RECENT ARCHAEOLOGICAL INVESTIGATIONS AT LESNES AUGUSTINIAN ABBEY, LONDON BOROUGH OF BEXLEY: A MEDIEVAL GATEHOUSE, ELEMENTS OF THE PRECINCT WALL AND BURIALS

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With contributions by Rebecca Haslam (archaeological sequence), Kevin Hayward (architectural stonework and ceramic building materials), Kevin Rielly (animal bones), Berni Sudds (post-Roman pottery and ceramic building materials)

INTRODUCTION

This online supplement has been published in support of an article in *LAMAS Transactions* Volume 75 (2024), 335–64 (Brooks 2025). Standard Museum of London reference codes are used for ceramic building materials and pottery fabrics, details of which are available online (www.mola.org.uk/resourcelibrary). Context numbers are denoted by square brackets: [1]. Figure numbering is continued from the main article.

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THE ARCHITECTURAL STONEWORK FROM LESNES ABBEY, BEXLEY

Dr Kevin Hayward (2022)

Introduction, Context and Aims

This report analyses the 64 items of architectural stonework with an estimated weight of 168.6 kg recovered from Lesnes Abbey (site code LSS15).

Sixty three of the 64 pieces of stonework were recovered from the Period 5 levelling layers [176] and [213] in Area 1. The other piece of stonework was recovered from the undated backfill [299] of cut [298].

For more detailed information on the geological sources see the stone catalogue.

The objectives of this report are to:

- Ascertain the geological character and source of the worked and unworked stone recovered from the assemblage and see if it all belonged to the construction and embellishment of Lesnes Abbey;
- Assess the art-stylistic function of the stonework and say something about its probable period of use;
- Compare the fabric and form of this material with the *in-situ* stonework visible in the ruins of Lesnes Abbey.

A catalogue of the stonework is available as part of the site archive.

Geological Sources – Availability of Materials

London and north-east Kent lie in an area of the British Isles where the underlying bedrock consists of poorly consolidated geologically recent Tertiary sands and clays that are too soft to be suitable for producing fine carving or ashlar. Some more durable examples of Upper Cretaceous chalk exposed immediately to the south-east of the medieval capital have Holocene river deposited Tufa suitable for usage as ashlar in buildings – *eg* the 12th-century refectory wall at Westminster Abbey and the Pyx Chamber – but they are too soft to be worked into intricately carved mouldings. Slightly further afield, the calcareous and glauconitic sandstones, such as the Kentish ragstone and Hassock stone from the Lower Greensand of the Medway, are in the main too hard to be intricately carved, restricting tooling to just superficial carving and dressing. Therefore, stonework suitable for fine carving, termed freestone by quarrymen and masons, needed to be brought in from much further afield. These freestones consist of fine, even-grained limestones and sandstones characterised by a soft, open porous texture that enables the rock to be worked or carved in any direction, take inscription and yet be hard enough to withstand external weathering. Reigate stone, a soft, lime green glauconitic limestone from the Upper Greensand outcrops of the Reigate/Mertsham area of East Surrey is the only stone local to this part of Kent that fulfils these

Table 1. A summary of the character, source, quantity, original period of usage and probable function of the main stone types recovered from Lesnes Abbey

MoL fabric code	Description	Geological type and source	Quantity and weight	Use at Lesnes Abbey
3106	good quality denser green glauconitic sandstone with flecks of black iron oxide	Hassock stone, Lower Cretaceous, Lower Greensand Maidstone District - Kent	1 example 2.9kg	column drum diameter 175mm <134>
3107	fine grained low-density glauconitic limestone	Reigate stone – Upper Greensand, Lower Cretaceous Reigate-Mertsham Surrey	33 examples 61.2 kg	a mixture of standard and complex elements including: • small column shaft, including engaged shaft <028> <043>; • large column drum estimated diameter 800mm <095>; • cornices <002> <077> <082> <133>; • many Early English keeled roll elements with keel <001> from backfill (299) of cut [298], but also from Period 5 levelling layers <018> <121> many broken up or in poor condition, including ashlar quoins and window mouldings
3119	fine dense pale yellow pelletal packstone (limestone)	Caen stone – Middle Jurassic (Bathonian) Caen Department Calvados France	26 examples 78.5 kg	more intricately carved decorative elements including: • 2 examples with ball projection <118>, <134>; • 3 to 7-star dogtooth and nailhead decoration <004>, <005>, <007>, <011>, <124>; • column shafts <053>, <054>; • column drums half <055>, <056>; • column drum quadrant <086>; • crisp roll hollow with keel <035>, <058>, <059>
	creamier granular sub-type		2 examples 17.9kg	• intricately carved dogtooth moulding 3-star, <127>; • quarter (quadrant) of large shaft, <86>
3151	Fine orange-brown shelly oolitic limestone	Taynton stone – Middle Jurassic (Bathonian) Taynton West Oxfordshire	2 examples 8.8kg	• large column drum estimated diameter 500mm <19> • large cornice element <142>

criteria. Used extensively in medieval ecclesiastical buildings in London, it is estimated that up to 90% of all ashlar and fine mouldings from priories, churches, and cathedrals in London (Hayward pers obs) are made from this stone.

All the other medieval freestone rock types are older and of Middle Jurassic age, exposed along a 322km long north-east to south-west trending limestone scarp face that runs from Humberside down to the Dorset coast, before reappearing on the north French coast in Normandy. Fortunately, the Thames provided London with excellent riverine and maritime access to continental and native coastal freestone exposures, as well as its upstream links with the Cotswold escarpment and the North Downs (Reigate stone) via Battersea (Tatton-Brown 2000) providing a whole range of suitable material types for internal and external decoration and funerary monuments.

Methodology

The stone fabric and form of this assemblage was examined at the offices of Pre-Construct Archaeology in Brockley in May 2022 at x10 magnification using a hand lens (Gowlland x10). Where necessary a fresh fabric surface was obtained using a small 1kg masonry hammer and sharp chisel from the rear or unobtrusive part of the object. The very large size of some of the larger blocks necessitated estimations of their weight, so the final overall figure is a combination of accurate measurements and figures based on density of stone type and size of block. Each element was photographed and a full photographic archive of all the elements produced. Petrological matches were then made with the Museum of London fabric collection and the author's own samples obtained from current research on medieval stonework in London and south-east England (*eg* Hayward forthcoming). A site visit to Lesnes Abbey was conducted on 9 June 2022 to examine the different freestone materials seen *in situ* including gravestones, compound piers and window elements mainly from the north and south transepts of the abbey church, plus its nave provided an additional body of comparative data.

Petrology

Four different rock types were identified from this assemblage. Their geological character, source, quantity, function and suggested original period of use summarised in Table 1. By proportion (number of fragments – Fig 20; weight in kg – Fig 21), what is immediately apparent is the dominance of two common medieval stone types: Caen stone, a fine yellow limestone from the Middle Jurassic (Bathonian) of Normandy, and Reigate stone, a fine green glauconitic

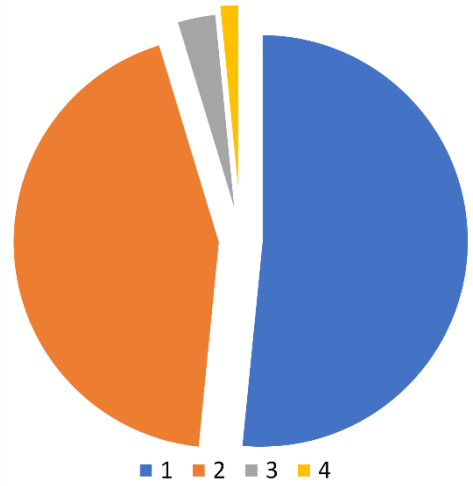

Fig 20. The proportion (number of examples of retained moulded stone Lesnes Abbey N=64 Reigate stone 33 examples (51.6%) 2. Caen stone 28 examples (43.7%). 3. Taynton stone 2 Examples (3.1%). 4. Hassock stone 1 example (1.6%)

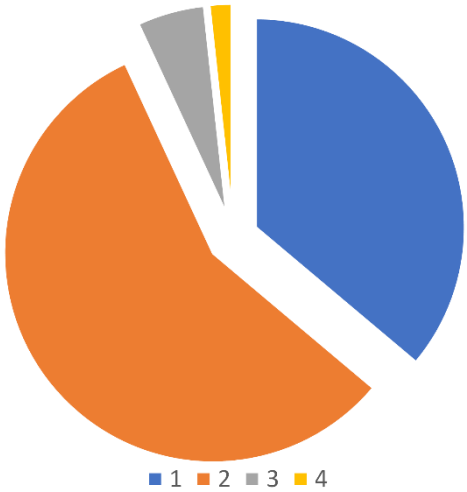

Fig 21. The (weight kg % of retained moulded stone) from Lesnes Abbey N=168.6kg Reigate stone 61.2kg (36.1%) 2. Caen stone 96.5kg (57%). 3. Taynton stone 8.8kg (5.2%). 4. Hassock stone 2.9kg (1.7%)

limestone from the Upper Greensand of Surrey, easily the most common freestone type in medieval ecclesiastical, secular and palatial buildings in London (Hayward pers obs). Together they account for between 85–90% by weight and number of fragments. Highly versatile, both materials are used for a range of architectural elements, although the robust crisply carved Caen stone is used in most of the dogtoothed spar decoration, whilst perhaps the more mundane structural elements (ashlar, quoin, cornices) are carved in Reigate stone. The resistance of the harder Caen stone to weathering can be shown by the excellent preservation or the more decorative elements, including surviving tool markings and in one case a cross, either a mason's or batch mark on the underside of a roll hollow element <36>.

The susceptibility of Reigate stone to weathering and pollution due to its high overall porosity (30%) (Sowan 2000, 145), which enhances water infiltration and subsequent freeze-thaw damage, coupled with the presence of the unstable iron rich clay mineral glauconite, causing it break down (oxidise) when exposed to water, has resulted in the poorer condition, and perhaps the under-representation of this stone. Cracking, splitting, rusting, and breakage are seen, although many examples have survived well which may indicate that some at least were used internally.

Taynton stone shipped in from the riverside quarries alongside the River Evenlode, a tributary of the Thames in West Oxfordshire, is present in just two examples: a large column drum and cornice. This stone type is associated with embellishment of some of the earliest Saxo-Norman buildings in the capital, including medieval St Paul's Cathedral (Blows & Worssam 2011) and the 1060 Pyx Chamber from Westminster Abbey (Hayward pers obs), as well as Thameside abbeys *eg* 1130s Reading Abbey (Hayward pers obs) and Bermondsey Abbey (Hayward forthcoming; Samuel 2011).

Finally, there is a sizeable fragment of column shaft (diameter 18cm) in a high-quality Hassock sandstone from the Lower Greensand (Hythe) beds of Maidstone. Easily accessible to this riverside site via the River Medway, it is not surprising that this material was identified in the assemblage, especially as such large quantities of Kentish ragstone, from the same outcrop, were used in the surviving walling at this site (Hayward pers obs) and retained from excavation (Hayward 2019).

Function

Overview

The function and art historical style of the diverse free stone assemblage from Lesnes Abbey by moulding type (number of fragments) is summarised in Fig 22.

By function the stone assemblage from Lesnes Abbey is dominated by mouldings that can be dated from their profile and decoration to the Transitional (*c.*1140–90), a short architectural period sandwiched between the Romanesque and Early English. The Transitional was a period of rapid architectural and stylistic change (Samuel 1997, 186). Sharp keel mouldings that are typical of the Early English period (*c.*1190–1275) (Morris 1992, 3) are identified in 17 mouldings, whilst a preponderance of raised dogtooth star, nailhead and round ball moulding decorations (11 examples 17.2%) used in arch and ceiling vaulting are a feature of the Transitional period. The fragments of engaged columns are also mainly 11th and 12th century in date, which fits the documented construction of Lesnes Abbey (started in 1178, discussed earlier). There is no trace of any distinctive larger cusped window tracery mouldings that are associated with much later Decorated (*c.*1280–1360) and Perpendicular (*c.*1360–1525) periods.

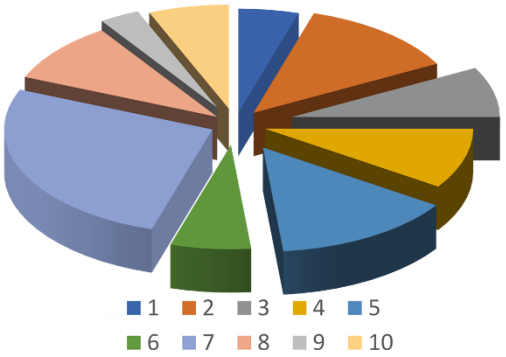

Fig 22. The proportion (no. of fragments) of moulding types from LSS15 (n=64). KEY: 1. Romanesque/Early English vault ribs with dogtooth moulds (1140–90+) (n=3, 4.7%); 2. Romanesque/Early English low relief nailhead and ball mould vault ribs, some possible door surround (c.1140–90), (n=8, 12.5%); 3. Medieval cornices (n=5, 7.8%); 4. Medieval ashlars and quoins (n=6, 9.4%); 5. Medieval columns and shafts (n=9, 14.1%); 6. Romanesque/Early English engaged columns (c.1140–90) (n=4, 6.3 %); 7. Early English keel mouldings (c.1190–1275) (n=17, 26.6%); 8. Medieval roll mouldings (n=6, 9.4%); 9. Medieval window moulds (n=2, 3.1%); 10. Medieval, various moulds (n=4, 6.2%)

Transitional Romanesque/Early English Vault Ribs with Dogtooth Decoration

A prominent feature of the assemblage is the dogtooth decoration on Caen stone blocks <116>, <124> and <127>. A particularly good example consisting of three large, raised dogtooth elements set between two large round roll moulds was recovered from Area 1 <127> (Figs 17, 23).

Direct stylistic comparison was possible with a Romanesque/Early English vault rib displayed at Dorchester Abbey in Oxfordshire. Clapham (1915, 68) noted that the architectural stonework recovered from the 1909–13 fieldwork included numerous 13th-century voussoirs with two deeply moulded rows of bold dogtoothing forming vaulting ribs from the presbytery.

Early English Decorated Vault and Arch Ribs

Other forms of raised decoration typical of Transitional Romanesque to Early English vault and ceiling rib embellishment from Lesnes Abbey include examples defined by a large raised circular ball decoration in <128> and <134> and surviving three- to seven-star dogtooth and nailhead decoration *eg* <004>, <005>, <007> and <011>.

The circular ball decoration on <128> is especially pronounced at 60mm in diameter and 32mm in height (Fig 24); it is surrounded by a roll mould and a keel mould. There is evidence of plaster and red pigment on the ball and it was clearly designed to be seen from below (Fig 24).

Comparative examples of ball decoration are much smaller and are considered to be of Romanesque/Early English in date such as the examples from Dorchester Abbey.

Fig 23. Moulded stone <127> with raised dogtooth ornament between roll mouldings

Fig 24. Close up of ball decoration <128> with traces of red pigment; ball diameter c.60mm

Mouldings with vertically aligned low-relief dogtooth star or nailhead decoration, <004> (Fig 17), <005>, <007> (Fig 17) and <011>, surrounded by sharply defined keel moulds recovered from the Period 5 levelling layer [176] are likely to have originally belonged to a single architectural element. These mouldings are all in Caen stone, the strips of raised decoration are between 95mm and 170mm in length; they may have functioned as vault ribs or alternatively as part of the decorative surround to door jambs.

The low-relief dogtooth or nailhead decoration is almost identical to examples of Transitional date at Dorchester Abbey (site visit by author).

Cornices

Plain cornices with an incline of 45° in Reigate stone, <002>, <077>, <082> and <133>, and Taynton stone <132> have also been identified at Lesnes Abbey where they were used to raise and define column bases at the entrance of side chapels on the north transept as well as the much larger compound piers in the nave.

Ashlar and quoins

Large, regularly shaped rectangular ashlar and quoin elements are poorly represented in the assemblage and were in a fragmentary condition. These blocks would have been used externally and internally to face the walls of the abbey church and its ancillary buildings. These types of blocks would have been highly valued when the masonry from the abbey was being salvaged because they could easily be reused in post-medieval buildings. It is noticeable that these types of ashlar are absent from the surviving fabric of Lesnes Abbey, which largely consists of the rubble cores of walls.

Colonettes, column shafts and drums

A sizeable proportion of the assemblage (nine examples 14.1%) consists of fragments of detached circular or segmented mouldings that form colonettes (100mm diameter), column shafts (160–300mm diameter) or column drums (500–800mm diameter). The column shafts <048>, <053>–<056> and <086> are made from dense, durable yellow Caen stone or more rarely granular Hassock stone <034>. Weather-resistant Taynton stone is used in a 500mm wide column drum <019>. Reigate stone, a much softer, weather-prone material type is only used in the finest colonette <028> or the very largest column drum <095> which has an estimated diameter of 800mm and would probably have formed part of one of the larger piers in the church.

Engaged Column Shafts

There are four examples of engaged column shafts (6.3%), which were more decorative than column shafts. Those shafts with a diameter of 180mm are in robust Caen stone <049> <050>, whilst Reigate stone is present in a small colonette moulding <043> and a larger shaft <086>.

Keel Rolls

Numerous examples of crisply executed moulds of undefined function can be classified as keel rolls. These mouldings have a rounded profile with an arris resembling the keeled hull of a ship and are considered to be early Gothic (1140–75) on the Continent, but of later 12th–century date in England (Morris 1992, 13). This type of moulding was used in different parts of churches including 'arches, ribs, piers, stringcourses, and small examples on capitals …' in the 13th century (Morris 1992, 13). These mouldings are a feature of many late 12th-century monastic buildings in London such as the priory and hospital of St Mary Spital, London (Samuel 1997, 189). The best examples, <026>, <035>, <036> and <058>, have profiles with the sharpest points still surviving.

Semi-Circular Roll Mould Profiles

Mainly broken except for <018> and <027>, the much smaller quantity (seven) of architectural elements having a convex semi-circular or three-quarters of a circle roll profile (Morris 1992, 2, 14) with diameters of between 70mm and 120mm were all carved in Reigate stone. Roll mouldings, also called 'bowtell', have their origins in Romanesque architecture though they flourish in early and later Gothic architecture and would have been used during the late 12th century at Lesnes Abbey.

Windows and Doors

Only two examples of window profiles <010>, <079> were identified. One in Reigate stone, <079>, forms part of a projecting window mould, whilst the high angled example from <010>, also in Reigate stone, typifies smaller high-pitched arched fenestration of 11th- to 13th-century date. Although the low-relief horizontal dogtooth decoration <004>, <005>, <007> and <011> described above may be the decorative margins of a door, it is likely that the crisp smooth projecting angular mould in Reigate stone <122> is likely to have formed an element of a door jamb.

Paint and Plaster

Although there is only one example of surviving red paint on a Transitional ball element in Caen stone (Figs 17 and 24) <128>, the presence of thin backing white plaster (intonaco) on a handful of other elements would suggest many more examples originally possessed brightly coloured pigments. Examples include keel moulding <026>, roll moulding <032> and column shaft <053>, all in Caen stone. The fine even texture of Caen stone is ideally suited to the application of backing plaster and fresco.

Tooling and Tally Marking

When well-preserved many surviving elements, for example <029>, <036>, <053>, <082>, <123> and <128>, have been finely tooled with vertical or diagonal striations, probably using a fine chisel. The fine even-grained powdery surface of such freestones as Caen stone and Reigate stone is ideally suited to intricate, delicate carving. One broken roll moulding <036> in Caen stone also has an 'X' carved, which is likely to represent a tally mark.

Overview and Discussion

The primary objective set out in the introduction, namely to identify the geological character and source

of the large stone assemblage retained from Lesnes Abbey, has been met. Just four freestone materials were identified from the assemblage: Caen stone, Reigate stone, Taynton stone and Hassock stone. Apart from Hassock stone, these are all very common stone types used to embellish medieval monastic buildings throughout London (*eg* Hayward forthcoming).

Like all the major medieval ecclesiastical and defensive building projects in Greater London, Lesnes Abbey would have benefitted from its close proximity to the Thames Estuary and the River Medway, which would have allowed high-quality stone to arrive by boat from the Cotswolds, the Weald (Lower Greensand), coastal southern England, and the continent. The Hassock stone column would have formed part of the very large consignment of Kentish ragstone brought downstream from the River Medway from the main outcrop. Stylistically the assemblage is dominated by mouldings that from their profile and decoration date to the Transitional Period (*c.*1140–90) (Samuel 1997, 186). Twenty-eight mouldings date to this period including elaborate dogtooth and ball decoration used in ceiling vaults and architectural elements bearing a distinctive sharp keel moulded profile. Many of these would have come from the original 1180s ceilings of the priory church and other elaborate rooms such as the Chapter House, the roofs being the first to fall into disrepair and then collapse following its closure in 1524. Most of these ornate curved elements seem to have remained on site as it appears that documented salvaging of stonework in *c.*1630 from the ruined abbey (discussed earlier), focused on the plunder of the regular ashlar and quoin elements that were more suitable for reuse.

Petrological Comparison With the In-Situ *Stone From Lesnes Abbey*

How does this assemblage then compare with the stone types seen *in situ* from Lesnes Abbey? Is it representative of the types of stone materials used to construct and embellish the abbey buildings?

Rubblestone

The small quantity (5.5kg) of rubblestone (all in Kent ragstone) retained from the watching brief (Hayward 2019) almost certainly relates to the elements of dismantled foundations and walling of the abbey church and other buildings, including the gatehouse and precinct perimeter wall. *In-situ* examination of the ruined walls of the abbey church and adjoining buildings shows that they are entirely constructed out of large angular rubble stones of Kentish ragstone, a very hard, durable dark grey sandy limestone sourced from the Lower Greensand (Hythe Beds) of East Kent. This stonework would have been quarried from either side of the River Medway around Maidstone. Kentish ragstone is the foundation and rubblestone material of choice for medieval ecclesiastical buildings in London, local riverside exposures and riverine/maritime access via the Medway and the Thames Estuary ensured that it was economically viable (in terms of time expenditure, manpower and costings) to transport very large amounts of ragstone by boat to the various large Thameside religious sites (including Lesnes Abbey).

Freestone

As well as accounting for over 90% of all the retained moulded stone assemblage from the Lesnes Abbey excavations, both green Reigate stone and yellow Caen stone also feature in the *in-situ* embellishment of the abbey church and its outer buildings. Surviving from the initial late 12th-century construction both types were used together in very large compound piers towards the eastern end of the nave at the crossing with the south and north transepts. They also form distinct smaller pier clusters alongside the aisle on the north-west wall of the priory church and in the side chapels, particularly along the north transept. Caen stone arched elements form the doors and entrance ways to the cloister, whilst low Reigate stone is used in surviving window elements from the frater and other outer buildings. Although orange Taynton stone is rather poorly represented in the assemblage (three examples 2%), it was used widely *in situ* in columns and steps at the entranceway to the side chapels from the north transept of the abbey church.

Two freestone material types (Purbeck marble and Barnack stone) were only seen *in situ*. Purbeck marble, a grey condensed limestone with a distinctive freshwater gastropod fauna, consisting of numerous small (5–10mm) freshwater snails (*Vivaparus carinifera*), was identified in stone ledgers that lined the floor of the monastic church in two chapels in the north transept, and one further example towards the eastern end of the nave. The stone, which can be sourced to the Lower Cretaceous (Purbeckian) of the Isle of Purbeck, Dorset, is durable enough to take fine inscription, but also able to be polished with goose fat and/or abrasives. It was also widely used from the late 12th to early 13th century onwards in Early English clustered pier bases (*eg* Bermondsey Abbey) (Hayward forthcoming) and lintels, such as an example seen *in situ* reused in the base of a kitchen closet in the frater. This period of time broadly coincides with the construction of Lesnes Abbey and subsequent modifications.

The identification of Barnack stone, a robust cream-brown sparry shelly oolitic limestone from the Middle Jurassic (Bajocian) of North Cambridgeshire, in a very large stone ledger towards the eastern end of the nave was an important discovery. The stone was used widely in Roman monumental architecture and sarcophagi from London (Dimes 1980; Hayward 2015), but also Anglo-Saxon funerary carvings at St Paul's Cathedral, Westminster Abbey, and Barking Abbey (Tweddle & Biddle 1995). It stopped being supplied to London after the late 12th to early 13th century partly because the best quality material from the quarries near Barnack had all been used up, but also because Purbeck marble started becoming a viable alternative material. This freshly constructed Barnack stone tomb therefore dates from the period when the abbey was first constructed.

THE ANIMAL BONES

Kevin Rielly (2024)

The faunal material was principally recovered from the excavations to the west of the remains of Lesnes Abbey (Areas 1 & 2). While undoubtedly post-dating the Dissolution of the abbey in 1525, the precise date of many of these deposits is uncertain. A minor quantity of faunal material was recovered from the cemetery. However, the bulk of the assemblage was recovered from Area 1 and the Period 5 levelling deposits. In accordance with the recommendation of the assessment document (Rielly 2019a), it is this part of the assemblage that is described in this report. All the bones were recovered by hand.

Methodology

The bones were recorded to species/taxonomic category where possible and to size class in the case of unidentifiable bones such as ribs, fragments of long bone shaft and most vertebra fragments. Recording follows the established techniques whereby details of the element, species, bone portion, state of fusion, wear of the dentition, anatomical measurements and taphonomic including natural and anthropogenic modifications to the bone were registered. Ages mentioned in this report are after Schmid (1972, 75) while shoulder heights are calculated according to the factors described in Von den Driesch and Boessneck (1974).

Certain age categories are employed to facilitate the interpretation of this data. The time of fusion of the limb bone articular ends allows the formation of three broad groups, as follows: Early – proximal (P) scapula, distal (D) humerus, P radius, pelvis acetabulum and P phalanges; Intermediate – D metapodials and tibia; Late – P ulna, D radius, P and D femur, P tibia and P calcaneus. These groups approximately coincide with the first, second and third (and later) years respectively. Broader age categories are also employed, as follows: Infant, based on bone size and porosity (see Amorosi 1989); Juvenile, as Infant plus unfused early epiphyses and unworn first adult molar; Sub-adult, unfused Intermediate epiphyses and unworn third adult molar; and adult, fused Intermediate and Late epiphyses; plus worn third adult molar. It should be noted that there is an overlap between the juvenile and sub-adult age groups.

Description of the Faunal Assemblage

The site provided a total of 437 hand collected bones, most of which were in good condition and with a limited level of fragmentation. Those described in this report amount to 411 bones, largely derived from two main deposits, including those from the 'animal skeleton' from pit fill [308] (Group 44) (Fig 25); and then from the extensive (Period 5) levelling deposit [213] (Group 47). The latter deposit is interpreted largely as spoil from the 1909–60 excavations of the abbey (described earlier). A single 19th-century potsherd was found within [308], the late date of this feature potentially confirmed by similarly dated pottery taken from other contemporary features. Additional bones were recovered from other 19th- or 20th-century deposits including the levelling deposits (Group 52) and topsoil/turf (Group 54). Layers within Group 47, namely [345] and [380] may be of 18th-century date, but these produced only a very small proportion of the bones from this group (Tables 2 and 3).

Table 2. Distribution of the hand-collected animal bones from Phase 5 deposits divided by group and feature type

Group:	**44**	**47**	**52**	**54**	**Total**
Feature type	**pit**		**levelling deposits**		
Animal skeleton	147				147
Cut/pit	5				5
Levelling		199	6		205
Topsoil				54	54
Grand Total	**152**	**199**	**6**	**54**	**411**

Table 3. Distribution of the hand-collected bones from Phase 5 deposits by group and species with the number of bones from the two skeletons from [308] Group 44 given in brackets

Group:	**44**	**47**	**52**	**54**	**Total**
Species					
Cattle	3(147)	76	4	10	240
Equid		4		1	5
Cattle-size		60	2	5	67
Sheep/Goat	1	25		35	61
Pig	1	10		3	14
Sheep-size		20			20
Cat		1			1
Human		2			2
Duck		1			1
Total	**152**	**199**	**6**	**54**	**411**

Fig 25. The articulated adult cattle skeleton discovered within fill [308], in the base of pit [219], scale bar 1m (source Tony Thomas)

The largest single collection of animal bones was recovered from fill [308] (Fig 25); they consisted of the almost complete remains of an adult cattle skeleton as well as the hindquarters of a calf (left and right pelvis/sacrum to tibia), the former aged in excess of five years old though less than seven to nine years and the latter up to about six months (based on epiphysis fusion after Schmid 1972, 75 and, regarding the adult animal, the eruption and wear of the mandibular teeth, after Jones & Sadler 2012). Both animals are male, the more complete, judging by the horncore (basal part only), most probably an ox (castrate). The skull is rather fragmented, however, there is just enough of the nuchal area represented to suggest that the posterior (frontal) profile is slightly convex and that the intercornual ridge is represented by either a low single or double arch (after Grigson 1976, 126–8). Notably the frontal area is complete with no obvious indication of poleaxing. There is a moderate to high degree of joint disease observed in the left and right tarsal area of the skeleton, the cuneiforms in the process of fusing with the navicular cuboids and the distal joint margins of these tarsals as well as the adjoining proximal margins of the metatarsals exhibiting marked exostoses. Such 'damage' may well relate to repetitive and prolonged pressure in this part of the hindlimb as would occur in an animal used for work purposes, which of course is more likely to be an ox rather than a cow. This animal stood about 1300m at the shoulder (an estimate based on the various heights calculated from the humerus, radius, femur, tibia and metapodials), a size which is infrequently found in the medieval period in London but within the larger 25% of sizes dating from the early post-medieval period onwards (Rielly 2020, 601). The degree of articulation and the lack of butchery cuts suggests that each skeleton represents the remains of a complete individual. While the calf skeleton was not recognised *in situ*, the absence of foreparts is perhaps more likely to suggest truncation rather than an unusual burial or recovery bias. It can be proposed that the deposition of whole carcasses would suggest their meat or indeed any other post-mortem product was unfit for human consumption and/or usage, strongly indicative of disease as the likely cause of their demise. Of interest in this respect is that several bones of the adult individual are in poor condition, suggestive of weathering. This is particularly noticeable amongst the ribs with about 50% suffering some degree of erosion/damage. It would be an obvious requirement to quickly dispose of and bury the carcass of a diseased animal; however, the observed weathering would suggest that burial took place some considerable time after its deposition. Alternatively, the weathering may well have occurred at some later point coinciding with the proposed truncation.

This same fill [308] also produced a small number of other bones (Tables 2, 3), including another mandible, similarly aged to the older individual; and a notable large cattle radius, this was sawn through in the midshaft area. The size of this radius and indeed the sawing strongly suggest that this particular bone dates to the 19th century, potentially coinciding with the introduction of larger cattle following the 'improvements' in livestock breeding of the 18th century (after Rixson 2000, 215). Other sawed bones were found amongst the 19th-century material on site, providing further evidence regarding the use of the saw as a butchery implement, which tends to occur in assemblages dating no earlier than the very late 18th and early 19th centuries (after Albarella 2003, 74; see Rielly 2020, 593). While this could suggest that the cattle skeletons are indeed 19th century in date, these few bones may well be intrusive.

The other major collection, from the Period 5 levelling deposits (Group 47), principally derived from layer [213] (184 out of 199 bones), is largely composed of cattle and cattle-size fragments. These are followed by sheep/goat and pig, alongside sheep-size pieces and then a few equid bones and single fragments of cat and duck. Each of the principal domesticates is represented by a wide array of skeletal parts, indicative of general preparation/food refuse. All three species feature bones from rather large individuals, particularly amongst the cattle component, again showing the local utilisation of 'improved' breeds/types; while sawn bones are very much in evidence (occurring in eight out of the 19 cases of butchery observed within this Group assemblage). Much of the butchery evidenced was achieved by heavy chops glancing a joint surface or removing the proximal or distal end completely. Certain cuts can be compared to modern butchery, notably sawing through a cattle scapula blade to facilitate the separation of the middle rib from the steak meat *ie.* the chuck and blade as well as the leg of mutton meat cuts. While several cuts through the midshaft of cattle bones, often using a saw can be equated with the creation of stew bones, there are two sawn sheep/goat tibia which can be interpreted as dressing cuts (removal of the meat-poor lower leg). Several of the cattle-size vertebrae have been split (cleaver cuts) indicating the production of halves, while several ribs in this size category have been chopped (or sawn), here potentially producing back rib, top rib or flat top joints (again following modern techniques).

An additional articulation was recovered from topsoil [720] within Group 54, comprising many sheep-size vertebrae (11) and ribs (20), clearly from a juvenile individual. Again, not recognised *in situ*, it can be proposed that these are taken from the remains of a complete carcass. The missing parts could be explained in terms of the nature of this deposit or again due to truncation.

Most of the cattle assemblages in these later groups represent adult individuals, a total of 24 bones compared to one juvenile and four subadults. There appears to be a majority of young adults, presumably prime beef providers, which alongside the other youngsters would suggest these are animals bred for their meat. However, there are a few older animals, including the presumably redeposited mandible from Group 44 similarly aged to the adult skeleton, one aged more than 3.5 to 4 years (fused proximal humerus) as well as a further 2 mandibles, both from animals more than 10 years (after Jones and Sadler 2012). These are undoubtedly old animals, certainly in terms of modern usage, however, in the post-medieval period it wasn't uncommon to keep cows and oxen up to at least 10 to

12 years of age, with a proportion still used well into their late teens (Davis 2002, 49–50). The sheep collection also suggests a preponderance of adults, no doubt kept for their wool and probably then culled as young adults for their mutton. There was a single foetal/neonate bone amongst the pig collection, a clear indicator of local breeding; the remainder of the bones included five subadults and one adult, an age distribution which coincides with the principal use of this animal for its meat.

It was mentioned that several 'large' domesticates are present in the assemblage. Unfortunately, the cattle examples tend to be either too young or unmeasurable; however, there is a sheep tibia from Group 47 with a distal breadth of 33.8mm. This is clearly beyond the largest specimens recovered from 18th- and 19th-century deposits at the Thameslink and British Museum sites (Rielly 2017, 173 and PCA archival data), at 32.3mm and 31.8mm respectively. The available size data for cattle suggests that the animals in these later groups are smaller than the adult skeleton from [308] Group 44, with three shoulder heights: 1062.1mm (radius GL of 247mm), 1163.6mm (metacarpus GL of 189.2mm), and 1122.6mm (metatarsus GL of 206mm). Then two distal breadth of tibia measurements of 58.7mm and 63.5mm can be compared to the equivalent cattle skeleton size of 68.2mm. These smaller sizes are all within the range of cattle observed in London throughout the medieval and post-medieval periods (after Rielly 2020, 601). A similar claim can be made for the other sheep/goat measurements, featuring one shoulder height at 582.5mm (metatarsus GL of 128.3mm) and a range of 23.3 to 27.2mm for tibia distal breadth (average of 24.8mm, N=3).

Finally, there is a small quantity of equid bones from these later groups including three foot bones, a pelvis and a single mandibular tooth. All represent adult individuals, one of the former bones, a complete metacarpus, providing a shoulder height of 1478.8mm (GL of 241.2mm). The remaining two species, duck and cat, from [308] group 44 are represented by a complete humerus and part of a skull respectively, the former with a greatest length of 112.2mm and thus within the range of the wild mallard, may nevertheless be domestic. The cat skull fragment is notably without cut marks (potentially skinning cuts) and thus probably part of a discarded unused carcass.

Conclusions

The analysed assemblage, which potentially all dates to the 19th century and later, provides an insight into the local usage of the main domesticates within a period of great agricultural improvement. This trend is demonstrated by the size of these animals, building on the 'improvements' of the 18th century with the aim of increasing food production to feed the growing urban populations (Hall & Clutton-Brock 1995, 13–14). The increased size of livestock was a part of this process and there is undoubtedly evidence for the presence of larger cattle, sheep and pigs within this assemblage. Regarding pigs, the increase in size was generally related to the importation of pigs from China, which occurred in a large scale from about the 1770s (Rixson 2000, 220). Notably, however, the evidence points to a continuing use of smaller animals, implying the potential presence of 'unimproved' types. However, it should be noted that improvements in livestock breeding did not always produce greater size, another aim was earlier maturation to boost meat production (*ibid*, 215). It is of interest that butchery methods could be detected which are considered to be 'modern' techniques, including the extensive use of the saw within various stages of the butchery process. The preponderance of adult cattle and sheep does not discount the likely presence of early maturing animals as beef cattle today are generally culled between the ages of two and three years *ie* beyond the age of attaining a full dentition. These animals can be described as prime beef cattle. In addition, there was a continuing fondness for mutton rather than lamb in the 19th century (noted in Beeton 1869); the best mutton is provided by sheep culled no earlier than about three years of age (Davis 2002, 54). Otherwise, while certainly table waste (as shown by the butchery marks), these cattle and sheep may represent surplus wool, dairy or even working animals. Oxen were still being used in British agriculture as draught animals well into the 19th century (*ibid*, 50).

Of some interest in this assemblage was the recovery of a complete adult cattle skeleton alongside the partial remains of a calf. The dating of this deposit was not clear, though certainly post-medieval. It was suggested that these are likely to represent the deposition of complete carcasses, indicative therefore of diseased animals. Three notable cattle pandemics, associated with rinderpest, occurred during the 18th century in southern Britain (1714–15, 1745–58 and then sporadically between 1768 and 1781 (Broad 1983, 105). It is conceivable that these cattle died during one of these events. Measures were enforced to control the spread of this disease, dating from the earlier pandemic of 1714, including the culling and burial of all infected cattle alongside compensation for the cattle keepers (see Bates 1717; Haslam & Ridgeway 2017, 206–9). Various archaeological faunal assemblages across the Greater London area have been potentially identified as either the result of cullings or deaths related to these pandemics, most notably the 41 skeletons from the British Museum, Bloomsbury (Rielly 2017, 165) and also six individuals from Dickens Square, Southwark (Rielly 2019b). Another three adults were found not far from Lesnes Abbey at 74 Crayford Road on the outskirts of Dartford. These burials probably date from the 18th or 19th century (Rielly 2018). While the evidence from this and other sites tends to suggest deaths related to Greater London's dairy herds, at least one of the Dickens Square examples is male and both this site and the British Museum excavation also produced calves. There were supposed to be strict rules regarding the disposal of diseased livestock during these pandemics, which clearly were not followed at Lesnes Abbey and apparently elsewhere (Haslam & Ridgeway 2017, 206; Broad 1983, 112). It is certainly possible that these cattle died from another disease or were culled at a later date. However, the major loss of livestock, potentially as much as half a million head of cattle during the worst outbreak

of rinderpest between 1745–58 (Broad 1983, 113-4), provides a plausible interpretation.

THE CERAMIC BUILDING MATERIALS

Kevin Hayward and Berni Sudds

A total of 330 fragments of ceramic building material (CBM) were recovered from the excavations, weighing just over 50.8kg (50863g). The material was examined under magnification (x20) and quantified by number, weight and dimension in accordance with the guidelines laid out by the ACBMG (2001). The fabrics were recorded using the Museum of London CBM classification (*Medieval and post-medieval ceramic building materials fabrics*: MOLA Resource Library www.mola.org.uk/resourcelibrary, accessed February 2025), and samples of the fabrics held at the London Museum Archaeological Archive and in the archives of Pre-Construct Archaeology Limited. The assemblage includes material of Roman, medieval and post-medieval date, with the vast majority (98.6%) dated to the medieval and early post-medieval and originating from the abbey complex (Table 4).

Roman

Two fragments of residual Roman tile, weighing 215g, recovered from Period 5 levelling layers [176] and [213] represent background evidence for contemporary activity in the broader vicinity of site. They both occur in early Roman local 2815 group fabrics, made from the brickearth clays in and around London.

Table 4. Quantification of the ceramic building materials assemblage by fabric type. Fabrics are classified using the Museum of London type series

Fabric	Description	Date range	Forms	Total no.	Wt (g)
Roman					
2452	Local fine 2815 group	55–160	tile	1	73
3006	Local sandy 2815 group	50–160	tile	1	142
Total				**2**	**215**
Medieval and early post-medieval					
1810	Penn	1330–1390	floor tile	6	543
1811	Penn	1330–1390	floor tile	15	2704
2894	Penn	1330–1390	floor tile	1	305
2194	Unsourced coarse sandy	1300–1500	floor tile	1	87
2320	Unsourced fine sandy	1300–1500	floor tile	8	1183
2324	Fine sandy	1300–1500	floor tile	1	378
1678	Flemish calcareous clay	1350–1550	floor tile	2	881
1977	Flemish silty	1450–1600	floor tile	4	797
2318E	Flemish silty	1450–1600	floor tile	22	6457
2850	Flemish silty	1450–1600	floor tile	2	541
3063	Flemish silty	1450–1600	floor tile	1	227
3031V	Flemish-type yellow	1350–1450	brick	2	835
3030	Brown fine sandy (brickearthy)	1400–1660	brick	4	1798
3033v	Local Tudor red	1450–1700	brick	3	1475
3039v	Local Tudor red with silty lenses	1450–1700	brick	4	3191
3046	Local sandy Tudor red	1450–1700	brick	13	4931
3065v	Local coarse sandy Tudor red	1450–1700	brick	4	1645
2271	Local London clay fine fabric, coarse moulding sand	1180–1450	peg tile and curved tile	108	8870
2586	Local London clay sandy fabric	1180–1600	peg tile	6	729
2587	Local silty sandy fabric with black iron ore, red iron ore and silt pellets	1240–1450	peg tile	3	137
2816	Unsourced local silty/ sandy	1200–1600	peg tile	7	647
3216	Unsourced fine sandy fabric	1200–1600	peg tile	27	2283
PMEDT	Local fine sandy	1300–1500	peg tile	14	1253
3498	Post-Roman unknown	1100–1900	tile, peg tile and curved tile	32	3082
Total				**290**	**44979**
Post-medieval					
3032	Local post-Great Fire	1666– 900	brick	2	437
2276	Local London clay fine fabric, fine moulding sand	1450–1900	peg tile and curved tile	36	5232
Total				**38**	**5669**

Medieval and Post-Medieval

The key feature of the assemblage is the high proportion (88%) of medieval to early post-medieval ceramic building material dating from *c.*1180 to 1600 and relating to the lifespan of the abbey from its inception in 1178 until its Dissolution in 1525 (discussed earlier). Amongst this material roof tile represents the most frequent form identified, accounting for 68% by fragment count (197 fragments) and 38% by weight. Floor tile is the next largest category of material with 63 fragments recovered representing 22% of the period assemblage. Brick comprises the remaining 10% by fragment count, but 31% by weight owing to the large size and density of the form.

Floor Tile

The usage of decorated and plain-glazed floor tiles was common at all high-status ecclesiastical establishments during the medieval period. Therefore, it is not surprising that a considerable number of decorated and plain-glazed floor tiles were discovered during the 1909–13 fieldwork at Lesnes Abbey, almost all of which were *ex-situ* and residual finds. However, small areas of *in-situ* tiling were also present in several locations including the Lady Chapel and the north-western part of the cloister walk adjoining the south-western pier of the church tower and the Chapel. Designs included mounted knights, fleur-de-lis, heraldic shields and lions, plus various geometric and floral patterns (Clapham 1915, 65–7). Today some relaid floor tiles from Lesnes Abbey are displayed inside St John the Baptist's Church in Erith and within the remains of the abbey church adjoining the south-western tower pier.

Some of the same design motifs recorded at Lesnes Abbey are also present at Eltham Palace in a group of decorated tiles installed in *c.*1305 (Eames 1982, 243–4), now known as the Eltham Palace-type tiles (Betts 2011, 206). Eames (1982, 244) suggested that the late 13th or early 14th-century tiles from Eltham Palace and Lesnes Abbey were manufactured locally at the same production site. It is possible that some Eltham-Palace-type tiles were manufactured at Woolwich, where a medieval tile kiln has recently been excavated by MOLA (Ian Betts pers comm October 2025).

More fragments of both plain and *ex-situ* decorated floor tile were recovered during the 2015–18 fieldwork. Three main types were identified in the assemblage, dating from the 14th to mid-16th century.

A total of 22 examples of decorated and plain-glazed tiles manufactured between 1330 and 1390 in Penn, Buckinghamshire, were identified in Fabrics 1810, 1811 and 2894. Penn floor tiles were made in large quantities and widely traded, particularly after the Black Death, and attest to the presence of one or more decorative pavements at Lesnes Abbey during the 14th century. Originally, some of the *ex-situ* Penn tiles may have floored the Lady Chapel, which was rebuilt during the late 14th century (Clapham 1915, 17).

The decorated tiles are typically 18–22mm thick with a design matched in the Eames (1980) catalogue (design No. 2387); in addition there is a broken tile [013] depicting the rear portion of a lion passant (Fig 26). This is similar to Eames design No. E1779, which has also been found at Bermondsey Priory in Southwark (illustrated in Betts 2011, 206, <T11> fig 145), apart from the fact that No. E1779 is a single tile arrangement of a lion within a roundel and the Lesnes Abbey example [013] appears to have originally been part of an arrangement of four tiles, forming the top left-hand corner of a large roundel. Many of the Penn tile designs published by Hohler (1942) consisted of repeating patterns set within a large roundel and arranged in groups of four tiles, as do some of the Eltham Palace designs (Eames 1982). According to Ian Betts (pers comm October 2025) there is no exact parallel for [013] amongst the London discoveries of Eltham-Palace-type tiles.

Ten further fragments of plain glazed fine and coarse sandy floor tiles of probable 14th- to 15th-century date were also recovered (Fabrics 2194, 2320, 2324). These may be of more local origin, potentially deriving from tileries specifically manufacturing floor tile for Lesnes Abbey. The medieval floor tiles were all residual finds.

The remaining floor tiles, some 31 fragments, are transitional late medieval to early Tudor (silty and calcareous fabrics) Flemish imports (Fabrics 1678, 1977, 2318E, 2850, 3063). These are larger and thicker than their medieval counterparts (30–35mm thick) with plain glaze. Low Country imported tiles were particularly common in ecclesiastical and palatial buildings in London and south-east England during the 15th and 16th centuries. Again, the tiles are residual, but their presence attests to later phases of repair or redevelopment within the abbey complex.

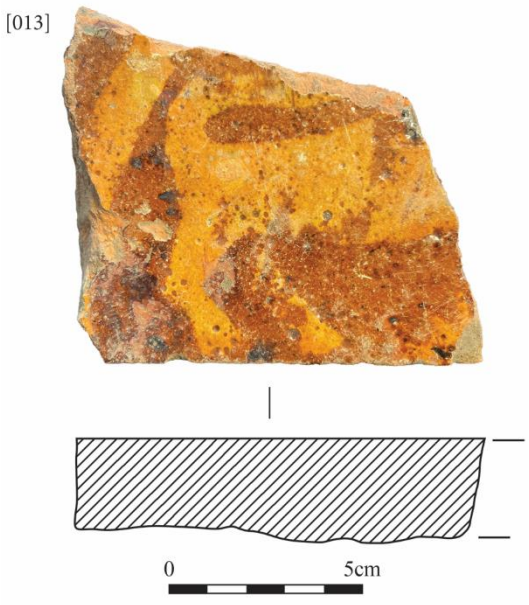

Fig 26. Fragment of a Penn floor tile [013] residual in Period 5 levelling deposits. This is similar to Eames design No E1779, but formed part of a four tile arrangement depicting the rear portion of a lion passant within a roundel

Roofing Tile

The vast majority of the roofing tile is of the peg type, representing a long-lived form, the production of which started during the late 12th century and continues to the present day. There is little observable typological development, although thickness, profile, moulding sand and the use of glaze are chronologically diagnostic, as are certain fabric types within the London region. The most common type recovered from site are fine London clay 2271 types. These are thin, have coarse moulding sand and approximately one third demonstrate a thin splash glaze, all of which is indicative of a medieval to late medieval date. There are also smaller quantities of unsourced fine sandy and silty fabrics, including types 2816, 3216 and newly recognised type PMEDT. A few London sandy and iron-rich types were also recovered (Fabrics 2586, 2587).

A smaller component of the roof tile assemblage is of transitional to post-medieval date, some 36 fragments, occurring in the fine London clay 2276 fabric with a thicker profile and fine moulding sand. The few fragments of curved tile in Fabrics 2271 and 2276 probably originate from ridge tiles.

Most of the roof tiles are likely to be of relatively local manufacture, probably made in the region to the east of London, with manufacture recorded at nearby Woolwich from the later 14th and 15th century (Betts 2012, 216).

Brick

The small assemblage of brick fragments recovered (32 pieces) dates from the 14th to 19th century. The two earliest are thin yellow to salmon pink types (3031V), thought to be imports from the Low Countries, although it is not impossible that they were locally manufactured from the calcareous clays of the Thames estuary (Ryan 1996, 31–3; Betts 2012, 218). The latter date from the mid-14th to 15th century and were used in high-status secular and religious houses across the region to construct drains, boundary walls and foundations.

A larger group of unfrogged red and brown bricks dating to the 15th to 16th century were also recovered. The red bricks are local variants of the red sandy bricks common to the London region (Fabrics 3033V; 3039V; 3046V; 3065V) and are very poorly made wide and thin examples (120mm width; 40–45mm thick). These are supplemented with poorly made and low-fired, probably locally produced, soft brown sandy bricks (3030). Just two examples of post-Great Fire reddish-purple brick were collected (Fabric 3032), a type also common across the region.

Mortar and Cement

Traces of four different types of lime mortar were recorded on the ceramic building material and building stone recovered from the excavations which appear to be chronologically significant and indicative of different episodes of construction.

A hard light brown mortar (Type T1) is associated with the medieval ragstone walling rubble, whilst a pale grey mortar with chalk flecks (Type T6) occurs on the 14th-century fragments of Penn floor tile. The later medieval brick, Flemish floor tile and transitional/post-medieval roof tile are all associated with a fine white lime mortar (Type T3).

Ceramic Building Material by Site Period

Modest quantities of ceramic building material were retrieved from Period 3 and 4 features, with the majority recovered from Period 5 features and deposits or from unphased deposits (Table 5). Almost all of the building material recovered from Period 5 is residual.

Table 5. Distribution of the ceramic building material by site period

Period	No.	Weight (g)
3 (medieval 1178–1525)	8	637
4 (post-medieval)	4	457
5 (19th century and modern)	212	34630
Unphased	106	15139

The small assemblage of ceramic building material attributed to Period 3 is comprised largely of medieval peg tile and single fragments of Flemish floor tile and post-medieval peg tile. This material was re-deposited within the backfill of Burials 4, 7 and 15 and robbed Burial 3 (Groups 9, 16, 28 and 35). Just four fragments of ceramic building material were recovered from Period 4 as residual finds within the backfill of a robber cut associated with the gatehouse foundations (Building 2 Group 42). These comprise three fragments of floor tile, two of Penn type and a later Flemish example and a single fragment of medieval peg tile. The building material from Period 5 and unphased deposits was largely recovered from levelling layers and a small number of modern cut features, including a cow burial and possible 20th-century archaeological interventions. This material is all redeposited and comprised predominantly of medieval and late-medieval to early post-medieval roof tile, floor tile and brick.

The majority of the assemblage was recovered from Areas 1 and 2, some of which may have originated from the demolition of the gatehouse, particularly the medieval roofing tile, although material could also have come from claustral buildings. Much of this is likely to have been used as roofing material, although some may have formed lacing or levelling courses within masonry walls. The floor tiles are likely to have originated from the abbey church and adjoining buildings, demonstrating the existence of decorative and plain tiled floors of successive date. The documented enlargement and remodelling of the Lady Chapel in 1371 (discussed earlier) ties in with the production date of the Penn tiles recovered from site. Indeed, in the third quarter of the 14th-century the Penn tilery, based in Buckinghamshire had a monopoly on decorative tile production in the region. Therefore, its tiles were used

to pave the floors of many monastic buildings in the north-western home counties, middle Thames Valley and west Kent (Eames 2011, 130). However, these tiles might have been also used during the remodelling of other parts of the abbey, although no other building projects are documented during this period and for much of the 14th century the abbey appears to have been in financial difficulty (discussed earlier). The presence of the plain Flemish floor tiles may be associated with the improvements made by the last abbot William Tysehurst (1513–25), although this cannot be demonstrated (Rees 2020, 7). Some of the floor tiles show evidence of heavy wear to their underside. This occurrence was also observed at Holy Trinity Priory, where it was suggested that they had been re-used once their original surface had become badly worn (Betts 2005, 222).

The presence of post-medieval roof tiles and early post-medieval bricks suggest that construction, repair or maintenance of buildings on site continued. Again, as these finds are re-deposited it is not possible to determine if they relate to late modifications to the abbey or its subsequent post-dissolution conversion of some of its buildings into a farm.

THE POST-ROMAN POTTERY

Berni Sudds

A small assemblage of pottery was recovered from the recent archaeological investigations at Lesnes Abbey, amounting to 168 sherds, representing an estimated 158 vessels (ENV) and weighing 4,518g. The pottery ranges in date from the Roman period to the 19th century, although ceramic continuity is not demonstrated. Just four sherds of re-deposited Roman pottery were recorded, with no Saxon pottery identified and the majority of the assemblage dated from the 12th to 19th century (Table 6). Fabrics were classified using the Museum of London medieval and post-medieval type series (Medieval and Post-Medieval pottery codes: dating, MOLA Resource Library www.mola.org.uk/resourcelibrary, accessed February 2025) and the type series for Kent (2006).

Medieval Pottery

A total of 75 sherds of medieval and late medieval pottery were recovered from a minimum of 70 vessels, weighing 1659g. The medieval assemblage comprises pottery types manufactured in the London area and north-west Kent, with a single vessel possibly originating from further east in the Weald of Kent. From Kent there is a single small early medieval shelly ware (EM2) body sherd, dated from the mid-11th to early 13th century. Later products from Kentish sources include North or west Kent grey sandy wares (M38A/B), ubiquitous to the area and probably made in the Medway or along the south bank of the Thames between Dartford and Rochester, and a single possible sherd of Ashford/Wealden sandy ware (M40B), dating from the mid/late 12th or early 13th to 14th century. There are few diagnostic sherds but these include an M38A jar

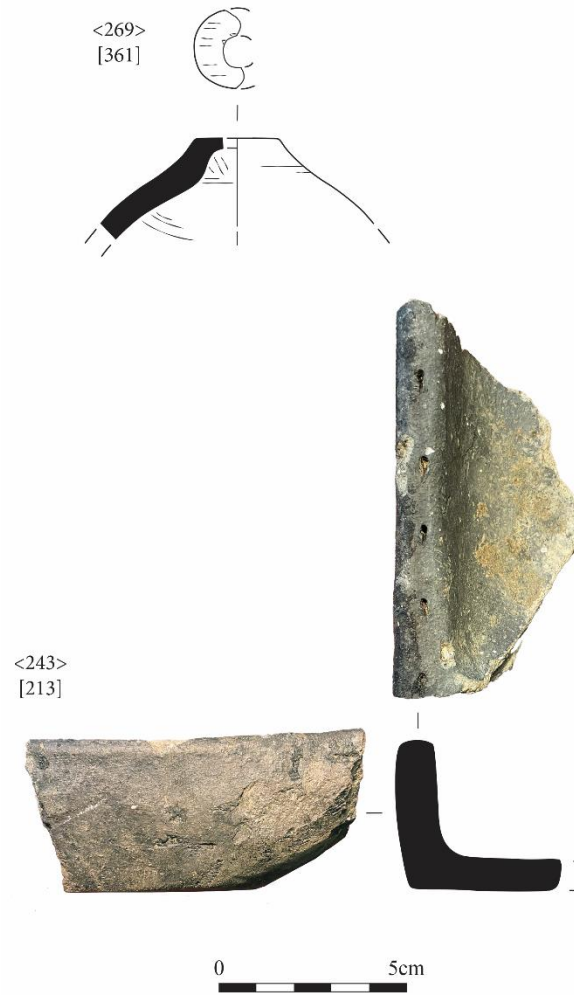

Fig 27. Medieval pottery. KEY: <269> [361] top of an incomplete unusual vessel with a small circular aperture, hard fine sandy fabric (LM100) of unsourced provenance, residual in Period 5 demolition material; <243> [213] dripping dish with external rilling, North or West Kent grey sandy ware (M38B), residual in Period 5 levelling deposits

with an everted, slightly thickened, flat-topped rim, a rare dripping dish and an M38B body sherd with external rilling. The dripping dish is slab-built and has one flat side surviving and part of a sloped edge, possibly deriving from a D-shaped example similar to a South-Hertfordshire greyware example from St Albans (Fig 27 <243>; Havercroft *et al* 1987, fig 6 no. 85). Dripping dishes were placed beneath spit-roasted meat joints to catch the fat and meat juices and the example from site has an internal off-white/buff to brownish residue and external sooting in keeping with this function. The vessel was recovered as a residual find in a 19th- or early 20th-century dump or levelling layer but probably dates to the 13th or 14th century, although could be a little earlier. Early examples are rare but are illustrated in medieval manuscripts and have been recovered, dating from as early as last quarter of the 12th century (Moorhouse 1978, 7; Blackmore & Pearce 2010, 223). In the medieval period dripping dishes are typically associated with high-status sites, including monastic establishments (Slowikowski 2011, 29).

Table 6. Quantification of the pottery assemblage by ware type. KEY: SC = Sherd count. ENV = Estimated number of vessels

Fabric code	Fabric name	Date range		SC	ENV	Wt (g)
Roman						
SAM	Samian	50	250	1	1	6
BB2	Black-burnished ware 2	120	250	2	2	22
MISC	Miscellaneous unsourced Roman pottery	50	400	1	1	4
Total				**4**	**4**	**32**
Medieval						
EM2	Early medieval shelly ware (little/no sand)	1050	1225	1	1	2
LOND	London-type ware	1080	1350	13	13	466
M100	Miscellaneous unidentified medieval English	1100	1400	8	8	96
M38A	North or West Kent grey sandy ware	1150	1400	6	6	120
M40B	Ashford/Wealden sandy ware	1175	1400	1	1	2
LOND NFR	London-type ware with north French-style decoration	1180	1270	2	1	25
M38B	North or West Kent fine to moderate grey sandy ware	1225/50	1400	2	2	18
KING	Kingston-type ware	1240	1400	3	3	43
LOND HD	London-type ware in the highly decorated style (including anthropomorphic/zoomorphic)	1240	1350	5	3	52
LOND TUL	London-type ware tulip-necked baluster jug	1270	1350	1	1	95
Total				**42**	**39**	**919**
Late medieval/transitional						
CBW	Coarse Surrey-Hampshire border ware	1270	1500	1	1	9
DUTR	Dutch red earthenware	1300	1650	1	1	7
CHEA	Cheam whiteware	1350	1500	2	2	73
LM100	Miscellaneous unidentified late medieval	1375	1600	17	17	230
CBW BIF	Coarse Surrey-Hampshire border ware cooking pot with bifid rim	1380	1500	1	1	77
SIEG TRIC	Siegburg stoneware Trichterhalsbecher/Trichterhalskrug	1400	1500	3	1	51
LM3	Wealden fine buff earthenware	1475/1500	1525/1550	3	3	30
LM17B	Wealden/Hareplain hard fine sandy: oxidised	1525	1600	5	5	226
LM37	Medway (Maidstone?) chalk - tempered fine sandy ware	1525	1575	1	1	77
Total				**34**	**32**	**780**
Post-medieval						
PMRE	London-area early post-medieval redware	1480	1600	1	1	32
PMSRG	London-area post-medieval slipped redware with green glaze	1480	1650	2	2	95
PM100	Miscellaneous unidentified post-medieval English	1500	1900	1	1	32
PM2.3	Wealden fine pink - buff earthenware	1525	1750	2	2	219
BORDY	Surrey-Hampshire border whiteware with clear (yellow) glaze	1550	1700	1	1	11
PM1	Post-medieval red earthenwares.	1550	1800	12	11	240
PM64	Calcareous 'peppered' smooth ware	1550	1725	2	2	12
RBOR	Surrey-Hampshire border redware	1550	1900	1	1	7
PMR	London-area post-medieval redware	1580	1900	8	8	376
TGW D	London tin-glazed ware with blue- or polychrome-painted decoration and external lead glaze (Orton style D)	1630	1680	1	1	30
ENGS	English brown salt-glazed stoneware	1700	1900	6	6	304
CREA	Creamware	1740	1830	2	1	26
PEAR	Pearlware	1770	1840	2	2	69
TPW	Refined whiteware with under-glaze transfer-printed decoration	1780	1900	2	2	15
BONE	Bone China	1794	1900	4	4	203
ROCK	Rockingham ware with mottled brown glaze	1800	1900	1	1	13
SUND	Sunderland-type coarseware	1800	1900	2	2	122
REFW	Refined white earthenware	1805	1900	9	7	338
REFW PNTD	Refined whiteware with under-glaze painted decoration	1805	1900	1	1	251

REFW SLIP	Refined white earthenware with slip decoration	1805	1900	1	1	11
TPW3	Refined whiteware with under-glaze brown or black transfer-printed decoration	1810	1900	1	1	2
YELL	Yellow ware	1820	1900	1	1	6
LPM2	Fine red earthenware.	1825	1900	22	21	289
TPW4	Refined whiteware with under-glaze colour transfer-printed decoration (green, mulberry, grey *etc*)	1825	1900	1	1	8
ENGS BRST	English stoneware with Bristol glaze	1830	1900	2	2	76
Total				**88**	**83**	**2787**

Table 7. Distribution of the pottery by site period. KEY: SC = Sherd count. ENV = Estimated number of vessels

Site Period	SC	ENV	Wt (g)
Period 3: Medieval (1178–1525)	2	2	6
Period 4: Post-medieval	8	5	99
Period 5: 19th century and modern	79	76	2203
Unphased	79	75	2210

Products that arrived on site from or through London are comprised predominantly of London-type wares (LOND), produced at nearby Woolwich (Cotter 2008; Jarrett 2015). These vessels mainly consisted of jugs but also include a pipkin. The jugs include examples in the north-French and highly decorated styles and a tulip-necked baluster type, dated to the late 13th or early 14th century.

There are also a smaller number of Surrey whitewares, in the form of Kingston-type ware jugs (KING). The late medieval assemblage also includes a small number of Surrey whitewares, namely coarse Surrey-Hampshire border ware (CBW), including a cooking pot with bifid rim dating from the late 14th to 15th century, and Cheam whitewares, including the base of a small drinking jug and a larger assemblage of late medieval redwares. The latter group includes some products from north Kent or the Weald (LM3, LM17B, LM37), characterised by a fine, hard fabric, sometimes sandy and/or containing moderate fine calcareous inclusions, but a number remain unsourced (LM100). Although largely fragmentary at least four jugs and a single cauldron or pipkin are identifiable amongst this group, and an unusual vessel with a small aperture cut pre-firing by a knife or wire (Fig 27 <269>). The latter is too incomplete to determine form or function but is probably too crudely made to be a whistle, too thin-walled to be a grenade and the opening too small to represent an acoustic jar. The absence of a constricted neck may also preclude interpretation as the top of a sprinkler-type watering bottle, although the form has been associated with religious houses (Pearce 2013, 92–4).

Finally, there are three freshly broken sherds from a Siegburg Trichterhalsbecher or Trichterhalskrug (a small jug for serving drinks) dating to the 15th century. These sherds were recovered from the backfill of an unphased robber cut [844] and represent one of only two imported vessels in the assemblage.

Post-Medieval and Modern Pottery

The post-medieval assemblage includes red earthenwares from both London and Kentish sources (PMRE/PMSRG, PMR, PM1) and a single Surrey-Hampshire border redware (RBOR). There is also a possible Dutch redware cauldron or pipkin with a slightly collared, lid-seated rim (DUTR), although a more local origin cannot be ruled out. Other types include the base of a late 17th- or even early 18th-century late style London tin-glazed ware with blue or polychrome-painted decoration and external lead glaze (TGWD) and a 17th-century Surrey-Hampshire border whiteware dish with clear (yellow) glaze (BORDY). The remaining assemblage is comprised of mass produced stonewares and refined wares that characterise the 18th and 19th centuries and at least 21 19th- or early 20th-century flowerpots (LPM2).

Pottery by Site Period

A small quantity of pottery was retrieved from Period 3 and Period 4 features, but the majority of the assemblage was recovered from 19th- to 20th-century deposits (Period 5), including a significant proportion of residual pottery, or from unphased deposits (Table 7). Of the 47 contexts producing pottery, all are small, containing less than 30 sherds, with the majority producing less than five. There were no significant concentrations of pottery within any of the areas of investigation.

Period 3: Medieval

Just two sherds of medieval pottery were recovered from Period 3 features, comprising small redeposited London-type ware jug sherds from the fill [251] of Burial 4. The remaining medieval pottery was recovered as residual material in post-medieval and modern deposits, or in unphased features. Comprising just 75 sherds the medieval assemblage is also small, considering the 350 or so years of monastic activity associated with the abbey, with more post-medieval pottery being recovered than medieval, from a period when the site was given over to agricultural use. Lesnes Abbey was a relatively modest monastic house, but the small size of the ceramic assemblage probably relates to the small size and location of the trenches in peripheral areas of the abbey's grounds or its cemetery, well away from where waste was being disposed of. With an average sherd weight of 22g the medieval assemblage is

in moderate condition, although a significant proportion exhibits some level of abrasion and its fragmentary and dispersed nature suggests it was probably deposited under secondary or even tertiary conditions. Nonetheless, the recovery of the assemblage from the area of the inner precinct suggests it is likely to have originated from the abbey buildings and can therefore provide information to a limited extent on ceramic consumption and usage within the complex.

In general, Greater London ecclesiastical establishments tend to demonstrate a similar range of ware types to local contemporary secular sites, with much of their pottery being supplied by local producers and/or types well-paralleled in the region, including at Bermondsey Abbey, Holywell Priory, St Mary Clerkenwell and the mother house of Lesnes, Holy purposes (medical preparation decorative and fashionable ceramics were enjoyed, something for which monastic houses were criticised, and in some cases finds relate to certain buildings or areas (Blackmore 2012, 240; Douglas 2024, 93–4; Pearce 2011, 221–2).

The small medieval assemblage from the recent excavations at Lesnes Abbey is not particularly informative. Although superficially similar to other secular medieval assemblage in the area, composed of well-paralleled local types and few imports (Barber 2011; Blinkhorn 2015; Cotter 2011; Jarrett 2012; 2015; 2017; Sudds 2011; 2018), this is unlikely to result from ascetic observance, as there evidently was a taste for highly decorated jugs and at least some appetite for spit roasted meats. Furthermore, the small assemblage is not entirely representative of ceramic consumption across the abbey, as demonstrated by a group of medieval pottery recovered from the 1959 excavation of a stone-lined cesspit adjoining the reredorter, in which a complete Saintonge polychrome ware jug and a rare early Andalusian lustreware cover were recovered, alongside local coarseware and fineware vessels (Dunning 1961).

The range of forms recovered includes both utilitarian and functional types for use in kitchen and pantry and more decorative serving wares and personal drinking vessels for the table. More notably jugs represent by far the most frequent form identified, even accepting over-identification amongst sherd material owing to decoration and the potential bias associated with small assemblages. There is a notable rise in the proportion of jugs across London assemblages from the mid-12th century, as in urban assemblages more generally, but this is particularly notable in some religious houses, whether well-connected or more remote (Blackmore & Pearce 2011, 155; Stephenson 1997, 185 and Chapter 7.5). The dominance of drink serving forms at Bermondsey Abbey was particularly connected with the Priors Lodge, refectory, guest range and cellarium or storehouse, but also to the cloister walk, where the jugs may have been used for washing and shaving (Douglas 2024, 83, 92, 103). Indeed, in contrast to urban household assemblages, where the high number of jugs is principally associated with conspicuous display and consumption, there is evidence from a number of religious houses that suggests they Trinity Priory at Aldgate (Blackmore 2005, 227–46; Blackmore 2012, 240; Blackmore & Pearce 2011, 156; Douglas 2024, 82; Pearce 2011, 218). Despite displaying a certain level of conservatism and careful curation and thus longevity of ceramics, they can also demonstrate certain more distinctive features, including access to desirable imports, non-local or high-value ceramics and a high-proportion of jugs or drinking jugs. Indeed, although imports are actually present in very low numbers at most of the religious houses until the later Middle Ages, both in the London region and beyond, they include types not commonly identified on lay sites in the same area (Blackmore 2005, 245; 2012, 240–2; Blackmore & Pearce 2011, 138–43). Even amongst the supposedly more austere orders, groups of high-quality,were also used as urinals or to store urine for other, mordant or cleanser), as well as for drinking and washing (Blackmore 2005, 232–3, 245; Blackmore & Pearce 2011, 155; Brown 1997, table 11, 92–3; Pearce 2011, 231; Schofield & Lea 2005, 119–20; Thomas *et al* 1997, Chapter 5.7; Moorhouse 1993, 129, 143). There are no obvious residues on the jugs from site, or any evident clustering amongst the small and dispersed assemblage recovered, but the form was evidently an important one at Lesnes, and quite likely fulfilled more than one function.

Periods 4 and 5: Post-Medieval and Modern

A small group of residual medieval and late medieval pottery was recovered from backfilled robber cuts and horticultural features attributed to Period 4 ([337], [338]) with a larger assemblage of medieval and post-medieval pottery recovered from Period 5 dump and levelling layers and a small number of cut features, including a cattle burial. The post-medieval and modern assemblage has a higher average sherd weight than the medieval pottery at 31g but is still fragmentary, with a low sherd count to vessel ratio, highly suggestive of redeposition. Following the Dissolution of the abbey in 1525 much of its site was incorporated into a farm until 1930, when the grounds of the abbey became a public park. The modest and dispersed post-medieval assemblage likely represents domestic and horticultural waste originating from the two successive farmhouses and kitchen gardens occupying the site. Some of this pottery was disposed of within rubbish pits and robber-cuts but most appears to have been midden material spread as manure and then reworked through continued farming, the early and mid-20th-century excavations on site and the landscaping connected with the conversion of the site into a public park.

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