiles of medieval and post-medieval date of fabrics 3094, 2271 and 2276 containing a greater quantity of small very thin lenses of calcium carbonate than is usual for these fabrics as well as tiles with a greater calcium carbonate content (fabric 3201) appeared throughout the excavations. As this fabric variation has not appeared elsewhere in the north east London area it can be assumed that this assemblage represents a localised industry of tile production extending over several hundred years. Examination of tiles found to the north of this area may help to define its distribution and origins.

The building in Trench 30 continued to develop into the post-medieval period, though the development of the building in the evaluation trench of Trench 27 is not certain. A 17th century building appeared in Trenches 26 (Beasley, 1996) and the evaluation trench of Trench 29 built with orange brick of fabric 3033. The building in Trench 30 developed into the mid-18th century, incorporating orange bricks (fabrics 3033 and 3046, 225-7x104-6x62-6mm) century before being superceded in the late 18th century by a new building (the building often referred to as the Brew House) built with bricks conforming in size to the stipulations of the 1770 and 1776 Acts of Parliament (214-5x100x62-3mm).

The earliest purple bricks (fabrics 3032 and 3034) appeared on the site towards the end of the 17th century (context (1505), 57mm thick). Frogged purple brick (post-dating c.1690, 62mm thick) appeared at the same time. It continued in use into the 19th century, the bricks

² See phase 3.1 in trench 30. Fabrics 2271, 3094, 3204, 2273, 2586, 2587 and 2276-near-2271.

³ Fabric 2276

⁴ Fabrics 3033, 3046 and 3065, which in the form found have a date range of 1450/80-c.1700.

⁵ Fabrics 2816, 2271, 3204, 3094, 2273, 2586 and 2587.

becoming progressively thicker (late 18th century examples 71mm thick appeared in context (2364)).

During the 18th and 19th centuries the drainage system gradually developed. Thin bricks of fabric 3047 (approximately 50mm thick) were often used for this purpose, as were frogged and unfrogged bricks of fabrics 3032 and 3034 and to a lesser extent fabric 3033. Cylindrical ceramic drains of a pinkish beige fabric and of fabrics 2276 and a fabric similar to brick fabric 3032, of many different designs were found throughout the 19th and 20th century phases of the excavations.

Fabrics

Brick:

3033-This fabric represents soft orange brick, locally produced from local brickearths.

It dates from 1450/1480 to the 20th century.

3046-This fabric almost identical to 3033 but is sandier.

3039-This is similar to 3033 except it is permeated with silt lensing.

3065-This fabric is similar to 3033 except that it contains abundant quite coarse sand.

3032-This fabric represents hard purple brick which often has yellow surfaces. It has iron oxide inclusions and varying amounts of rubbish and voids left by the combustion of rubbish. It first appeared towards the end of the 17th century and extends into the 20th century.

3033-nr-3032-This fabric represents the late 17th century version of fabric 3032, before it emerged properly. This fabric is very like fabric 3033, though it has more inclusions and a slightly purple tinge.

3034-This is similar to fabric 3032 except that it is interlensed with silt.

3035-This fabric represents yellow London stock brick, which is hard and has many inclusions. An example of a brick of a similar fabric to this, but with pink lensing appeared in trench 30.

3036-This fabric represents Dutch paving brick. It is mustard coloured often with a greenish tinge, and is permeated with silt lensing. It is very dense, being almost the consistency of sandstone.

3038-This fabric is light orange with a granular consistency. The bricks are machine made dating to the late 19th or 20th century with deep frogs.

Floor Tile:

1977-Orange Flemish floor tile, silt lensing, common quartz <0.6mm, frequent red iron oxide and clay inclusions <2mm.

2318-Orange unglazed Flemish floor tile, abundant quartz <0.5mm, frequent red iron oxide and clay inclusions <2mm, cream silt lensing.

2320-Orange fine sandy floor tile, frequent sand <0.3mm, occasional black iron oxide, calcium carbonate and rock fragments <2mm.

3063-Light brown Flemish floor tile, abundant cream silty inclusions <4mm, occasional quartz <0.5mm, frequent red iron oxide <2mm.

Roof tile:

2271-This fabric represents medieval orange peg or ridge roofing tile, with a scatter of sand and varying amounts of calcium carbonate. Its date range is 1150/1180 to approximately 1500. The tiles are laid on coarse moulding sand before firing.

2276-This is similar to 2271 except that it is laid on fine sand prior to firing and is of comparatively even thickness. It dates from 1480/1520 to c.1900.

- 2271-near-2276-This peg and ridge tile fabric was laid before firing on sand of a consistence nearer to that of 2276 than 2271. It is dated to the very late medieval to the early post-medieval period.
- 2276-Near-2271-Tiles thus described were laid on moulding sand nearer to that of fabric 2271 than 2276 and date to the late medieval to early post-medieval period.
- 2586-Medieval orangy red-light brown peg or ridge tile with frequent sand inclusions <0.5mm. It is laid on coarse moulding sand.
- 2816-Medieval orange-light brown peg or ridge tile with frequent fine sand inclusions some silt lensing and occasional red iron oxide.
- 3090-Medieval sandy peg and ridge tile with frequent fine black iron oxide.
- 3094-Sandy peg and pan tile with frequent very fine black iron oxide and some silt.
- 2275-Orange-brown pan tile with a scatter of sand, occasional iron oxide inclusions <1.5mm and occasional calcium carbonate. They first appeared in the London area 1620/1640s, but only came into widespread use c.1666. They remained in use till the early 19th century, being superseded by roofing slate.
- 2279-This fabric represents orangy red to brown pan tile with frequent large sand inclusions <1mm.
- 3202-This fabric represents orangy red to dull brown pan tile with no obvious inclusions except a slight amount of fine quartz.
- 2587-This peg and ridge tile fabric is similar to 3090, but with rounded silty inclusions.
- 2273-This medieval peg tile fabric contains frequent often coarse sand and often appears in curved and flange tiles.
- 3204-This peg tile fabric is brownish orange with moderate red and black iron oxide <2mm with a large amount of silt lensing.
- 3201-This peg tile fabric contains a considerable quantity of silty calcium carbonate inclusions.