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WALTHAM ABBEY
Monastic Site and Prehistoric
Evidence
1953 — 1967

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Waltham Abbey
Monastic site and prehistoric evidence
1953 — 1967

by P. J. Huggins

Documentary survey and discussion of architectural features
by K. N. Bascombe

Pottery and floor tiles by Rhona M. Huggins

INTRODUCTION

The town of Waltham Abbey lies in the valley of the River Lea some 14 miles due north of Greenwich, London.

The monastery of Henry II, dissolved in 1540, has been demolished except for the gateway with its tower, a wall of the chapter house, the slype or vaulted entrance to the cloisters and other isolated lengths of wall. The Norman nave which belonged to the church of the earlier foundation of 1060 and which had formed part of the later monastic church, remains as the present parish church. This wealthy and important monastery was the last in England to be dissolved. The crossing tower of the Norman church fell down soon after the Dissolution and was rebuilt by the townspeople at the west end to prevent the nave collapsing and to house the bells; the eastern end of the nave was filled in. The demolished areas are now covered by grass, graveyard or orchard.

This paper is an attempt to report work undertaken, mainly in the monastic area, by various people from 1953-1967.

The archaeological periods represented are mesolithic, neolithic, copper age, Saxo-Norman, medieval and post-medieval.

DOCUMENTARY SURVEY

by Dr. K. N. Bascombe

The first mention of Waltham Abbey relates to Tovi (Tofig), standard-bearer to Cnut, who c. 1030 built there a hunting-lodge, and subsequently a shrine to house a crucifix miraculously discovered in Somerset (*Stubbs 1861, cap. 10, p. 9*). The site of neither of the buildings is known. The religious foundation was enlarged by Harold, later King of England, who in 1060 established a college for a dean and twelve secular canons (*Stubbs 1861, cap. 15, p. 15*). The site of most of the excavation work, that of the cloisters of the later monastery, lies to the north-east of the cruciform church, with apsidal east end, built for Harold's foundation; of this church the aisled nave, probably built in the first quarter of the twelfth century (*R.C.H.M., p. 237 and Pevsner 1965, p. 403*) survived. The excavation has extended southwards to include part of the east end of this church, and the existence of this apse, and to some extent its form, have been revealed for the first time.

According to Cook (*1959, p. 21*), there was no standard layout in the arrangement or planning of a collegiate establishment such as Harold's, and

the buildings were not necessarily attached to the fabric of the church. In fact, at Waltham, the canons' houses were mingled with those of the townsfolk, so that when the town was fired by Geoffrey de Mandeville c. 1140 the former also suffered (*Stubbs 1861, cap. 30, p. 42*). Accordingly nothing can be said from the documentary aspect of the history of the cloister site before Henry II's refoundation in 1177.

This was for sixteen Augustinian canons regular, under a prior; elevation to the status of an abbey, with twenty-four canons, followed in 1184. An extensive building campaign was embarked upon, nearly £1,600 being contributed by the king between 1177 and 1184 (*V.C.H., p. 172*); the king made his will at Waltham in 1181 (*Winters 1888, p. 19*) without, however, making any bequests to it. The work seems later to have continued more slowly, a major rededication taking place in 1242. A plan of some of the abbey buildings, conjecturally reconstructed following partial excavation (including some of the present work) has been published (*V.C.H., p. 172 and Colvin 1963, p. 89*).

After the dissolution in 1540 the king leased "the grange called Waltham Grange", adjacent to the Abbey, to Sir Anthony Denny (1500-49), second son of Sir Edmund Denny of Cheshunt, for a 31-year term, later extended; in 1547 he was granted the reversion in fee for these lands, and also of the site of the monastery. In 1553, his widow, Joan, who had succeeded to his estates, purchased the reversion in fee of the manor of Waltham. She died the same year, and her son and heir, Henry, in 1574; the details of the latter's family are not entirely clear, but the estate soon passed to his son Edward (1569-1637).

Most of the abbey buildings, including the eastern parts of the church, seem to have been quickly demolished; in 1553 the original central tower (no doubt weakened in 1444 when struck by lightning (*Winters 1888, p. 67*)), which was to have been retained as the parochial bell-tower, collapsed. The early Waltham Dennys lived at Dallance, about a mile north-east of the Abbey, but Edward, perhaps wishing to keep a closer eye on affairs in the town, and on his disputes with users of the Lea Navigation (*Winters 1888, p. 166*) built himself a house in the Abbey grounds. The site chosen was north of the chapter-house, and probably incorporated the still existing vaulted entry or slype; blocked mullioned-and-transomed windows may still be seen in the original north wall of the chapter-house, and inserted brick fireplaces on the (originally exterior) north side of this wall. The cloister site became part of the grounds of this mansion. The date of its erection is not accurately known; the evidence may be summarised as follows:

(a) William Vallans in his poem "A Tale of Two Swannes" written in 1589 (*Cussans 1870, p. 23*) mentions sundry mansions in the Lea Valley area, including the Denny house at Cheshunt, but none at Waltham, which is represented only by ruins, walls, walks and monuments. In all probability, therefore, the mansion was not then built.

(b) According to Henry Denny's will¹ his lands and estates were to be in trust till 1590.

(c) A map² of Waltham at Hatfield House shows the mansion, labelled as "Do. Ed. Denny mil", indicating that the map was made after he was knighted

in 1589; it incorporates notes in the hand of William Cecil, Lord Burghley, and so must have been made before his death in August 1598.

(d) Farmer (1735, pp. 25-6), quoting Fuller's "Worthies", mentions the discovery, apparently in the course of laying out the grounds of the mansion, of a tomb; this took place "towards the latter end of the reign of Queen Elizabeth" (died 24th March, 1603) and during the incumbency of "Master Baker" (curate 1592-1604).

(e) The Waltham Holy Cross parish registers indicate that Dallance was occupied by a yeoman, William Green, by 1599.

In all probability, therefore, the mansion was built, and the grounds laid out, in the 1590's.

Denny, who was created earl of Norwich in 1626, left Waltham³ to his grandson, James Hay, second earl of Carlisle; this nobleman entertained King Charles I at Waltham in 1641 and fought on the Royalist side in the Civil War, going into exile for a period after being wounded at the First Battle of Newbury in 1643. On his return he resided at the Abbey mansion. He was in financial difficulties, his lands having been sequestered in 1643⁴; in 1654 he sought to borrow £500 from his friend Dr. Thomas Foxe (*Winters 1876*, p. 45), while in 1651 he had been obliged to sell lands to pay his debts.⁵ His will⁶ makes extensive provision for the sale of further lands for the same purpose while his funeral sermon (*Reeve 1661*) also refers to his impoverishment following sequestration. It is possible that the rather obscure reference in Farmer's History (1735, pp. 25-6) to "a leaden Fountain (in the Garden), where now there is a Bowling-green, which formerly belonged to the Earl of Carlisle, and which was by all Probability the End of the Choir, or rather some Eastern Chapel or consecrated Ground" may refer to the cloister site as a print⁷ of the second half of the 18th century shows the cloister area with a wall on its western side, and extending southward to take in the site of the central nave (as it is now known to be) of the medieval church. This western wall contains an opening opposite the north aisle of the church, so that private access to the church from the mansion would have been provided through the small doorway still existing at the eastern end of this aisle. The bowling-green may, however, have been further east, as the medieval church had certainly so extended (*V.C.H.*, p. 172).

The second earl of Carlisle died in 1660, and his widow, Margaret (daughter of Francis Russell, earl of Bedford) remarried in 1667 Edward Montagu, earl of Manchester, as his fifth wife. His principal seat was at Kimbolton, Hunts., where he was buried in 1671; his widow died in 1676 without issue, the estate passing to four sisters, daughters of George, Baron Goring (d. 1663), son of Anne, daughter of Henry Denny (d. 1574). In the meantime, however, in January 1671/2, Sir Samuel Jones, of Courteenhall, Northants., had acquired a mortgage of their interest in the Waltham estates.⁸ He died the same year, and between 1681 and 1688 his executors bought out the co-heiresses and their assigns.⁹ Sir Samuel's devisee was his great-nephew Samuel (b. 1670), fifth son of Sir William Wake (third baronet), of Blisworth, Northants. (*Le Neve 1873*, p. 109), who was required under the terms of Sir Samuel's will to take the surname of Jones. A further mortgage¹⁰ of the Waltham estate was paid off in January 1699/1700.

Samuel Wake Jones, who was Sheriff of Essex in 1699 (*Morant 1768*, p. 44) is rated for £40 in the first extant overseers' rate for Waltham, dated 1705.¹¹ The same rateable value was continued after his death in 1712 by "Madam Jones" (his widow Elizabeth) and by Henry Champion, Esq. (her father), while in 1719 "The Abby" itself is mentioned. In accordance with the terms of Samuel Wake Jones' Will¹² the reversion of the Waltham estate passed to his nephew Charles Wake (b. 1702) who was also required to take the surname of Jones. On coming of age, Charles Wake Jones embarked on a campaign for modernising the estate; his efforts are the subject of a eulogy by Farmer (1735, pp. 159-62), who dedicated his "History" to him. Charles Wake Jones evidently re-fronted the house (see prints in Farmer and in Muilman (1771, p. 156) and altered the interior to some extent, while retaining the plan (of central block with projecting wings), high-pitched roofs, and asymmetric distribution of chimneys more characteristic of an Elizabethan house; the fireplaces and "stone casements" in the "back rooms" were also retained.¹³ Farmer also rhapsodises concerning the gardens, which were no doubt improved at this time. Those changes are reflected in increases in the rated value, which rose from £40 in 1722 to £100 in 1723, £150 in 1726, and £160 in 1727.¹⁴

This "golden age" did not last; Charles Wake Jones died in 1739 without issue, the estate again descending to a nephew, Sir Charles Wake (6th baronet), who in turn took the surname of Jones. He seems to have been mostly non-resident, like the later Wakes, and in 1770 the house was pulled down, the site and grounds being let for market-gardening (*Muilman 1771*, pp. 157-8). A print¹⁵ of c. 1800 shows such operations in progress. In 1786 a burial in a leaden coffin was discovered by the tenant, Mowbray Woollard, on the site of the eastern section of the abbey church, 260 feet east of the east wall of the existing part (*Gough 1790*, p. 57), and presumably in the eastern choir (or choir aisle) of the medieval church.

In 1814 (*Winters 1888*, pp. 164-8) the parochial churchyard was enlarged by the addition of a strip of land, granted by Sir William Wake (9th baronet), and lying east of the existing church, i.e. taking in the site of the western crossing tower and the central nave of the church south of the northern arcade. A rough wall, running along the site of this arcade, was built to divide this "New Ground" from the area to the north, of which Mowbray Woollard was still the tenant at this time.

In 1826, however, the whole of the Abbey Gardens area (the site and grounds of the former mansion, with the exception, of course, of the "New Ground") was rented by one King.¹⁶ At this time, also, a wall ran east-west across the cloister site, prolonging the (surviving) north wall of the chapter house, and 30 feet south of the present north wall of the site, which is on the medieval line and which apparently did not then exist. These arrangements no doubt date from the time of the mansion, and are probably to be associated with the elliptical foundation discovered by excavation (fig. 9). There was also in existence in 1826 a narrow building extending from the cloister entry southwards for some 130 feet; at least the northern end of this (i.e. north of the crosswall) may have been part of the mansion. Holes for the roof timbers of the southern part remain in the brick upper part of the existing east cloister wall.

Between 1826 and 1841¹⁷ these arrangements were changed. A house (still in existence) was built on the site of the western north transept of the church. The present north wall of the cloister site was built (or rebuilt), and the wall further south, together with the narrow southern extension of the cloister entry, were removed. In about 1837 the foundations of the north wall of the central nave of the church were dug out and the space filled in with "earth from the forest" — doubtless for market-gardening purposes (*Little 1863, p. 45*). The O.S. map of 1879 shows trees in this area, and also a belt of trees east-west in the northern part, near the demolished wall. Later the whole area was covered with trees, and was known as the "pear orchard". The firm of W. Pryor and Sons acquired the tenancy from the King family about 1904.¹⁸ In 1937 the ownership of a large area, including the cloister site, was vested in trustees (Abbey Gardens Trust) in order to prevent residential development.

The trees were cleared from the cloister site in 1961; in 1964 the wall built in 1814 was removed and the cloister site, having been grassed over, was thrown open to the public.

- 1 P.C.C., 19 Carew (Somerset House).
- 2 Essex Record Office, T/M 125, a copy.
- 3 P.C.C., 139 Goare.
- 4 B.M. Add. MSS.5505; quoted in Winters 1888, p. 38.
- 5 Northamptonshire Record Office, WC 217.
- 6 P.C.C., 171 May.
- 7 Waltham Abbey Historical Society collection; R. Batty del., Jukes fecit.
- 8 P.C.C., 8 Pye (codicil).
- 9 Northamptonshire Record Office, WC 253, 254, 255.
- 10 Northamptonshire Record Office, WC 258; and catalogue of the Wake (Courteenhall) Collection, Part I, p. 20.
- 11 E.R.O., D/P 75/11/6.
- 12 P.C.C., 37 Leeds.
- 13 Bodl. MS. Top. gen. c. 18 f. 112 (apparently a draft of a letter to the Gentleman's Magazine or some similar periodical).
- 14 E.R.O., D/P 75/11/6.
- 15 Waltham Abbey Historical Society Collection; NE view of Waltham Abbey Church, Essex; Drawn and Engraved by J. Greig.
- 16 E.R.O., T/M 273 and D/DHf B30.
- 17 E.R.O., D/DCT 381 and 381/1a.
- 18 Kelly's Directories, 1902 and 1906.

A REVIEW OF RECENT WORK AT WALTHAM ABBEY

The vast scale of the rebuilding of Harold II's establishment initiated in 1177 by Henry II was revealed in 1938 by the excavation of Mr. John Charlton. This work was reported briefly (*Charlton 1939, p. 330*), and a reconstructed plan, incorporating some of the discoveries made in 1955-62, has been published (*Colvin 1963, p. 89; and V.C.H. 1966, p. 172*). No report of the pottery or other finds was given and the finds have not been traced.

No further work was undertaken until 1955 and from then until 1962 excavations were carried out by various members of the Waltham Abbey Historical Society in the Cloister area. In 1967 the Society decided to publish as much as it could of the earlier work and further, but very limited, excavations were carried out under the direction of P. J. Huggins so as to establish

the stratigraphy of the cloister site, and if possible to check any relationship between the prehistoric pottery and flints previously found.

Excavations have been carried out at other sites in the town by the Society in recent years, viz. the Mill site, the Vicarage front garden and in the garden of no. 8 Sun Street. Excavations on a 16th century town house site at Sewardstone Street just to the south of the Market Square, Waltham Abbey, carried out by P. J. Huggins for the Society in 1967 have been fully reported elsewhere.¹⁹ Faced and moulded "Abbey stone" of Types A to E (see Appendix 6) had been used in the foundations of this house. A continuous sequence of pottery from Saxon times was found under the foundations showing that this part of the town had been established as early as the church.

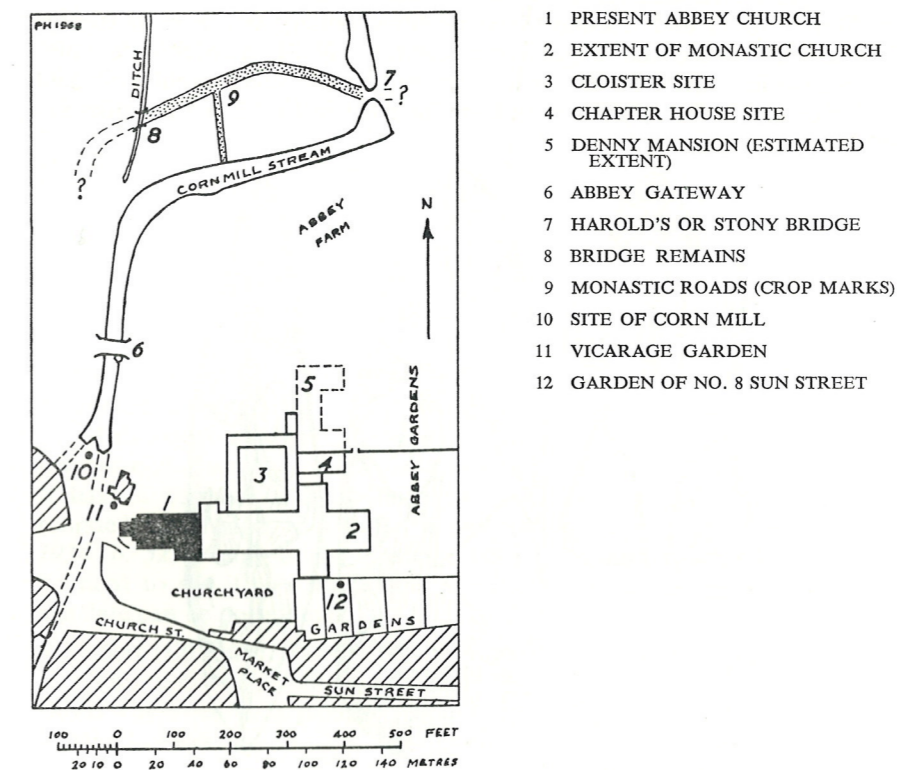


Fig. 1 Map showing sites mentioned in text.

The Mill site (no. 10 on Fig. 1) was excavated in 1953 prior to landscaping work undertaken by the U.D.C. The corn or flour mill was rebuilt circa 1735 and demolished in 1891; it was possibly the site of the original mill mentioned in the Domesday survey. Two floor levels were reported suggesting that the water level of the Cornmill stream had been raised at some time; it is suggested later that this may have affected drainage from the Cloister area. A wall containing conglomerate may have been part of the original mill.

An excavation was carried out in the Vicarage front garden by J. T. A.

Burton in 1965 following the discovery of pottery during cable laying (no. 11 on Fig. 1). A tiled floor showed that an earlier building had existed on the Vicarage site; the present Vicarage was probably built in the 17th century. Medieval pottery found below the tiled floor is discussed in Appendix 1, flint artefacts are discussed in paragraph 2 below.

Trenches were opened in 1954 in the gardens at the rear of no. 8 Sun Street (no. 12 on Fig. 1). A report on burials found there and their significance is included as Appendix 7. A single flint arrowhead found is discussed in paragraph 4 below.

19 Post-Med. Arch., 3, 1969, pp. 47-99.

PREHISTORIC MATERIAL

The prehistoric material from the Cloister site consists of mesolithic flints (see Figs. 3 to 7) and Ebbsfleet-type neolithic pottery (see Fig. 8) together with one stray barbed-and-tanged arrowhead (see Fig. 2). In order to document the prehistoric activity in the area more fully some other prehistoric flints found recently in the neighbourhood are included in Fig. 2 and are discussed below.

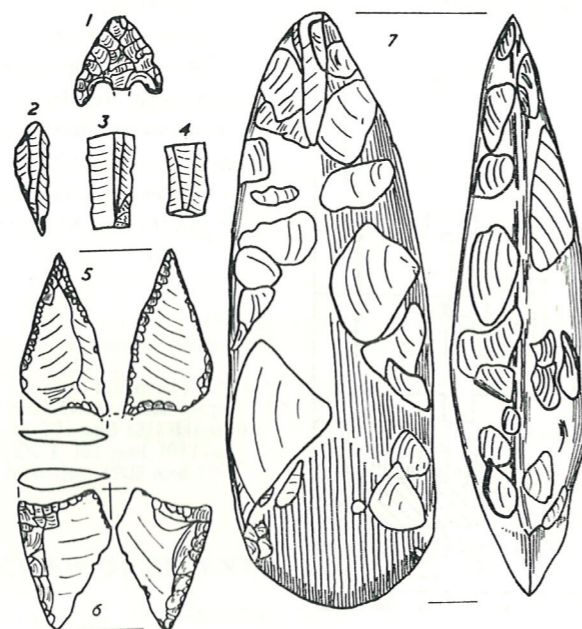


Fig. 2 Waltham Abbey, miscellaneous flints. Scale 1/2.

1. Cloister site, TL 383007, barbed-and-tanged arrowhead (Fig. 2/1)

This rather roughly made light brown flint arrowhead flaked all over both sides, with the tang and tip broken, is considered as a stray find although it was found in the same strata as the mesolithic flints below. This arrowhead can be compared to those found in the Bell Beaker barrows such as in the Roundway G8 grave group (Devizes Museum Catalogue), it can therefore be assigned to the Copper 1 period (Hawkes 1960) presently dated to c. 1800 B.C.

2. Vicarage front garden, TL381006, mesolithic flints (Fig. 2/2 to 4)

This is a small group of flints, obtained at some depth in 1965 in the Vicarage front garden; the site is some 200 feet west of the Cloisters. The group consists of a microlith, two segments of blade and three spalls; the flint is light brown, Figs. 2/2 and 3 are translucent, no. 4 is opaque. The microlith is a cross between an elongated trapeze and a scalene triangle (Clark 1933, p. 57) in which the two obliquely trimmed faces do not meet and, as the latter, comes in Clark's D.I.b.i or ii category; it could, but need not, have been made by the microburin technique.

3. Newtons Pool, TL 376022, arrowhead (Fig. 2/5)

This asymmetric hollow-based arrowhead of light brown slightly patinated translucent flint could, by shape, be considered to fall in Class H (Clark 1934, p. 52) as a halberd-type or lopsided arrowhead. It does not, however, have an un-retouched sharp flake edge, it is in fact worked almost completely down each side of each edge, the base is trimmed mostly on the bulbar face. One edge is carefully rounded into the base whereas the other extends in a barb which is slightly broken. The finely made point of this arrowhead leaves little doubt that it is not to be considered as a transverse weapon; with the single barb the arrowhead would stick into the victim but with the opposed edge purposely rounded could probably be easily removed from the flesh by a sideways movement.

The arrowhead is a stray find from the bank of Newton's Pool on the Old River Lea, 1 mile NNW of the Cloisters; it was found by Mr. J. Munns. It is not associated with other prehistoric material and can only be given a native neolithic/early metal age date.

4. Garden of 8 Sun Street, TL382006, arrowhead (Fig. 2/6)

This asymmetric hollow-based arrowhead of light grey flint with chert-like patches could well be of the same family as Fig. 2/5; it was found in 1954. It has, in contrast, a sharp flake edge but has the same sort of purposely rounded basal edge. If it is not a penetrating arrowhead of Class H (Clark 1934, p. 52) then it might by shape belong to Class F, but still there seems no need to see it as a transverse arrowhead. A native neolithic/early metal age date can be postulated.

5. Skillett Hill Farm, TL 404998, polished axe (Fig. 2/7)

This polished neolithic axehead of grey/black flint was found by Mr. David Cresswell in a ploughed field some 1½ miles ESE of the Cloister site in March, 1966.

CLOISTER SITE, MESOLITHIC FLINTS (Figs. 3 to 7)

The Cloister site mesolithic flint assemblage was found in a "black silty deposit" interpreted after the 1967 excavations as a buried soil level (see page 233) which had formed over thousands of years from the natural floodplain deposits which cover the London clay at this point; the strata did not become buried until after the Dissolution of the monastery in 1540 although it had been considerably disturbed in the 11th/12th centuries and still further by pits dug immediately after the Dissolution. During the period of the monastery the area was the cloister garth and must have been kept clean being either turfed or paved.

The Waltham Abbey Cloister site is 3.8 miles almost due south of the classic Maglemosean mesolithic site at Broxbourne; the same typological classification (Clark 1934(2)) has been adopted here. In Table 1 a comparison is made between the number of flints at the Waltham Abbey Cloister site, at Broxbourne, and at an unpublished site at High Beech in Epping Forest — the latter has been prepared from a manuscript list of flints (Warren 1954/5). High Beech is 2.7 miles SE of Waltham Abbey; this is only a small proportion of the High Beech material extant.

Typology (Clark 1934)	Broxbourne	Waltham Abbey Cloister site	High Beech
A Untouched Primary Flakes	?	14	799
B Primary rising flakes showing signs of use and/or slight secondary trimming	6 mentioned	6	22
C Microliths	24	3	61
Microburins	22	0	0
D Cores	73	5	48
E Core dressings or trimmings	40	7	54
F Core scrapers	1	1	1
G Flake scrapers	30	7	29
H Burins	2	1	6
I Core Axes	2	1	†
J Hammerstones	3	1	2
Waste flakes	?	57	1014

† One Core Axe is extant in the High Beech collection but was not found in 1954/5.

DESCRIPTION OF CLOISTER SITE MESOLITHIC MATERIAL

(A) Untouched primary flakes (Fig. 3/8 to 21)

Nos. 8 to 11 are primary inasmuch that they show remains of cortex and are the result of a primary core preparation operation. Nos. 12 to 21 are only primary inasmuch that they show no evidence of secondary working or of use.

(B) Primary rising flakes showing signs of use and/or slight secondary trimming (Fig. 3/22 to 27)

Nos. 22 to 27 could be described as possibly utilised (or injured) rather than having secondary working.

(C) Microliths and microburins (Fig. 4/28 to 30)

No. 28 is completely blunted down one side and partially down the other. No. 29 is similarly almost completely blunted down one side and partially down the other, both ends are snapped off. No. 30 is included although the bulbar end has not been removed, it may be only partially made; if it is a completed implement it should be classed as an angled end-scraper. None of these three pieces showed clear evidence of the use of the microburin technique; no microburins were found.

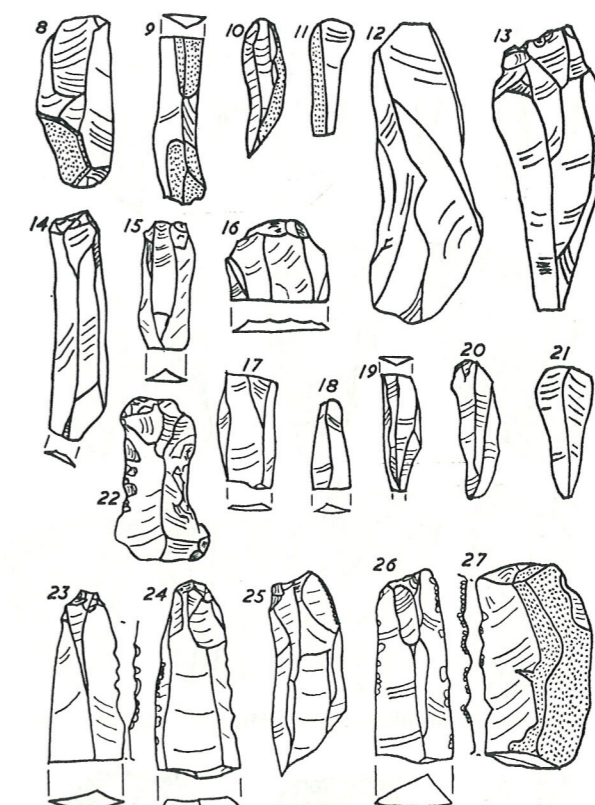


Fig. 3 Cloister site, Waltham Abbey. Mesolithic flakes. Scale 1/2.

(D) Cores (Fig. 4/31 to 35)

Five cores all more or less conical were found; No. 31 is rather crude but the others had all been in use for the production of microblades. No. 32 had clear evidence of having been shaped into a nosed scraper. The pointed ends of nos. 33 to 35 were somewhat battered suggesting that the point may have been held on to an anvil; some small flakes had come off due to the resultant blow at this end.

(E) Core dressings or trimmings (Fig. 5/36 to 42)

Any of the flakes Fig. 3/8 to 27 could be called core dressings if they had been struck to prepare the core for further strikes, but two more specialised flakes are taken to represent this category here. Nos. 36 to 39 are a group of "broad flakes" and may have been intended to remove flaws or reduce the number of flake scars on the core; nos. 38 and 39 may have served as tools themselves. Nos. 40 to 42 are "transverse flakes"; nos. 40 and 41 could be interpreted as axe re-sharpening flakes, but if so are very much larger than would have come off the axe Fig. 7/51. The flint Fig. 6/50 is a transverse flake but is counted here as a burin.

(F) Core scrapers (Fig. 4/32)

Only the one core scraper was found; the back of the scraper is formed by the striking of one flake from the rounded end.

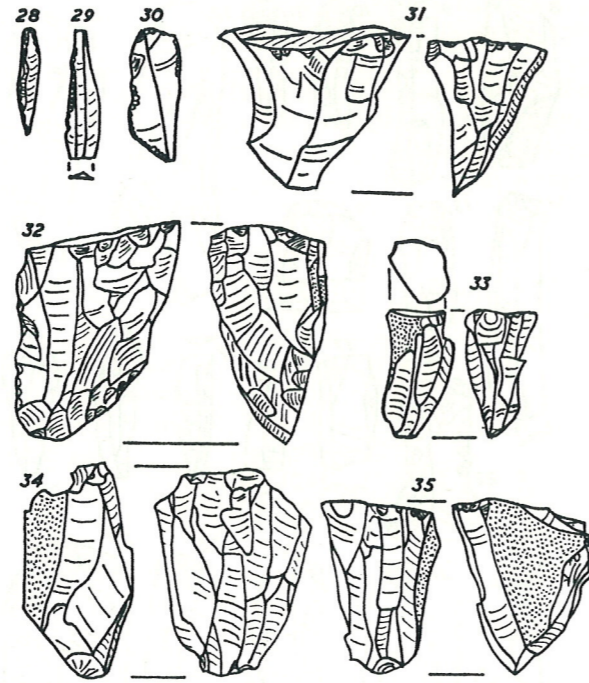


Fig. 4 Cloister site, Waltham Abbey. Microliths and cores. Scale 1/2.

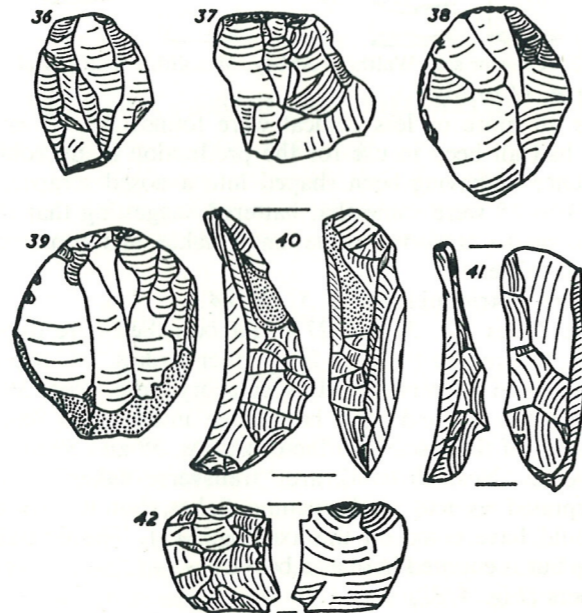


Fig. 5 Cloister site, Waltham Abbey. Core dressings and trimmings. Scale 1/2.

(G) Flake scrapers (Fig. 6/43 to 49)

This group covers a range of convex scrapers from over 3 ins. long to under 1 in. long. No. 46 is an unusual piece which deserves comparison with an artefact from Albury Wood, Surrey (shown to me during a visit there, by Miss Joan Harding); the resemblance to a gun flint is superficial.

(H) Burin (Fig. 6/50)

One example, interpreted as a burin, was found; its working edge is in mint condition. Although superficially a crude flake it is very comfortable to hold in a working position and is considered to be a purposely made tool.

(I) Axe (Fig. 7/51)

One core axe represents the heaviest equipment on the site. It is sub-triangular in section and is sharpened by the striking off of a rather small tranchet flake from each face. The butt end was broken off during manufacture.

(J) Hammerstone (Fig. 7/52)

The only hammerstone, of weight 0.83 lb., is a water-worn pebble of ortho-quartzitic sandstone (identified by Dr. T. W. Hawkins). It shows evidence of use at each end.

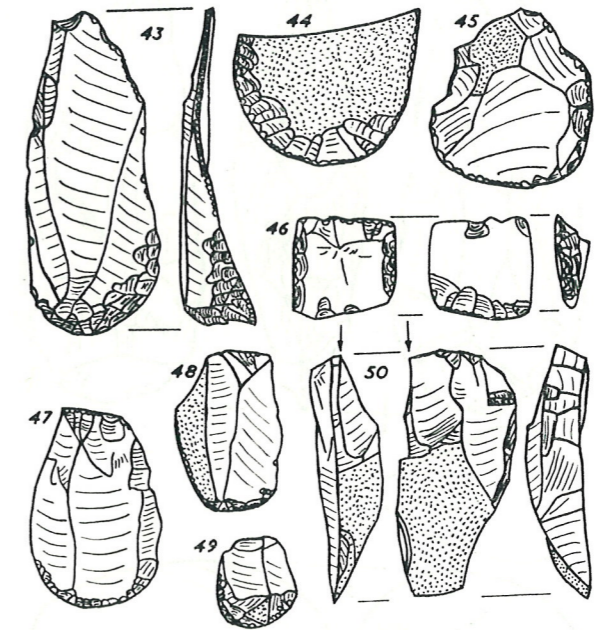


Fig. 6 Cloister site, Waltham Abbey. Scrapers and burin. Scale 1/2.

CULTURAL AFFINITIES OF THE CLOISTER SITE MATERIAL

Considering the small number of flints from the Waltham Abbey Cloister site the fact that all the categories A to J (Clark, 1934 (2)) for the Broxbourne material, are represented is remarkable. One hundred and two flints comprise

the collection; this total was originally larger but a few flakes were reported stolen by visitors to the site. The axe is comparable to no. 101 from Broxbourne (the other Broxbourne axe is a little larger and cruder) and to the single example in the Warren Collection (stored in the British Museum) from High Beech. The presence of the axes together with the microlithic element and the general nature of the assemblages suggests that at Waltham Abbey we are dealing with an industry of Broxbourne type which may be further mirrored at High Beech.

Any difference in relative proportions of flints may be due to the different nature of the camps and the activities there pursued. For example, Broxbourne and Waltham Abbey Cloister sites are near the river Lea, Broxbourne in the valley bottom later to be covered by Boreal peat and marsh clay, the Cloister site on the slightly higher river terrace sands and gravels; High Beech is above the 250 ft. contour on the late Eocene sandy deposits in a region presently beech forest.

The Waltham Abbey Cloister site is interpreted as another example in the string of Maglemosean sites from Colne Valley (Essex) through Broxbourne, Uxbridge and Thatcham to Southampton.

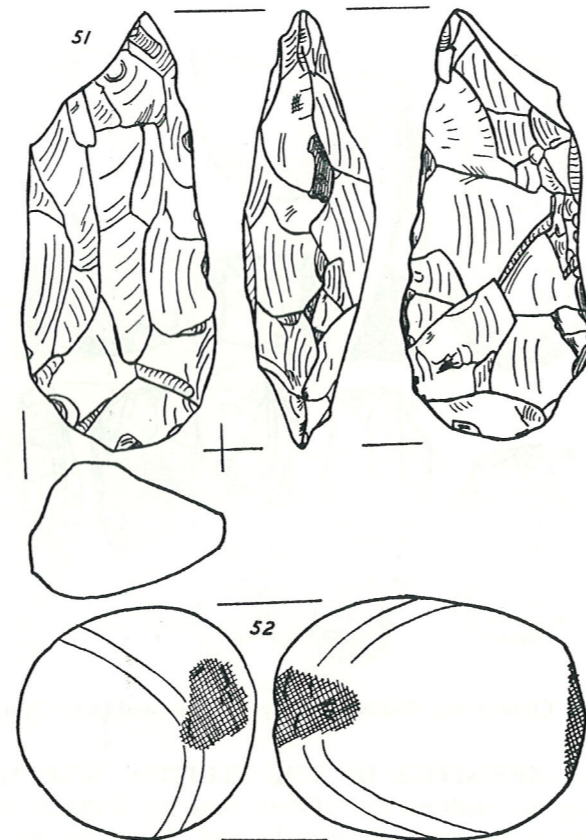


Fig. 7 Cloister site, Waltham Abbey. Cores and hammerstone. Scale 1/2.



Plate 1. Waltham Abbey Cloister Site: Prehistoric Pit and Postholes

CLOISTER SITE, EBBSFLEET-STYLE NEOLITHIC POTTERY (Fig. 8)

Some 30 sherds of decorated flint-tempered reddish Peterborough ware of Ebbsfleet style were found, probably mostly in a shallow pit in the natural sandy clay in the Cloister site, in 1955 in an area adjacent to where the prehistoric flints were found. This pit showed evidence of fire, a collection of calcined flint pebbles and fragments was kept. Near to the shallow pit were marks in the natural sandy clay which the excavators interpreted as postholes forming two arcs. A photograph, see Plate 1, shows these to have been small irregular holes and they may represent a small hut or windbreak.

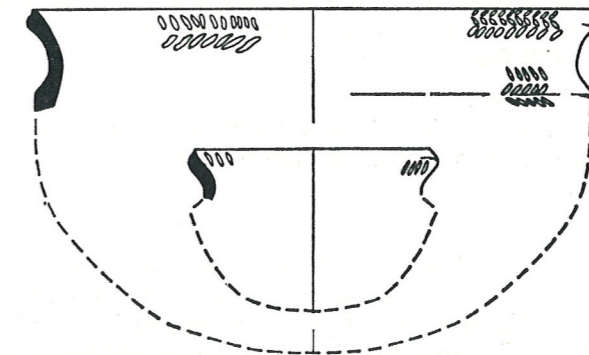


Fig. 8 Cloister site, Waltham Abbey. Ebbsfleet style pottery. Scale 1/4.

The pottery represented two vessels, one about 12 inches diameter and the other just over five inches diameter. Both pots were tempered with angular pieces of flint which project from the surface giving a rough feel. These pieces could have been obtained by smashing a piece of flint but not grinding it. The Saxon flint tempering, however, appeared to have been ground finely. The Neolithic rims are simply everted with the smaller pot showing incipient inturning. The larger vessel is carinated with a well-defined concave neck, the smaller vessel is represented by only one piece of rim but seems to have been similar in shape. The decoration was impressed with coarse twisted cord in herringbone pattern and covered most of the upper part of the pot, the rim, and inside the rim. The bases could not be reconstructed but are presumed to be round and probably undecorated. Shape and decoration can be paralleled at Windmill Hill (*Smith 1965, Figs. 31 and 32*) more closely than at Ebbsfleet. There is no trace of holes in the neck of the vessels.

The connection between this pottery and the mesolithic flints has been raised. The flints were in the weathered natural, later to become a buried soil, and the pit with the pottery would have been dug through this strata only to be seen as a shallow pit in the clean natural. The flints could be three or four millennia earlier than the pottery, just as the pottery is two or three millennia earlier than the Saxon settlement. However, if future work causes the gap between Mesolithic flints and Peterborough pottery to shorten then the possibility must not be forgotten that there could be some association; such an

association between Ebbsfleet-type pottery and microliths has already been reported at Barkhale, Sussex and at Albury Wood, Surrey.

EXCAVATIONS 1955-62

A plan of the 1955-62 Cloister Area excavations is shown in Fig. 9. The following main features were uncovered.

1. The inner cloister wall

The line of the inner cloister wall was established on all four sides. The irregularly spaced buttress foundations incorporated brick in their construction but may have been stone above ground. One of these buttress foundations, on the south wall, is reported to have included a length of stone column. The width of the wall foundations at their lowest was some $3\frac{1}{2}$ to 4 feet and narrowed to some $2\frac{1}{2}$ feet.

2. The outer cloister wall

The foundations to this wall were found in the north and east. In the south the outer cloister wall was the north wall of the central nave of the monastic church.

3. The slype

The slype or vaulted entry at the north-east corner of the cloisters has evidence of stairs at the back and stands to first floor level; this is a building often called "the Midnight Chapel" and was known in the 19th century as "the potato cellar". The arch of the south doorway, which has lost its facing, stands 10 ft. from the present ground level; a feature which may represent a lower stone floor was seen in 1929 during conservation work.¹

4. The drains

The drain in the slype² may have connected with that running under the north-east corner of the inner cloister wall although there is no real evidence for this. In this latter position the drain is medieval. The drain at the south-east corner of the cloister, of unknown relation to the wall and the nearby tomb, is made of the large "Waltham-Abbey-Gateway" bricks, one measured 13 in. x $6\frac{3}{8}$ in. x $2\frac{1}{4}$ in.

5. The tombs

The tomb in the east cloister walk is stone built and that at the south-east corner is brick built, including one "large" brick.

6. North wall of central nave

The foundations of this wall were 6 to 7 feet wide; a piece of stone has since been identified as Kentish ragstone. The small size of the buttresses on the north side suggests that any continuation above ground was decorative rather than structural. On the south of the wall was a 2-foot depth of conglomerate roughly laid in two courses; this may have been the foundation to a wall bench.

At the west end of this length of wall a curved feature of mortar rubble with flints intersected with the North wall; one burial was apparently dug into this feature and one overlay it. To the east the north wall was not extant but evidence of a third buttress remained in situ.

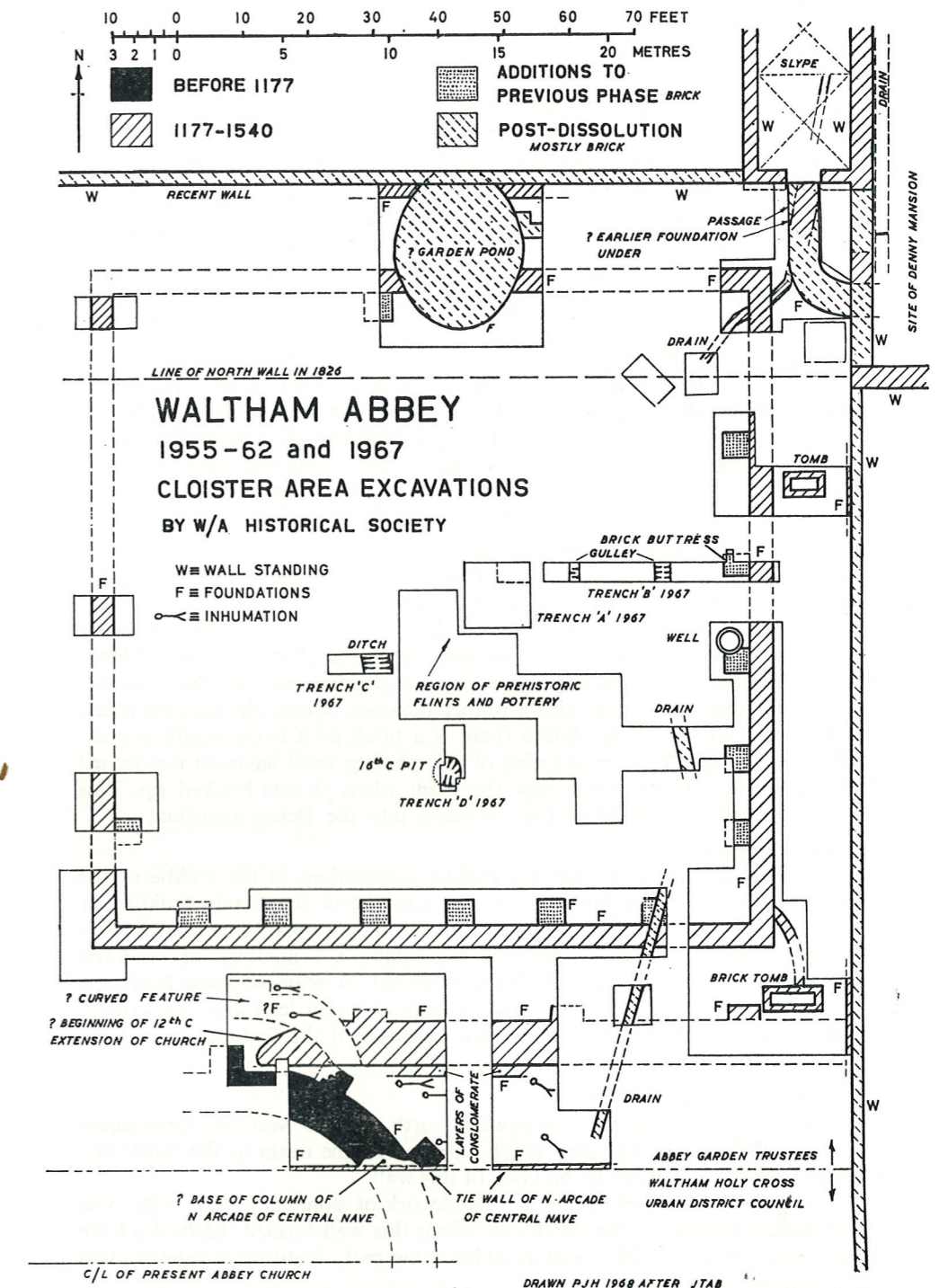


Fig. 9 Cloister site, Waltham Abbey. Plan of cloister area excavations.

7. The Apse

The apsidal foundation on the line of the present church has a mean radius of about 26 feet. This foundation was of mortar rubble with flint and stone; some mortar is pink in colour and combined with pieces of hard-fired tile is suggestive of re-used Roman material. A piece of oolitic limestone from the foundation is of the type thought to be Barnack stone.

8. Tie wall of north aisle of central nave

Foundations of this wall were detected at the southern limit of the excavations; they were recorded as a mortared construction of rough stone. Where the wall crossed the older apse a higher remaining mortar bonded foundation was interpreted as a possible base of a column of the north arcade of the central nave.

9. The Denny mansion

This mansion, situated outside the north-east corner of the cloisters, is discussed in the Documentary Survey. No excavation was carried out on this site. The mansion backed on to the slype and probably incorporated it, which may be the reason for the survival of the slype. Along the slype wall and beyond runs a stone built but brick-arched drain bricked up at the point indicated in Fig. 8; this is a drain some 5 ft. high by 2 feet wide.

10. Passage from slype to Denny mansion

This is a brick built passage probably contemporary with the building of the Denny mansion. It has a brick floor some 3 ft. 9 in. below the present ground level, the brick sides remained to eight courses and showed remains of having been plastered. Where the passage meets the slype there is evidence of a brick floor therein at the same level; a gap between the floors of the passage and slype was filled with a timber member. Where the passage meets the back wall of the Denny house there is a brick arch twenty-eight courses or about 6 ft. high. The continuation of this passage must have cut the arched drain under the Denny house past the point where it was bricked up. This passage may be some kind of rear entrance into the Denny mansion.

11. The garden pond

The oval feature built over the cloister foundations in the middle of the north walk is possibly a garden pond and may be of the Denny building or later period. As found it had a base of flint set in clay with a single brick wide surround, a few green glazed tiles $7\frac{1}{2}$ ins. square x 1 in. thick of local red ware were found on edge by this brick surround. A seam-soldered lead pipe 1 in. diameter found in the centre of the feature and a lead and brass outlet incorporated in a drain on the east side suggest that the feature was a pond of some sort.

12. Post-medieval walls (Fig. 9)

The wall 30 ft. south of the present north Cloister wall was represented by loose rubble in the trenches which cut its line; the drain at the north-east Cloister corner was cut by the building of this wall.

The east Cloister wall today is a patchwork of stone and brick with some conglomerate lumps. At the north end where this wall formed the back of the Denny mansion it is thicker and contains some early features; a gateway was made through this wall in 1966.

A brick wall built along the tie wall of the north arcade of the central nave passed over the early apsidal foundation, and at this point a pile of rubble is interpreted as a base of a column of the north arcade of the central nave; the builders of the brick wall spanned this foundation with a brick arch probably to save the work of checking its strength.

- 1 H.M. Office of Works drawing no. 6 of Job no. 224 dated 30.8.32.
- 2 Min. of Works, Ancient Monuments branch, drawing no. 18 of Job no. 224, dated Dec. 1959.

EXCAVATIONS 1967 (see Fig. 10)

The objects of the 1967 excavations were twofold:

1. To investigate if there was any relationship between the Ebbsfleet-type pottery and the mesolithic flints found in the earlier excavation.
2. To record the stratigraphy of the site so that publication of the earlier work would be more meaningful.

The 1967 excavation was very limited in extent. The four trenches opened are shown as A, B, C and D in Fig. 10. A, C and D were designed to sample the stratigraphy around the area where the prehistoric material was previously found. Trench B, with A, was intended to connect the stratigraphy from the cloister centre to the inner cloister wall. As it happened most of Trench A was abandoned as it was clearly a region of earlier operations.

The stratigraphy is characterised by a loam layer F18, 19 and 20, somewhat disturbed in places, but which represented the level when the cloisters were in use.

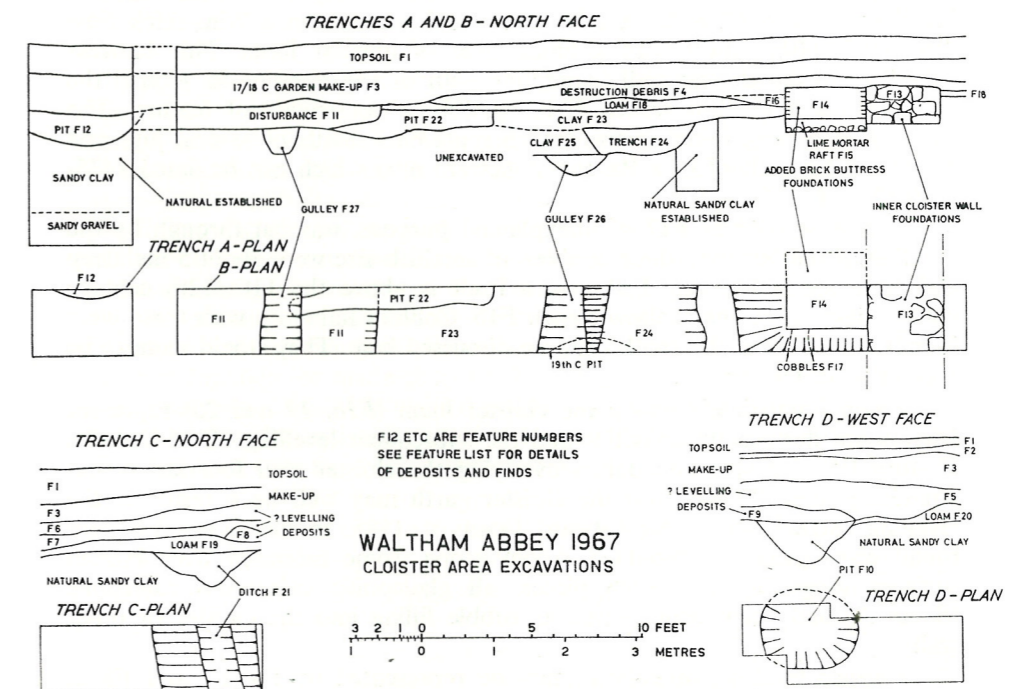


Fig. 10 Cloister site, Waltham Abbey. Plans and sections of 1967 trenches.

A number of features were clearly under this level (*see Fig. 10*). These are the ditch F21 in Trench C, the gulley F27 in Trench B, the pit or gulley F22 in Trench B, the gulley or ditch F26 in Trench B, which was covered by re-deposition of almost sterile clay F25, and the pit or trench F24 in Trench B covered by re-deposited clay F23. On pottery evidence all these features would be classed as 11th/12th century, fragments of Abbey stone were found in them so they could be interpreted as evidence of occupation during building operations of the Saxo-Norman period. Most of the features above have a North-South orientation. The loam, where undisturbed by Saxo-Norman activity, must represent the "black, silty deposit" mentioned by earlier excavators which contained mesolithic flints; it must have continued as the ground level up to the time of the Dissolution in 1540. Apparently the prehistoric occupation did not extend into the region of the 1967 trenches as the only flints found were in later disturbed features.

The loam F18 was cut through for the building of the cloister wall. The foundation to this wall F13 was some 3 ft. 5 ins. wide at the bottom; this foundation was of rough hewn Kentish Ragstone (ref. Stone E) set dry in a clean orange sandy gravel. This cloister wall foundation is likely to have been built early in the 1177-1242 period, probably between 1177-1184 (see Documentary Survey).

The brick built buttress foundation F14 to the inner cloister wall is one of a number of such irregularly spaced features found in the 1955-62 excavations; it was 3 ft. 6 ins. wide and 3 ft. 8 in. deep. This buttress with seven remaining brick courses was built of part bricks (only one whole one was found measuring 9.2 x 4.4 x 2.1 inches) and was set on a 7-in. thick lime "concrete" plinth itself with a basal layer of angular flints. This buttress butted up to the cloister wall foundation without any bonding in. Round the buttress was a shallow trench F16, possibly a constructional feature. The quantity of pottery found in this trench represents sherds of several jugs and includes a large sherd of a Raeren stoneware mug which can be dated 1475-1540 (*Fig. 11/14*).

A line of cobbles F17 of unexplained purpose, was cut through by the building of the buttress; these cobbles, of smallish size were about 5 ins. deep and were set in the clay F23, which itself is above the 11th/12th century gulleys, just below the shallow trench F16. Cobbles lining up with these were found in 1955-62 to the south of those discussed here. They would seem to be a pre-cloister feature.

Strata immediately above the cloister loam (*F18, 19 and 20*) represent Dissolution destruction activities and the subsequent levelling off of the site. Feature F4 of destruction debris overlying the cloister wall foundation and stretching some 20 feet into the cloister garth may well be a result of the levelling carried out by Sir Edward Denny c. 1595. In this debris F4 were found eight pieces of moulded Abbey stone, some mortared over broken surfaces suggesting that such pieces, all glauconitic calcareous sandstone (Stone A) had been incorporated as rubble filling into the cloister or other wall.

Further levelling operations may be represented by F6, F7 and F8 in trench C and F5 and F9 in trench D. In F7 were two clay pipe bowls of type

5b (*Oswald 1955*) of 1640-70 suggesting that this post-Dissolution levelling, certainly in the area investigated in 1967, was of the middle rather than early 17th century and may be rather late to be the work of Sir Edward Denny who died in 1637. It may be that the southern area, i.e. south of the cross wall in line with the chapter house wall, was left fairly level but uncultivated, until the middle of the 17th century.

Before the levelling features F5 and F9 in trench D were deposited a pit F10 was dug and filled. It contained only six sherds of 16th/early 17th unglazed red ware in a densely packed filling of animal bones. This must have been the debris of nearby occupation; it could either be the refuse from the Denny household or from squatters living in the central cloister area while it was ruinous. The pit F12 in trench A and the disturbance F11 in trench B are other features of about the same date as the levelling operations above; F11 contained pottery of the first half of the 17th century.

Later than the levelling operations discussed above, a layer of stony, clayey soil F3 was introduced as a make-up deposit. This make-up was, in places, up to 2 ft. thick. The dating of this level is something of a problem. By the second half of the 18th century a print shows the area was set out as formal lawns with paths around and across leading to the gate through the west wall. The make-up may therefore date from the setting out of these lawns. In the deposit were found clay pipe bowls of type 4b (*Oswald 1955*) of 1620-40, type 8b of 1680-1720 (fragments of a reeded pipe bowl probably attributed to Paul Balme of c. 1832 are taken to be intrusive); the pottery in evidence points to a 17th century date, but if the pipe of 1680-1720 is considered then this is likely to be towards the end of the century or into the 18th century.

Above the vast make-up deposit F3 some 12 to 15 inches of topsoil had formed. In places this represented the orchard level going back in living memory, in the cloisters, to c. 1900 and possibly to 1770 when a market garden was established after the Denny mansion was burnt down; in other places it represented the bulldozed levelling after the 1955-62 excavations when the orchard was also cleared away. A buried soil level F2 seen in trench D shows that the bulldozing may have altered the surface level by some 6 ins.

Summarising the results of the 1967 excavations we see occupation in 11th/12th century as evidenced by ditches, gulleys and pits. The ground level was maintained as loam just above natural where undisturbed by 11th/12th century occupation, or made good to this level and so maintained throughout the Cloister period until 1540; the mesolithic and neolithic material came from this undisturbed loam. Finally the site is characterised by a post-Dissolution build up in level over the whole Cloister area.

LIST OF FEATURES 1967

The excavated features have all been given feature numbers, e.g. F16. These numbers are used on the Plans and Sections seen in Fig. 10 so that reference can be made to the list for description of the features and a record of the significant finds from each feature. Pottery Groups are detailed in Appendix 1, Tiles in Appendix 2, Glass objects in Appendix 3, Miscellaneous finds in Appendix 5, Stone in Appendix 6; e.g. Pottery: 2M. Stone: A and

D. Glass: Fig. 17/5 means that there were two sherds of Group M pottery (1540-1640), specimens of Stone types A and D and glass fragments illustrated in Fig. 17 no. 5.

Feature

<i>No.</i>	<i>Description of feature</i>	<i>Significant finds</i>
F1	Topsoil including levelling in 20th c. prior to grass seeding.	Pottery: 1 neolithic, 1 blue and yellow delft, 1 Chinese porcelain, 1 Westerwald s/ware.
F2	Buried soil within F1, result of bulldozing after 1956-62 excavations.	
F3	Stony clayey soil, deposited to make up and level off the cloister area, seen in all trenches. Pottery suggests early to mid 17th c. The clay pipe suggests later date; some later material taker as intrusive.	Clay pipes: 1 Oswald 4b (1620-40), 1 Oswald 8b (1680-1720), 1 frag reeded bowl (intrusive). Pottery: 20M (12 brown glzd., 1 green glzd.), 16N (5 black glzd.), S/ware (4 Raeren, 11 Frechen), 7 buff (various green and yellow glzd.), 12 white delft (including sherds of quadron dish), 1 b/w delft (v. pale), 1 like Fig. 15/68, Fig. 11/17-23, 25, 27-30. Stone: D. Glass: Fig. 17/1-4 and 6. Pottery: 2M. Stone: A and D. Glass: Fig. 17/5.
F4	Destruction debris perhaps purposely levelled out to some extent. Mortar rubble with stone, brick and tile fragments including moulded Abbey stone. Overlying cloister wall base F13 and brick buttress F14.	
F5	Similar material to F4 but less likely to be result of demolition, rather moved from elsewhere as part of site levelling work.	
F6	As F5 but including a patch of brick fragments.	Pottery: 1B, 1N (black glzd. handle). Stone: D. Tiles: black triangle dec; Fig. 16/9.
F7	Loam, tile and brick deposit, probably part of the site levelling process.	Clay pipes: 2 Oswald 5b (1640-70). Pottery: 3M, 1N, 1 combed slip, 1 yellow glzd. buff, 2 Chinese porcelain, 1 s/ware rim.
F8	Broken brick concentration in F7.	
F9	Clayey soil with small Abbey stone fragments. Pottery probably early 17th c.	Pottery: 1M, 7N, 2 Frechen s/ware. Bone handle: Fig. 19/2. Pottery: 6M, Fig. 11/16.
F10	Pit with high concentration of bones in dark loamy fill. Pottery 16th/17th c. After 1540.	
F11	Disturbance. Tile, brick, bone, pottery, Abbey stone fragments in loam. Pottery probably after 1600, not later than mid-17th c.	Pottery: 4M (2 painted), 5N (3 black glzd.), 2 Frechen s/ware, 1 delft, 1 buff (green glzd.), 1 red (green glzd.), 1 buff (derived); Fig. 11/15, 24 & 26. Stone: D polished.
F12	Pit, just seen in section. Abbey stone, brick, tiles. Cuts into F11.	Pottery: 2M. Stone: A.
F13	Inner cloister wall foundation. Rough hewn blocks of Kentish ragstone laid dry in sandy gravel. Trench cut 3 ft. 5 ins. wide.	

Feature No.

<i>Description of feature</i>	<i>Significant finds</i>	
F14	Buttress added to the wall of which F13 was the foundation. Constructed of part bricks set with lime mortar, only one whole one was found in buttress 3 ft. 8 ins. long, 3 ft. 6 ins. wide x 1 ft. 5 ins. deep (7 courses remaining).	
F15	Strong lime mortar + flints, raft for brick buttress F14, 7 ins. thick.	
F16	Shallow trench around brick buttress F14. possibly a constructional feature.	Pottery: 23J; Fig. 11/6-12, 3 unglazed buff; Fig. 11/13, 1 Raeren s/ware; Fig. 11/14.
F17	Line of cobbles at 3 ft. 5 ins. deep, mostly cut through by building of buttress F14. Purpose not known.	
F18	Thin loam layer, 3-7 ins. thick. Probably the level when the cloisters were built and in use.	Pottery: 1B, 1C, 5D (4 with sand + shell), 1 Stamford; Fig. 11/3-5.
F19	Similar loam layer to F18 but piled up to 10 ins. thick in trench C.	Pottery: 1 grass + sand, 2A, 4B, 2C, 6D (+ sand), 4E. Stone: A.
F20	Similar loam layer to F18 but piled up to 10 ins. thick in trench D.	
F21	Ditch, loam/silt filled.	Pottery: 1 neolithic, 1D (+ sand). Stone: A.
F22	Pit or gulley.	Pottery: 1A, 1D, 2E, 2 buff sandy green glazed.
F23	Re-deposited, slightly stained, but sterile clay.	
F24	Shallow pit or trench, loamy fill.	Pottery: 1C, 7D. Fragment Roman flue tile.
F25	Re-deposited, slightly stained, but sterile clay. Somewhat earlier than F23. Not investigated as much as it should have been.	
F26	Gulley or remains of ditch in natural clay, loamy fill, essentially a N-S feature.	Pottery: 1D. Stone: A.
F27	Gulley in clay which is possibly not natural (see F25). A N-S feature.	Pottery: 1B, 5D; Fig. 11/1 & 2.
F28	Pit to a depth of 3 ft. 7 ins. with 19th c. material.	

DISCUSSION OF ARCHITECTURAL FEATURES

by Dr. K. N. Bascombe

The apse, which must represent the east end of a church of the collegiate foundation, is a valuable addition to the range of our knowledge of such buildings. Sir Alfred Clapham (1934, *Ch. II*) has divided the east ends of larger English churches (i.e. those with aisled choirs) of the later eleventh and early twelfth centuries into two classes:— the "three-apse" (Type A), in which the chancel and each aisle end in separate apses, and the "apse-and-ambulatory" (Type B), in which the chancel ends in an apse, the aisle being carried round this to form a continuous ambulatory. Waltham clearly belongs to the latter type. Much of the information concerning other churches is drawn from this work. The geographical distribution of the two types is not apparently significant, though Type A is commoner in the Midlands and East than in the West of England. Nor is there any correlation seemingly with the nature of the establishment. Locally St. Albans (Benedictine monastery) was of type A, while Bury St. Edmunds (Benedictine monastery) and probably Old St. Paul's (secular canons) were of Type B. Christchurch, Hants. (secular canons) was of Type A.

The choir of the church to which the apse belonged would appear to have consisted of three bays. Littler in 1859 (*published Littler, 1863, plan*) shows four pairs of pier foundations east of the position of the central tower of the Norman church. The line of the northern of the two arcades was occupied by a rough wall built in 1814 (*Winters 1888, p.168*) and demolished in 1964. The bay length in Littler's postulated arcades is 16 feet, viz. the same as in the existing nave of the church, and allows for the original central tower to be set out square. The northern pier of Littler's easternmost pair, however, falls on the line of the apse discovered in the 1955-62 excavation. This suggests that the higher remaining foundation, discovered on the apse foundation in this position, and tentatively assessed as a column-base of the later central nave, may have been seen by Littler and mistaken for a column foundation of a building contemporary with the existing nave. Littler's plan does not indicate any medieval piers further east than this, although the wall of 1814 continued eastwards for a further 75 feet. There is also a tradition that brickwork in this otherwise rough stone rubble wall marked the sites of pier bases found during its construction. These brickwork piers, in the westernmost part of the wall, were approximately 16 feet apart, agreeing with Littler's plan; one of them stood above the apse and the later mass of masonry and this suggests that the error tentatively ascribed above to Littler's plan may in fact have been made in 1814. (The part of the wall further eastwards contained further brickwork piers rather more irregularly spaced.)

if (as indicated in the plan given in the V.C.H., Essex, V, p. 172) these arcades were rebuilt with a different bay spacing of 18 feet when the church was enlarged after 1177, it is surprising that the foundations of these later piers were not those found in 1814. Such respacing would also have led to difficulties in the region of the original central tower. Further excavation in the area west of the apsidal foundation is required to elucidate this point. Such excavation should also investigate the details of any chapels associated with the aisle or transept of the Norman church. In general, ambulatories of the type discovered here possessed three radiating chapels, one at the east end and one placed symmetrically on either side. The site of any eastern or southern chapel would lie within the churchyard,¹ and the 1955-62 excavation has served to show that any northern chapel must be set much further to the west than is usual; in fact it could not be on the ambulatory at all but would have to be attached to the aisle. An apsidal or apsidal-ended chapel projecting east from the transept would seem more probable. The former is a very usual feature, and here would serve to fill the awkward space east of the transept on the published plan, the cloister walk being carried around the outside of such an apse if it were retained in the post-1177 extension. Such an arrangement would be exceptional, but it is, of course, most unusual for a cloister to be placed east of an apsed part of a church. At Ely (Benedictine monastery) the north walk of the cloister lay east of the apsed southwest transept, but returns south twenty feet east of it, the apse projecting into the later west or cellarer's range of the claustral buildings.²

The plan of the ambulatory buttress foundations at Waltham strongly indicates that unless an eastern chapel existed a buttress would be found at the extreme east end of the apse. This would seem to exclude the existence

of an east window, and this in turn appears so unlikely as to lend support to the idea of the existence of such a chapel. Plans of this Type B form with no chapels or only one appear to be very rare, but there appears to be a single-chapel parallel at Lichfield Cathedral (secular canons); foundations planned in 1861 indicate a choir almost certainly of three bays with apse, ambulatory and an eastern chapel but almost certainly none on the north-east or south-east (*Willis 1861, p. 17 and plan*). The eastern chapel there was about 20 feet wide, larger than might be expected of one of three attached to an ambulatory of mean diameter 58 ft. This diameter and the axial length of 75 ft. are almost identical with the dimensions of the Waltham feature. No buttresses around the ambulatory are recorded at Lichfield, where, unfortunately, no work earlier than c. 1200 survives above ground. This seems to be the only recorded parallel, at least in England. At Worcester Cathedral (Benedictine monastery) the crypt has apse and ambulatory with (now) no radiating chapels (*Strange 1909, p. 76*); such chapels may, however, formerly have existed either in the crypt or superstructure. The abbey church at Jumieges (Benedictine) appears to have had apse and ambulatory without radiating chapels (but with apsidal chapels to the transepts). Chester and Winchester present rather less close parallels. Chester (Benedictine) Abbey (now Cathedral) as originally built possessed no radiating chapels, the side aisles projecting beyond the ambulatory to terminate in apses well east of the central apse; while at Winchester Cathedral (Benedictine monastery), to judge from the crypt, a somewhat analogous arrangement existed, the aisle chapels being short and square-ended, and the eastern chapel prolonged and ending in an apse. It seems unlikely that the apsidal foundation excavated at Waltham represents a crypt but it would be difficult to exclude the possibility completely.

Lichfield and Waltham are among the narrowest of English east ends of Type B; on the other hand Tynemouth, with ambulatory only about 50 feet across, and Leominster, similar in width to Waltham (both Benedictine), each possessed three radiating chapels. It is tempting to suggest that the churches of secular canons, an important part of whose duties consisted of the cure of souls in the churches of their respective prebendal estates, had less need of these extra chapels than the churches of the enclosed orders.

The date of the Waltham structure cannot be assessed with any certainty. Jumieges abbey church was built between 1040 and 1067. The apse-and-ambulatory plan (with radiating chapels) was used earlier at Rouen Cathedral (begun 1025-30), while in other parts of France it goes back to the tenth century. The earliest example in England has been said to be Battle Abbey (Benedictine) (c. 1070-1076), with Canterbury St. Augustine's and Bury St. Edmunds (both Benedictine Abbeys) shortly following. Lichfield is not well documented, but there is some evidence of extensive works in 1088; alternatively the Norman cathedral of which this apse would have formed part, may have been built in the first half of the twelfth century. If Harold, for his foundation in 1060, employed a Norman master-mason (perhaps unlikely on political grounds) it is possible that the Waltham apse is his work; the anonymous late twelfth-century writer of the "De Inventione" (*Stubbs 1861, cap. 16, p. 17*) refers to the presence of Harold's church of columns with finely-carved capitals, bases and arches. On the other hand, he may have been

referring to a later rebuilding which could have become associated with Harold. At the other extreme, it is just possible that this feature might be associated with the alterations which, according to the same writer, took place in the church in the mid-1120's (*Stubbs 1861, cap. 21, p. 31*) (compare St. Bartholomew's Smithfield, founded for Augustinian canons in 1123). The re-use of Roman material, however, might suggest that this was the first building on the site. The apsidal foundation can hardly belong to Tofig's church of c. 1030; apses were not favoured in the late Saxon period (*Clapham 1930, p. 95*) and none of those which survives or have been excavated shows an ambulatory of this type.

The wall running east from near the northern springing of the ambulatory is clearly the north wall of the new central nave begun after 1177; the fact that the wall does not apparently extend further west than this point supports the suggestion made earlier that the three-bay earlier choir may not have been replanned at this time, but a junction (albeit a rather awkward one) made at this point. At the same time the digging-out of these foundations reported (*Little 1863*) to have occurred in 1837 must be borne in mind, and may also explain the absence of this wall foundation (except for one buttress) further east.

The curved feature at the west end of this wall cannot usefully be interpreted at present; the excavator, Mr. J. T. A. Burton, considers that it antedates this wall. This problem also might be clarified by further excavation.

The architecture of the surviving vaulted building at the north-east corner of the cloisters indicates that these were laid out within at most a quarter of a century after the re-foundation of 1177. The position of the cloisters on the north side of the extended church (as opposed to the more usual south) was probably dictated by the presence of the Cornmill Stream (part of the River Lea) on the north side flowing round to the mill at the west, and thus providing a convenient source of running water for drainage; it is also possible that the town had grown sufficiently on the south side to make it less easy for the cloisters to be built there.

The brick, or largely brick, buttress foundations attached to the inner cloister wall are of particular interest owing to their irregular spacing. The walls of the cloister-garth were no doubt originally built as an open arcade, with twin columns standing on the dwarf wall. Examples of such shafts have been found in the 1955-62 excavations and others have been re-set in various walls in the Abbey Gardens area. This type of arcade must have made the cloister walks very bleak in winter, and rebuilding with large traceried windows was common in the fourteenth and fifteenth centuries. At Finchale priory, near Durham, the east and west walls of the cloister garth were rebuilt in this way in the fourteenth century.³ Similar alterations took place at Valle Crucis Abbey in the fourteenth century, at Byland Abbey and Thetford Priory in the fifteenth century, and at Castle Acre priory about 1500. At Byland and Thetford buttresses were incorporated in the rebuilding scheme. At Pontefract Priory (*Bellamy 1965, p. 2*) the east wall of the cloister garth was rebuilt apparently in the thirteenth century, incorporating in the footings re-used bases of the twin column arcade. At Cleeve Abbey the west walk of the cloisters was rebuilt just before the Dissolution, and an upper floor added.

None of these examples provides a real parallel to Waltham, where the buttresses are clearly additions made, probably in the late fifteenth or early sixteenth century if the trench F16 is taken to be a foundation trench, to a pre-existing wall. Their irregular spacing renders it difficult to interpret them in terms of any system of fenestration, and it is easier to see them as rather clumsy strengthening works — perhaps occasioned by damage caused in 1444 — with much of the original cloister arcading, or of a later replacement by traceried openings being blocked up, the latter being more likely as a re-used column was found in the foundation of one buttress. The southern wall of the cloister garth at Finchale Priory shows two buttresses added in the fifteenth century to individual bays of the original twin column arcading (these bays, at least, being presumably blocked up), while at Roche Abbey buttresses were added in the fifteenth century to strengthen the walls of the garth, especially massive ones being added on the side nearest the church.

Of the post-Reformation features little can be said. The brick floored passageway running south from the cloister entry and turning east through an archway in the east wall of the cloister walk, must have been part of the arrangements at the rear of the Denny mansion, and was probably roofed over as a building stood over its site in 1826. It is probable that the eight surviving courses of the walls of this passage represent its depression below ground level.

The stairs at the north-east corner of the vaulted entry are probably also of the period of the mansion as they do not conform to a regular monastic plan and have the appearance of an insertion.⁴

1 According to Mr. S. F. Puddephatt, trenches were dug in the churchyard in 1939 in an attempt to locate the southern wall of the central nave; it was found, however, that the ground had been greatly disturbed by grave-digging and nothing of significance was discovered. In any case the site of these trenches seems to have been well to the east of the apsidal foundation.

2 Plan facing p. 217, Arch. J., CXXIV, 1967.

3 Information on the cloisters at Finchale, Valle Crucis, Byland, Thetford, Castle Acre, Cleeve and Roche is derived from the respective Official Guides (H.M.S.O., Ministry of Public Building and Works).

4 I owe this suggestion to Dr. R. S. B. Chrystall.

PROBLEMS FOR FUTURE INVESTIGATION

This report would not be complete without some suggestions for future work:

- (1) A study of the stones used in the present church and other walls and foundations may enable building periods to be collated with the use of particular materials and techniques.
- (2) The date and full form of the apsidal foundation found in 1955-62 are not known. The absence of an eastern chapel is not certain. The projection of the apsidal ended building westwards and its relation to the central tower and crossing have not been established.
- (3) The west wall of the cloisters has not been investigated and the form of junction with the adjacent north transept is unknown. No evidence has been found of a monastic lavatory in the cloisters.
- (4) Some problems concern the wall of the central nave of the monastic church. The form of the junction of the wall with the earlier apsidal ended building is not fully determined. The relation of the arcade pillars to those

of the earlier arcades is not known. The relation of the north wall and the adjacent conglomerate courses is uncertain. The buttresses of the north wall are not at all convincing; their spacing seems irregular and their relation to the arcade piers is uncertain.

- (5) The date and explanation of the curved feature cutting into the north wall of the central nave near the apsidal foundations are not known.
- (6) Little is known about the chapter house, the other monastic buildings or the precinct walls. An inventory of buildings at the Dissolution is extant (*Winters 1888, p. 124*).
- (7) To the far east of the church is a rectangular moated enclosure, some 350 ft. by 550 ft., of unknown purpose; no investigation has been made here.
- (8) Foundations of buildings and roads in the area west of Harold's Bridge (14th century) were plotted in 1933 by Mr. and Mrs. S. F. Puddephatt but have not been investigated further.
- (9) The general position of the Denny mansion of c. 1595 is known outside the north-east corner of the cloisters but no excavation has been undertaken to check its real extent.

CONCLUDING REMARKS

The excavations at Waltham carried out over the years have been piecemeal. The available information from the earlier excavations has been collated here as far as is now possible. While defining the form of the cloisters, the monastic and the earlier church, the work leaves many problems for the future and many more years, careful work will be needed to obtain all the evidence.

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Grateful acknowledgment is made to the Abbey Gardens Trustees and to the Ministry of Public Building and Works for permission to carry out excavations in the cloisters. It was Mr. P. E. Curnow, F.S.A., Inspector of Ancient Monuments, in particular, who encouraged the writing of this report. The 1967 excavation, directed by P. J. Huggins, was carried out by members of the Waltham Abbey Historical Society, assisted by members of the West Essex Archaeological Group. The advice of Mr. R. T. Brooks, F.S.A., was of special value during the excavation. Rhona M. Huggins studied the pottery of the former and present excavations and has reported on it as far as is now possible. Dr. K. N. Bascombe has spent much time on the documentary and architectural studies. Above all the whole presentation of the material has been a combined effort.

The earlier work at Waltham Abbey was begun by Mr. and Mrs. S. F. Puddephatt, who traced foundations of buildings and a road in the region of Harold's Bridge in 1933 and was continued by various members of the Waltham Abbey Historical Society. Special thanks are offered to Mr. Puddephatt for his help on many points and to Messrs. J. T. A. Burton, John Ells, E. L. Higgs, W. L. Luck, E. W. Berry for their willingness to discuss matters relating to the earlier work. Mr. Burton plotted the features in the Cloisters and kept notes and photographs of the work. Use has been made of the reports in the Bulletins of the Waltham Abbey Historical Society and written notes kept by Mr. Higgs and Mr. Ells.

Thanks are also offered to: The Director of the Explosives Research and Development Establishment for permission to publish details of the Newton's Pool arrowhead and to Mr. M. McLaren for making it available for study; Mr. David Cresswell for reporting and presenting the polished neolithic axe to the Society; Mr. F. G. Dimes for identification of Abbey stone; Dr. T. R. W. Hawkins for the opportunity to discuss geological matters; Mr. J. G. Hurst for advice and encouragement in publishing the pottery; and Mrs. E. Eames for advice concerning the medieval floor tiles; the staff of the various museums who have offered advice in the past; Mr. John Gordon for the opportunity to see and discuss the 1959-61 High Beech material and for his advice on the flints; and Dr. Rosenfeld for the opportunity to examine the Warren Collection of High Beech mesolithic material in the British Museum.

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Appendix 1

POTTERY

by Rhona M. Huggins

The excavations carried out before 1967 produced a great deal of pottery. Unfortunately the previous excavators did not fully realise the importance of recording it in stratified layers. One of the aims of the excavation in 1967 was, therefore, to establish the stratigraphy. Although the limited area of trenches excavated in 1967 only produced a small quantity of pottery, it has been dealt with separately here. All pieces which can be drawn are shown in Fig. 11 and sherds are detailed in the Feature List. Pottery from the other excavations has been sorted and those pieces which are of particular interest are shown in Figs. 12-15. I should like to thank Mr. J. G. Hurst for his advice in identifying the pottery and for encouraging us to publish this work.

1967 Excavation

The excavation revealed that a fine loam layer F18, F19 or F20 was overlain by deposits of levelling material. The loam was formed at the level of the ancient natural ground surface. Pits F22, 24, 26 and 27 contained hand-made Saxon pottery and shell-tempered pottery only (Fig. 11/1-2). The loam F18 contained sherds which could be assigned to the 11th/12th century or early 13th century (including a sherd of yellow glazed Stamford ware) with some 16th century intrusions (Fig. 11/3-5). Pit F10, while full mainly of animal bones, contained six sherds of 16th century unglazed ware (Fig. 11/16); this pit cut through the loam but was covered by the levelling layers so can be dated 1540-1600. The only pottery which could be assigned to the monastic period came from F16 which is a shallow trench round the brick buttress F14.

This group (Fig. 11/6-14) is mainly composed of unglazed red sandy ware common to the Waltham area, with a large sherd of buff unglazed jug base, all of which could be dated 14th/16th century. Also with the group, however, was a large sherd of a Raeren stoneware mug (Fig. 11/14) which is thought not to have come to this country before 1475. Since the buttress is unlikely to have been built after 1540 when the cloisters went out of use, this gives a span of 65 years for this group. The slip decorated sherds (Fig. 11/7, 8 and 9) seem to represent the change from the well rounded patterns of the 15th century (no. 7) to spiky patterns of the 16th century (no. 9) so a date of 1475-1540 suits them very well. The general absence of pottery of late 13th/15th century date seems to show that the cloister garth was kept clean and tidy throughout its period of use.

The remainder of the pottery found (Fig. 11/15-29) is post-medieval in date and comes from the features associated with the Denny and Wake family house and garden, c. 1600-1770.

1955-62 Excavations

Upon examination of the pottery found during excavation of the cloister area by previous excavators, very little could be assigned to the monastic period. This bears out the findings of the 1967 excavation.

The prehistoric pottery has been discussed in section 3.7, on page 229.

The proportion of hand-made Saxon ware found in 1955-62 is small compared with that found in 1967. Fig. 12/31 is a grass-tempered rim sherd found near the slype with other Saxo-Norman ware, and is the only certain Saxon rim found so far. Although documentary evidence records the establishment of a settlement in 1030 by Tovi, there was certainly a hunting lodge earlier and the site seems to have attracted hunters from prehistoric times. The four groups found at Northolt (Hurst 1961, p. 255) can all be paralleled at Waltham in features cut into natural. Similar pottery was found on the other side of the Market Square on the Sewardstone Street site¹ where it was also in the lowest levels. It is also very similar to the pottery found recently at Blackheath. Until a larger quantity is found at Waltham it cannot be said to be more than a scatter left on the surface by earlier Saxon inhabitants. The largest group of medieval pottery is shelly ware, ranging from hand-made, heavily tempered, ware to wheel-made, shell tempered. In some cases sand is added to the shell, and frequently the pots have been fired with a patchy red surface. All the pots of this ware are cooking vessels (Fig. 12/32-41) with sagging bases. Sand tempered, wheel made, grey ware (Fig. 12/42-44) was common and may be compared with the pottery found at S. Mimms castle dated c. 1144 excavated by J. P. C. Kent. Both S. Mimms and Waltham were in the territory of the de Mandeville family at this period. Glazed vessels were found at S. Mimms of various colours, and it is suggested that the jugs (Fig. 13/54-58) are of pre-cloister date. The coating of Essex redware with a buff slip to achieve a clear yellow or green is a common trick at all periods. No. 57 has thumbing all round and even the bottom of the base has been slipped; the slip has been scratched before glazing, however, so that the red body shows through. The jugs nos. 59-61 are unglazed and certainly of 12th century or early 13th century date.

The pottery from the Vicarage front garden excavated by J. T. A. Burton

(Fig. 14) supplies a group of pottery from the monastic period. The coarse wares are more heavily tempered with coarse sand and grit than the cloister pottery, and the squat glazed jugs are finer, with decoration typical of 13th/14th century. The shell tempered rim sherd is from a much larger vessel than any found in the cloisters and is well made. The trench was too small to give a building plan, but this pottery came from below a piece of tiled floor, and there may well have been a building here during the monastic occupation. Post-medieval pottery and clay pipes occurred above the tiles.

Post-medieval wares were found in large quantities in previous excavations. As no date can be given for these except post-1540 there seems little value in publishing most of it. The range found in 1967 serves to show the typical types to be found in Waltham. Fig. 15 illustrates a few vessels from previous excavations of particular interest. Nos. 66-7 are of a fabric not commonly found in the area but very like pottery found recently at Southwark,² and they are probably late 16th century in date. Fig. 15/68-70 illustrates examples of slip decorated ware made locally from the mid-17th century to the early 18th century at Harlow and elsewhere. Decorated pieces formed only a small proportion of the potter's production, the bulk being brown glazed undecorated wares with some black-glazed mugs and jugs. Decorated jugs are particularly rare items. No. 70 is a flat bottomed bowl with horizontal handle (there may have been two) with slight decoration under the handle. This type seems to replace the tripod skillets with extended lug handle of the second half of the 17th century, and can probably be dated c. 1700. It has obviously been used on a fire, the bottom being coated with carbon and the glaze being discoloured by overheating. This was also true of several of the skillets found at Sewardstone Street. The large yellow-glazed pipkin (Fig. 15/71) is typical Surrey ware of the 17th century and can be paralleled at Nonsuch (Biddle 1961, Fig. 5/2) in mid-17th century and from London.

Large quantities of stoneware of both Raeren and Frechen with later English types were found, including two almost complete ovoid bottles with debased masks. No blue and white wares seem to have been kept by earlier excavators, but the 1967 excavation produced a fair proportion of delftware, mainly plain white, and Chinese porcelain besides the usual 19th century wares.

1540 inventory of pots and pans

The Inventory (*Winters 1888, p. 124*) of contents of the Abbey made out at the time of the Dissolution in 1540 contains a list of the pots and pans in the kitchen and scullery, with their values. Comparison of the values set upon them seems to show that these were metal mainly, but it shows what vessels might be expected in a 16th century kitchen in Waltham and is therefore quoted in full here.

The Kitchen

4 grete brasse potts	}	14s.
4 other lesser potts of brasse		

1 posnet pott	12d.	
1 chafron with eares	}	
Another chafre with a stele		2s.
A grete panne with 2 eares		
A grete and a litle ketell	16d.	
2 Skomers and 2 Ladells	12d.	
2 litle brasse morters with 3 pestells	20d.	
1 Collender and 1 frying pane	4d.	
2 gredyrones	12d.	
10 spitts grete and small	26s.	
3 peir of rackes	8s.	
4 kachyn knives, 2 peir of pothoks	4s.	
1 freshovell and 6 iron wedges		
A grete pot standing in a furneys	4s. 4d.	
in the grete kechyn		
An Iron pyle	2d.	
A grete brasse pott broken	4s.	

The Scullery

4 Dosem di of good platers and 8 olde 36s. 8d. (2 platts lackyng)
 9 chargers and 2 slats 10s.
 4 Dosem potyngers 16s.
 4 Dosem & 5 sawcers 8s.
 A ketyll of brass in a furneys
 A cestron of leade with 2 cockes
 1 Forthcoming in Post-med. Arch.
 2 Information from I. H. Ashdown

WARES COMMONLY FOUND IN WALTHAM ABBEY AREA

Saxo-	A.	Saxon, grass tempered, hand made, black.
Norman	B.	Saxon, flint or grit tempered, fine particles, black, hand made.
	C.	Fine sand, hand made, grey/black.
	D.	Shell tempered. Rough thickly tempered hand made improves to wheel made pots tempered with fewer but larger shell fragments. Some have sand mixed with shell. Red, brown or grey.
1100-1150	E.	Fine sand tempered, wheel made, grey/black.
1150-1350	F.	Coarse sand tempered, wheel made, grey/black.
1150-1350	G.	Coarse sand tempered, wheel made, grey/black but with red surfaces under black, sometimes red core.
1350-1450	H.	Red, sandy, highly decorated jugs. Grey core frequent.
1450-1540	J.	Red, sandy, plainer jugs. Grey core less frequent.

- 1450-1540 K. Pinkish, well fired, ware often with mottled thin green glaze on one side.
- 1450-1540 L. Rough sand tempered, grey surfaces, better fired than F but probably a continuation of it.
- 1540-1640 M. Sandy mainly unglazed ware, little decoration on jugs, some plain rough brown glaze, thick strap handles and still thumbing occasionally on bases.
- 1640-1700 N. Well-fired orange/red ware. Mainly tempered with grog or fine sand but large grits may occur through the potter's carelessness.

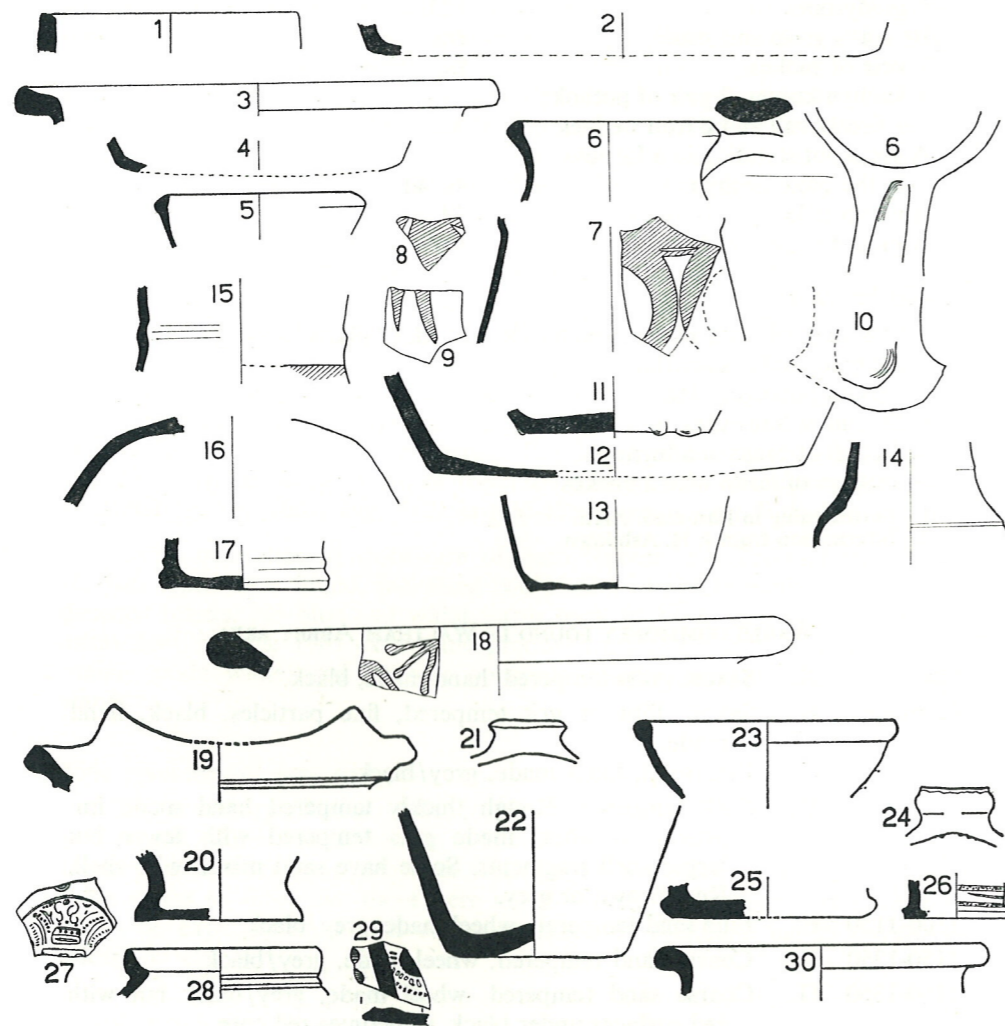


Fig. 11 Cloister site, Waltham Abbey. Pottery found in 1967. nos. 1-5 Pre-cloister Saxo-Norman; nos. 6-14 c. 1475-1540; nos. 15-30 c. 1540-1770. Scale 1/4.

Fig. 11

POTTERY FROM 1967 TRENCHES OF CLOISTER SITE, WALTHAM ABBEY

Pre-cloister Saxo-Norman

1. Simple rim of coarse ware, surfaces brown with black core, tempered with fine shell, some leaching. The sherd is small but the rim appears to have been made on a wheel, probably a slow wheel used to finish only as no strong wheel marks can be seen. (F27)
2. Base of cooking pot. Of similar fabric to 1 but with the inner surface red. Possibly made on a slow wheel. (F27)
3. Flanged rim of large pot. Similar fabric to 1 and 2 but with more leaching of the shell temper. Wheel made. The upper surface of the flange is badly worn, apparently from use. Brown surfaces. (F18)
4. Base of cooking pot of similar fabric to above. Small, rather eroded, sherd, brown outer surface, black inside and core. Possibly made on wheel. (F18)
5. Rim of jug. Red sand tempered, wheel made, the outer surface has a grey patch, and the thickest part of the rim has a grey core. (F18)

Pottery from shallow trench round buttress c. 1475-1540 (all F16)

6. Rim and handle of jug. Red sand tempered, unglazed, with two spots of white slip splashed on. Grey core in thickness of rim. Strap handle with groove thumbed along the back.
- 7, 8 & 9. Sherds of unglazed red sand tempered ware with white slip decoration. No. 7 has trace of glaze, 7 and 8 could be from the same jug as no. 6, no. 9 is similar but darker red.
10. Base of strap handle with thumb impression. A sherd of the jug body remains attached to the handle and is grey inside. Otherwise very like 6-9 in fabric. Splash of clear glaze.
11. Base with thumbing. Fabric very like 6 with thick grey core. White incrustation inside. Probably jug.
12. Larger base of jug, core and inside surface grey, outside surface red. Sides of the body are darkened by use but not blackened by fire.
13. Base of buff ware vessel probably jug. Finely tempered with a trace of green glaze.
14. Neck sherd of stoneware mug. Grey core of Raeren type. Dark brown glaze outside with darker spots and splashes. Inside surface matt brown.

Post-Dissolution pottery

15. Neck sherd of unglazed redware jug. Horizontal band of white slip begins below the neck. (F11)
16. Shoulder of necked vessel. The fabric is rather soft with a thick grey core and very little tempering. The surface is slightly burnished. It is an unusual fabric for its 16th/17th century context. (F10)
17. Base of black-glazed mug. Typical 17th century redware of local make. Black glaze with rather greenish tinge covers the red fabric inside and out except under the base. (F3)

18. Rim of large bowl or charger with slip decoration. Local 17th century ware, the slip appears pale orange under the lead glaze and has been partly worn off. The inside has a thick glaze showing brown on the red body. The outside has a fine red unglazed surface typical of the ware. (F3)
19. Rim of chafing dish. Redware with green glaze inside and extending over the rim only on the outside. The fabric has a grey colour on the inside only and the glaze has a burst air bubble scar. Whether this is a firing defect or due to hot coals being put in the dish to heat food is uncertain. (F3)
20. Base of redware vessel (possibly base of 19). Traces of green glaze remain inside the base and sides and on the upper part outside. (F3)
21. Unglazed round lid knob. Roughly made of redware with micaceous inclusions. (F3)
22. Base of redware vessel. Patchy brown glaze inside only and splashed on the bottom. The centre of the base has been pushed in by the potter's thumb. (F3)
23. Rim of redware cup or bowl. The rim has been rolled outside neatly. Thick brown glaze inside with a patch outside. A small handle seems to have pulled off. (F3)
24. Round lid knob. Of local redware, brown glaze over the top with black inclusions in the glaze and greenish tint. Underside roughly finished with a fine red wash and traces of glaze. (F11)
25. Flat base of redware vessel with thick brown glaze inside only. (F3)
26. Base of delftware drug jar. Greyish white tin glaze inside and outside with blue horizontal lines painted under glaze (stippled). The glaze is thin and slightly rough. (F11)
27. Crest of stoneware bottle. Frechen type with brown glaze outside. The beginning of a mask may be seen at the top of the sherd. The crest seems to be GR on a crown with the arms beginning below. (F3)
28. Rim of small pipkin. Thick green glaze on both sides, fabric is buff. Probably made in Surrey. (F3)
29. Rim of slipware plate or tile. Buff fabric with dark brown slip decoration and impressed pattern. The edge has been given a scallop impression with a shell. (F3)
30. Everted rim of fine buffware vessel with thin pale green glaze on the inside only. (F3)

Fig. 12

POTTERY FROM 1955-62 TRENCHES OF CLOISTER SITE, WALTHAM ABBEY

Pre-cloister Saxo-Norman cooking pots

31. Rim of rough hand made pot. Grass tempered black ware with brownish outer surface. Found near slype.
32. Rim of small pot. Heavily tempered with shell and wheel made. Surfaces red with grey core. Outside rather blackened.
33. Pot with simple everted rim. Grey throughout, the outside blackened. Shell tempered.

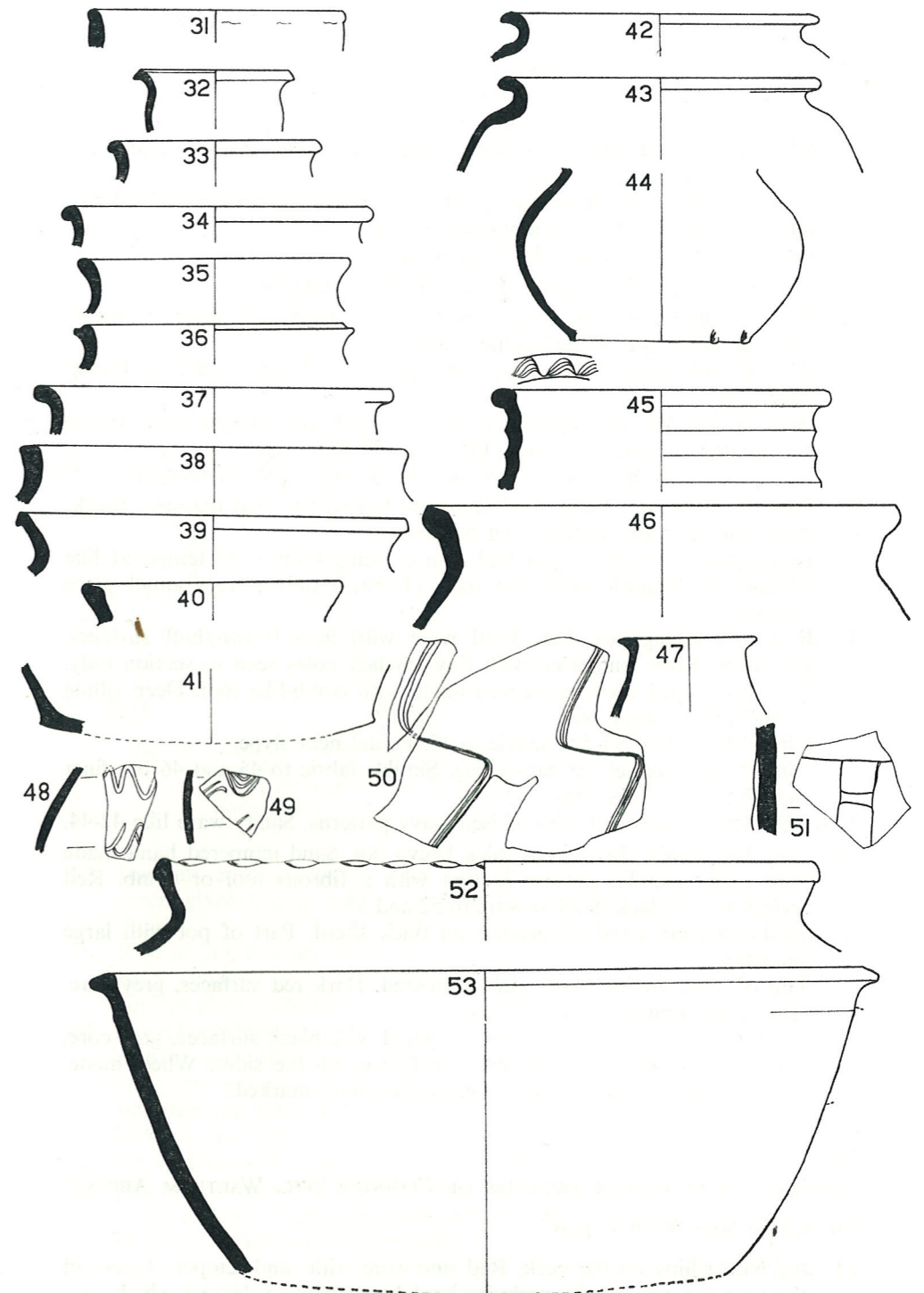


Fig. 12 Cloister site, Waltham Abbey. Pre-cloister cooking pots, found 1955-62. no. 31 grass tempered; nos. 32-41 shell tempered; nos. 42-44 coarse sand tempered; nos. 45-47 hard sand tempered; nos. 48-51 decorated sand tempered; no. 52 red-sand tempered; no. 53 sand tempered bowl. Scale 1/4.

34. Rim of pot with definite roll-over outside. No trace of shell but fine sand temper and leached cavities probably of vegetable matter. Greyish/black throughout. Wheel made. Found near slype.
35. Rim of shell tempered pot. Grey core, red inside, outside blackened. Wheel made. Like 32 in fabric.
36. Rim of shell tempered pot. Grey core, brown inside with trace of redness, outside blackened. Groove along top of rim.
37. Everted rim of pot, much like 36 in fabric.
38. Rim of large pot. Flat top to rim. Fabric like 36 and 37.
39. Rim of large pot with deeply everted rim. Blackened after breakage. Shell tempered with some leaching cavities.
40. Rim of cooking pot with red surfaces, grey core. Leached cavities. Found near slype.
41. Base of cooking pot. Typical of others found with sagging base. Inside surface red, outside blackened, grey core. Shell temper.
42. Rim of cooking pot. Hard grey sand tempered ware, red margins.
43. Rim of similar pot. Grey sand tempered but without red margins. Blackened outside. About a quarter of rim found.
44. Large piece of cooking pot with rim missing. Grey sand tempered like 42 and 43. Thumb marks on base of which only a very small piece remains.
45. Rim of cooking pot. Fine hard ware with light brown/buff surfaces, grey core. Sand tempering with tiny leached holes seen in section only. Rim has incised chevron pattern made with comb-like tool. Deep rilling on neck. From slype area.
46. Rim of large pot. Similar fabric to 45. Found near slype.
47. Rim of small vessel, perhaps a jug. Similar fabric to 45 and 46 but finer and without the grey core.
- 48 & 49. Sherds decorated with incised wavy patterns. Sandy ware like 42-44.
50. Very large body sherd from thick heavy pot. Sand tempered hand made ware with meander pattern incised with a fibrous tool or comb. Red surface under black. Similar ware to 52 and 53.
51. Shallow thumb band decoration on thick sherd. Part of pot with large diameter.
52. Rim of large cooking pot, sand tempered. Dark red surfaces, grey core. Shallow thumbing on inside of rim.
53. Large piece of open bowl. Sand tempered with black surfaces, grey core. The base has been knife trimmed half way up the sides. Wheel made. A handle spring seems to be starting at the points marked.

Fig. 13

POTTERY FROM 1955-62 TRENCHES OF CLOISTER SITE, WALTHAM ABBEY

Pre-cloister Saxo-Norman jugs

54. Jug with rilling on the neck. Red fine ware with sand temper. Traces of glaze on the outside. The whole sherd has a whitish deposit which may be a slip coating or have been deposited after it was buried in the soil.

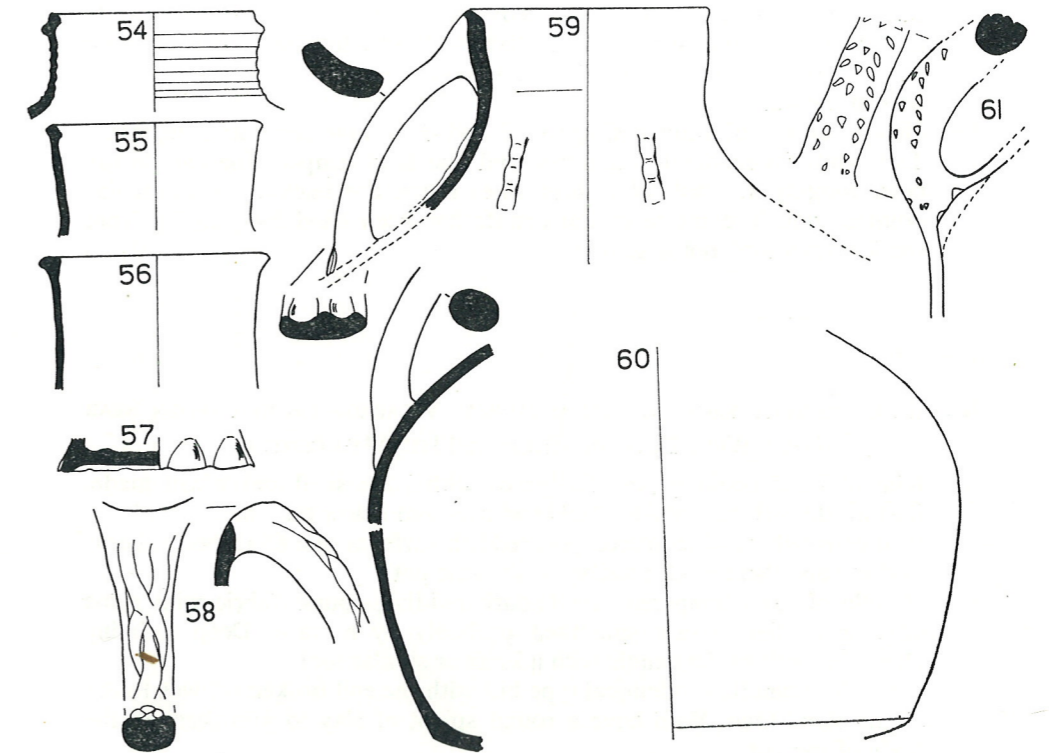


Fig. 13 Cloister Site, Waltham Abbey. Pre-cloister jugs, found 1955-62. no. 54-58 green glaze over buff slip on redware; 59 and 60 sand tempered unglazed; no. 61 sandy with white inclusions, unglazed. Scale 1/4.

55. Jug rim. Sand tempered, grey core and dark buff surfaces. Patchy dull green glaze begins below the rim and increases to the bottom of the sherd.
56. Rim of jug, fine red ware coated with buff slip inside and outside. A thin patchy yellow glaze with patches of green covers the rim and outside surface almost completely.
57. Complete thumbed base of jug. Fine red ware like 56 with similar slip coating and yellowish/green glaze. The slip covers the underside of the base but seems to have been scratched by the potter before glazing so that the red body is revealed. Grey core. A small ball of lead $\frac{1}{2}$ mm. diameter has lodged inside the base having presumably fallen in during the making of the pot.
58. Handle of jug with strips of clay plaited down the back. Similar ware to 56 and 57. Very little glaze remains, where it does it is pale green in colour. Whitish/buff slip overall.
59. Coarse unglazed jug. Sand tempered red ware, the outside blackened. Narrow thumbed strips applied vertically below the neck have been pushed on by the potter using a tool inside.

60. Base and handle of jug. Sand tempered ware, grey core and inside surface. Outside red with surface blackened. Rod handle. Traces of some shell. Reduction marks on side and handle from contact with other pots in the kiln.
61. Handle of jug of similar shape to 6 and 7. Coarse red ware, unglazed. Tiny white inclusions in the fabric and fine sand temper. The handle has been roughly stabbed with three lines down the back by a triangular pointed tool. The inside of the handle has been fixed by pressing from inside with a tool, not fingers.

Fig. 14

MEDIEVAL POTTERY FROM WALTHAM ABBEY. VICARAGE FRONT GARDEN NEAR GREAT WEST DOOR OF CHURCH; 13TH/14TH CENTURY

61. Rim of large cooking pot. Tempered with large shell and wheel made. Red inside surface, outside blackened over and below the rim.
62. Rim of rough sand tempered pot, reddish surfaces like 63 (2 body sherds of this ware also found, possibly from same pot).
63. Handle of sand tempered vessel, dark reddish, coarse fabric with some large grits, the surface smoothed probably by a wash. Deep stabbing along the back of the handle with a knife or similar tool.

Another handle of identical type but with the end broken off was found at the same time. Both have a round spigot of clay to join them to the body of the pot.

A base (not illustrated) of plain sagging type 8 ins. diameter was also found of similar fabric but rather lighter in colour.

64. Jug of squat shape. Red sandy fine ware, the inner surface being very red, the core grey. The outside is decorated below the neck with a lattice design in thick white slip painted on. A clear lead glaze over the body gives a yellow pattern on brown background with a greenish tone. The moulded neck and rim found with this jug is of identical fabric, unglazed

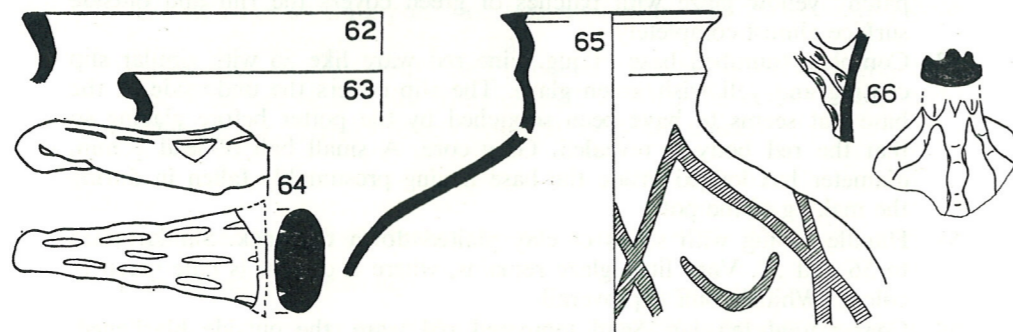


Fig. 14 Waltham Abbey. Medieval pottery found in Vicarage front garden. 13th/14th century. Scale 1/4.

except for splashes near the bottom which also has a dab of white slip. Its dimensions fit those of the large piece of body and the two are shown together (23 sherds of this jug were found in all).

(Not illustrated) 14 sherds of another jug of similar fabric to no. 64 but decorated with applied "scales" on the body and green glaze were also found.

A flat base $7\frac{1}{2}$ ins. diameter with traces of glaze in similar fabric could belong to either of the decorated jugs above.

65. Base of jug handle. Rough reddish ware heavily sand tempered. The inner surface has the same appearance as 63 and there is a spigot to fix it to the body. Grey core. Three applied bands of thumbled strip converge on the handle and deep stabbed impressions begin where the handle leaves the body. A thick brownish/green glaze covers the handle and body outside with a small area of white slip which may be the start of a pattern at the edge of the sherd.

(Not illustrated) Large hand-made base, 13 ins. diameter with vertical applied thumbled bands at 4-inch intervals round base. Rough sand tempered ware with grits, grey core and pale orange surfaces. 9 sherds in all probably from same pot.

Fig. 15

POST-DISSOLUTION POTTERY FROM 1955-62 TRENCHES AT WALTHAM ABBEY, c. 1540-1770

66. Jug, the upper part of which was found. Fine red fabric with patchy dark green liquid glaze over outside and inside the neck of the jug. Rod handle spiggotted at both ends to body with thumb impressions. Four groups of stab marks made with a large pin or nail down the centre of the back of the handle and across the top of the handle at the junction with the body. Late 16th century.
67. Pipkin. No trace of a handle remained. Fine red fabric, outside brownish unglazed. A bright green glaze covers the inside of the vessel over a white slip which ends below the rim. The glaze extends patchily over the rim and in this area the green becomes dark like that of 66. The outside of the rim has a ring of thumb impressions below it. Similar to sherds found in F3 and F11 in the Cloisters in 1967 both features being post-Dissolution.
68. Large sherd of slip-decorated plate or charger. Local red ware of 17th century. Trailed white slip on the red body covered with clear lead glaze over the inside gives the yellow pattern on brown background typical of the period in Waltham and elsewhere. The spiral, quartered pattern and wavy line border are also typical.
69. Slip-decorated jug. Similar to 68 in colour and fabric. The slip has been applied in too liquid a state and has spoilt the pattern by running.
70. Small pot with horizontal handles (perhaps two originally). The pot has been used on a fire. The slight slip decoration under the handle does not extend round the pot.
71. Large pipkin. Buffware with yellow glaze covering the inside. Shallow rilling on the outside. Almost the whole pot found. Deep thumb marks at base of handle and on either side at top of handle. Typical of Surrey wares of mid-17th century.

60. Base and handle of jug. Sand tempered ware, grey core and inside surface. Outside red with surface blackened. Rod handle. Traces of some shell. Reduction marks on side and handle from contact with other pots in the kiln.
61. Handle of jug of similar shape to 6 and 7. Coarse red ware, unglazed. Tiny white inclusions in the fabric and fine sand temper. The handle has been roughly stabbed with three lines down the back by a triangular pointed tool. The inside of the handle has been fixed by pressing from inside with a tool, not fingers.

Fig. 14

MEDIEVAL POTTERY FROM WALTHAM ABBEY. VICARAGE FRONT GARDEN NEAR GREAT WEST DOOR OF CHURCH; 13TH/14TH CENTURY

61. Rim of large cooking pot. Tempered with large shell and wheel made. Red inside surface, outside blackened over and below the rim.
62. Rim of rough sand tempered pot, reddish surfaces like 63 (2 body sherds of this ware also found, possibly from same pot).
63. Handle of sand tempered vessel, dark reddish, coarse fabric with some large grits, the surface smoothed probably by a wash. Deep stabbing along the back of the handle with a knife or similar tool.

Another handle of identical type but with the end broken off was found at the same time. Both have a round spigot of clay to join them to the body of the pot.

A base (not illustrated) of plain sagging type 8 ins. diameter was also found of similar fabric but rather lighter in colour.

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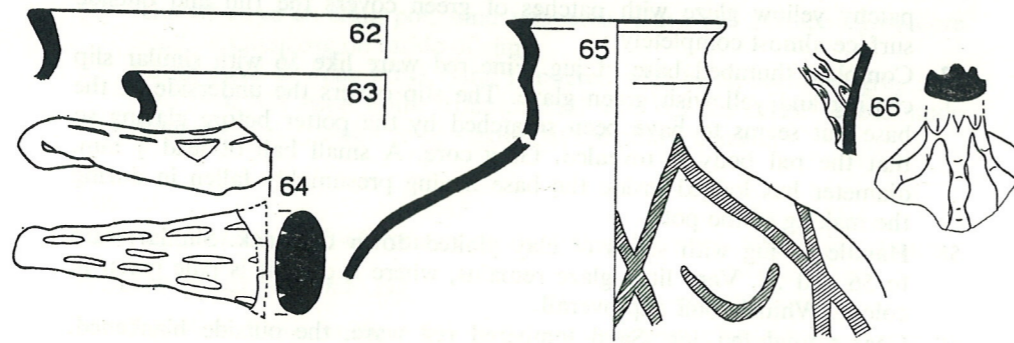


Fig. 14 Waltham Abbey. Medieval pottery found in Vicarage front garden. 13th/14th century. Scale 1/4.

except for splashes near the bottom which also has a dab of white slip. Its dimensions fit those of the large piece of body and the two are shown together (23 sherds of this jug were found in all).

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A flat base $7\frac{1}{2}$ ins. diameter with traces of glaze in similar fabric could belong to either of the decorated jugs above.

65. Base of jug handle. Rough reddish ware heavily sand tempered. The inner surface has the same appearance as 63 and there is a spigot to fix it to the body. Grey core. Three applied bands of thumbed strip converge on the handle and deep stabbed impressions begin where the handle leaves the body. A thick brownish/green glaze covers the handle and body outside with a small area of white slip which may be the start of a pattern at the edge of the sherd.

(Not illustrated) Large hand-made base, 13 ins. diameter with vertical applied thumbed bands at 4-inch intervals round base. Rough sand tempered ware with grits, grey core and pale orange surfaces. 9 sherds in all probably from same pot.

Fig. 15

POST-DISSOLUTION POTTERY FROM 1955-62 TRENCHES AT WALTHAM ABBEY, c. 1540-1770

66. Jug, the upper part of which was found. Fine red fabric with patchy dark green liquid glaze over outside and inside the neck of the jug. Rod handle spigotted at both ends to body with thumb impressions. Four groups of stab marks made with a large pin or nail down the centre of the back of the handle and across the top of the handle at the junction with the body. Late 16th century.
67. Pipkin. No trace of a handle remained. Fine red fabric, outside brownish unglazed. A bright green glaze covers the inside of the vessel over a white slip which ends below the rim. The glaze extends patchily over the rim and in this area the green becomes dark like that of 66. The outside of the rim has a ring of thumb impressions below it. Similar to sherds found in F3 and F11 in the Cloisters in 1967 both features being post-Dissolution.
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70. Small pot with horizontal handles (perhaps two originally). The pot has been used on a fire. The slight slip decoration under the handle does not extend round the pot.
71. Large pipkin. Buffware with yellow glaze covering the inside. Shallow rilling on the outside. Almost the whole pot found. Deep thumb marks at base of handle and on either side at top of handle. Typical of Surrey wares of mid-17th century.

MEDIEVAL FLOOR TILES

by Rhona M. Huggins

During the various excavations of the Cloister area of the destroyed monastery at Waltham Abbey 52 plain lead-glazed tiles and 21 decorated lead-glazed tiles were found. Some are fragmentary and many have decoration and/or glaze almost completely missing. There are no medieval tiles in use now in the existing church, which is all that remains of the Abbey today. No tiles were found laid in situ during excavation and at this time we cannot know whether those found were used in the cloister walks, the church floor or in other buildings surrounding the cloisters. Dating must therefore be by reference to other sites.

A study of measurements of the plain and decorated tiles combined with techniques of manufacture produces four groups. A difference of up to 0.2 in. may occur in the thickness or dimensions of a single tile, but within this limit a standard size and thickness seems to have been used by the tile makers for ease of firing and laying. Bevelled edges are found on some of the tiles but tiles of similar design may be bevelled in one case and not in another. Pavements of 13th century tiles such as now exist in the Chapter House, Westminster and the pavement from Clarendon Palace, Wiltshire show that plain tiles were used to outline patterns and borders and that several patterns were used in the same pavement. At Waltham special shapes, triangles, oblongs, small squares were cut from standard size tiles, the desired shape being half cut in the unfired tile and finally snapped probably by the workman laying the tiles as needed. The small diamond shaped tiles were specially made in pairs so that only one side shows the rough snapped half-cut. These diamond tiles are unusual and difficult to parallel elsewhere; they consist of patterned and plain black but unfortunately the glaze has almost completely gone and the pattern cannot be made out sufficiently to draw it. Some much larger diamond shaped tiles with intricate foliage pattern from Benthall Church,¹ Shropshire are a near parallel (*B.M. Rutland Collection 961*).

All the patterned tiles are inlaid, with the usual white inlay on red body giving a yellow pattern on brown background when the lead glaze is applied. Groups are as follows:

GROUP 1 (Tiles 0.75-0.9 in. thick):

DECORATED TILES: See Fig. 16/1-3.

Fine red ware, less heavily tempered with sand than the other groups. The sides are smooth and bevelled. No. 3 is 4.2 ins. wide. No. 1 is paralleled at Penn, Buckinghamshire (*Hohler 1942, p. 121*); no. 3 is paralleled at Hurley Priory, Berkshire (*Ward Perkins 1938, p. 125 no. 11*) and at Thame Abbey.

PLAIN TILES: CRESCENT, 0.8 in. thick, 4.4 ins. on straight side, black glaze;
TRIANGLE, 0.8 in. thick, 3.3 ins. x 3.3 ins. x 3.5 ins., brown glaze.

Fragments of black glazed tiles 0.8 in. thick of uncertain shape were found in 1967.

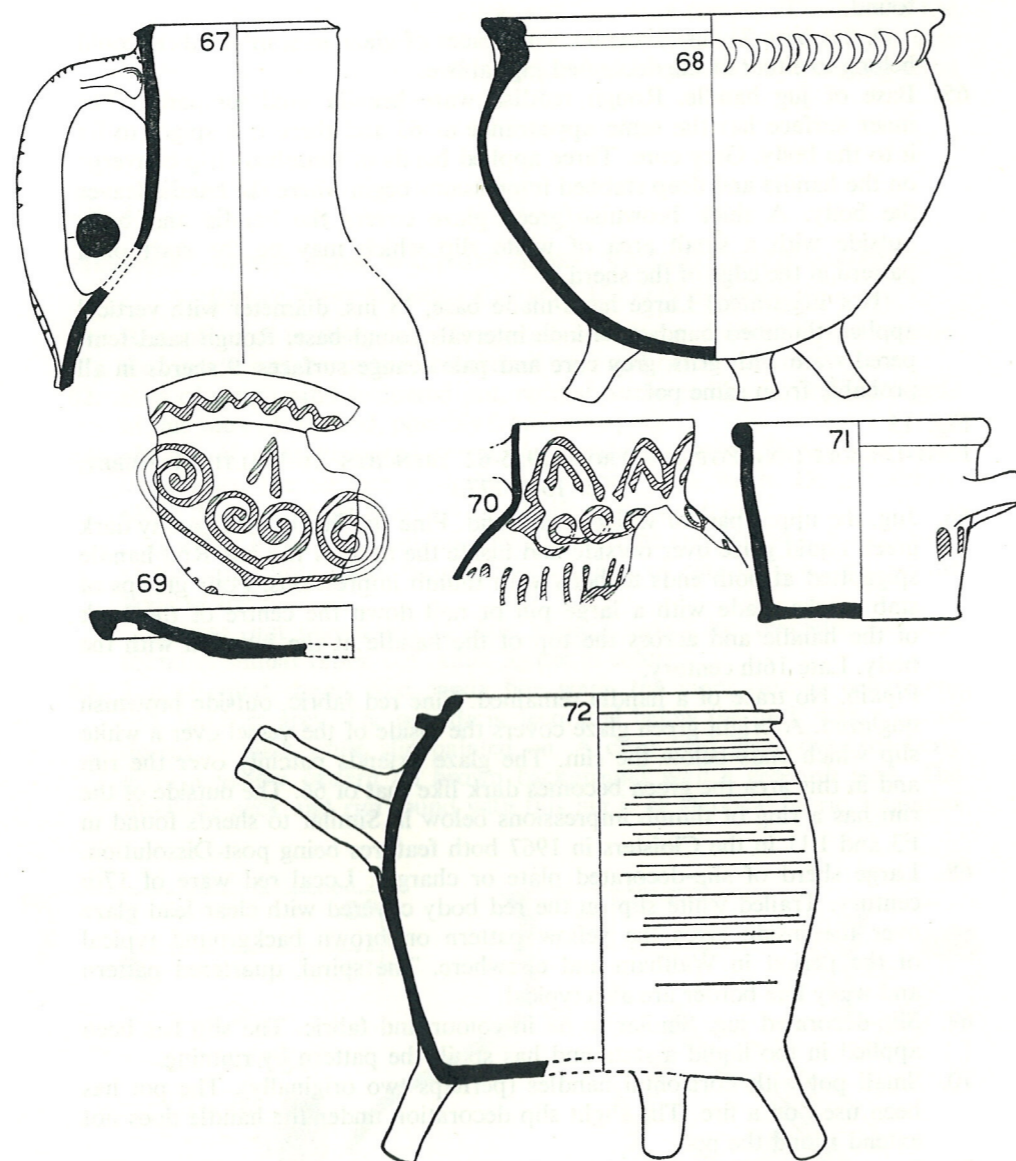


Fig. 15 Cloister site, Waltham Abbey. Post-Dissolution pottery found 1955-62 c. 1540-1770. nos. 67-68 green glaze on redware; nos. 69-71 local slip decorated ware; no. 72 buff yellow glazed
Scale 1/4.

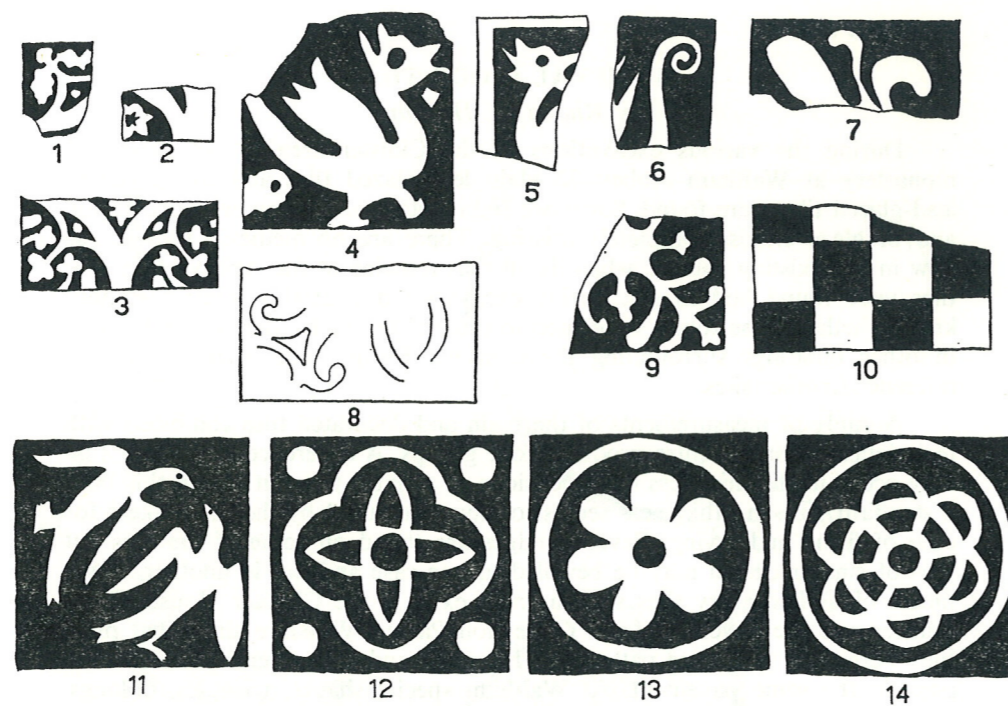


Fig. 16 Cloister site, Waltham Abbey. Medieval floor tiles. Scale 1/4.

GROUP 2 (Tiles 1.0-1.2 in. thick, approx 4.5 ins. square):

DECORATED TILES: See Fig. 16/4-9:

No. 4. Griffin (or swan) seems to be derived Wessex type, a debased version of those from Clarendon Palace (*Lane 1960, pl. 18*).

No. 5 and 6. Fragments of two tiles probably making a dexter and sinister design of four with no. 4. No. 5 has a yellow border and the glaze is better preserved than nos. 4 or 6.

No. 7. Probably a fleur-de-lis like one from Baginton.²

No. 8. Pattern uncertain as only traces remain.

No. 9. Foliage pattern, the other quarters were probably identical. Found in 1967 in F6. This is a common pattern found in London, Beds., Herts., Kent, Warks., Leics. (*Whitcomb 1956, p. 35, no. 19*).

PLAIN TILES: TRIANGLES:

Yellow glaze 3.0 ins. x 3.0 ins. x 4.0 ins. snapped on short sides.
Black glaze 3.4 ins. x 3.4 ins. x 4.5 ins. snapped on short sides.

SQUARES:

Black glaze 4.2 ins. x 4.4 ins. and 4.2 ins. x 4.2 ins.
Yellow glaze 4.5 ins. x — and 4.7 ins. x —

DIAMOND TILES: Plain black and decorated with uncertain foliage pattern. Thickness varies between 0.9 in.-1.1 ins. Length of sides varies from 1.9 ins.-2.5 ins. Slight bevel. 5 whole tiles and 2 fragments.

GROUP 3 (1.0 in.-1.2 ins. thick, 4.8 ins.-5.1 ins. square):

DECORATED TILES: See Fig. 16/10-14.

No. 10. Chequer pattern.

No. 11. Swallows. Although birds in pairs are quite common no exact parallel for this pair has yet been found.

No. 12. Quatrefoil.

No. 13. Rose with six petals. A similar one was found in Cannon Street, London.³

No. 14. Open rose design. The centre of the pattern is uncertain. A similar design was found at Hurley Priory (*Ward Perkins 1938, p. 131 no. 45*) but with alternating points.

PLAIN TILES: TRIANGLES:

Black glaze 3.5 ins. x 3.7 ins. x 5.3 ins. snapped on short sides
4.9 ins. x 6.8 ins. x 4.9 ins. snapped on long side with a cut diagonally across centre
3.4 ins. x 2.4 ins. x 4.2 ins. snapped on long sides and therefore part of a larger tile

Yellow glaze 5.0 ins. x 7.0 ins. x 5.0 ins. snapped on long side
4.0 ins. x 4.0 ins. x 5.5 ins. snapped on short sides
3.6 ins. x 3.7 ins. x 5.0 ins. snapped on short sides

SMALL SQUARES: 1.2 ins. thick and approx. 2 ins. square.

These tiles have been snapped on two, and in one case three, sides so they must come from a large tile approx. 6 ins. square. 7 tiles in all, black and yellow glaze, all very worn. One tile has a diagonal cut before firing, but un-snapped.

OBLONG: 1.1 ins. thick, 1.2 ins. x 5.0 ins. and 1.35 ins. x 5.2 ins. 2 tiles only. Yellow glaze.

GROUP 4 (LARGE SQUARES):

No decorated tiles. 2 brown glazed tiles broken and 3 green glazed tiles with 3 fragments all 7.5 ins.-7.8 ins. square. 1 in.-1.3 ins. thick. Two fragments of green-glazed tile 1.2 ins. thick came from F3 and F18 in the 1967 trenches. The complete green tiles were found in the post-medieval pond on the north wall of the cloisters.

Dating

None of the decorated tiles has the depth and quality of inlay found in 13th century tiles. Group 2 contains tiles which derive from 13th century patterns and are probably 14th century therefore. Group 3 are larger and likely to be later in date but both groups could well have been part of the same pavement. Group 1 could be 15th century although the tiles are smaller and thinner than those of groups 2 and 3, the tiles probably are like those from Penn, Bucks. Group 4 seems from the evidence to be 16th or 17th century in date. No group can be assigned to the building period of the Augustinian monastery, future excavation may reveal some of these earlier

ones if they existed, but it may well be that the size and importance of the monastery led its abbots to keep up with the times and replace any early worn pavements there may have been.

- 1 I am indebted to Mrs. E. Eames for this information.
- 2 Hobson's Cat. of Med. Pottery in British Museum, no. A181.
- 3 Hobson's Cat. of Med. Pottery in British Museum, no. 150.

Appendix 3

GLASS OBJECTS (Fig. 17)

The following fragments were found in 1967:

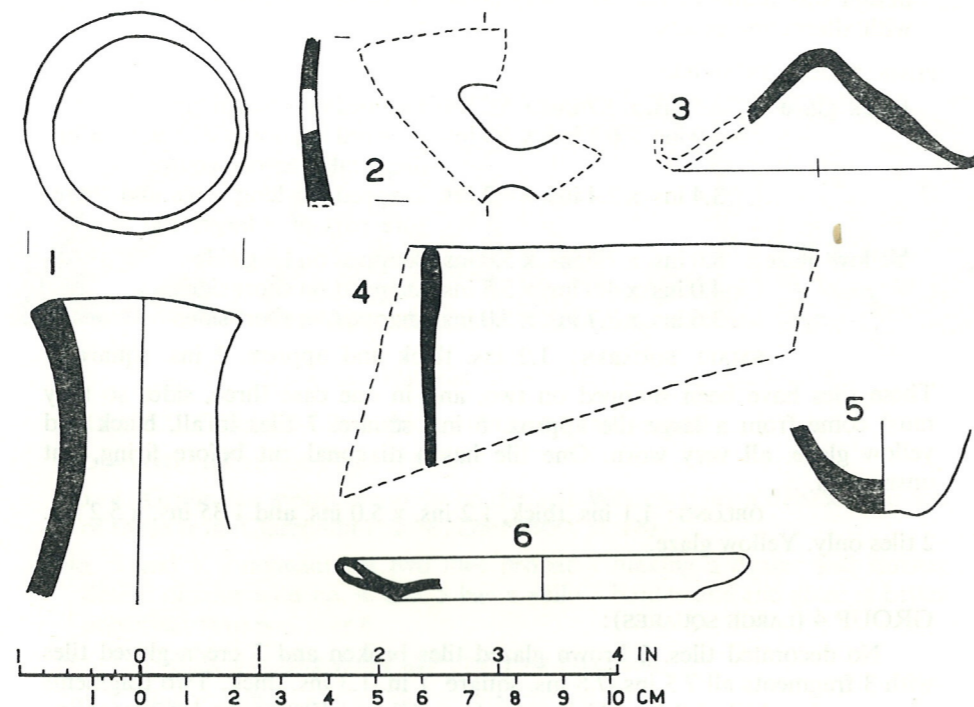


Fig. 17 Cloister site, Waltham Abbey. Glass objects.

Fig. 17/1 Neck of heavy flask in green glass. May be comparable to a flask (Hume 1956, Fig. 6) dated to 1590-1620. Feature F3.

Fig. 17/2 Body fragment of vessel in pale olive-green glass showing evidence of two apertures. No parallels are known. Feature F3.

Fig. 17/3 Base fragment in pale watery-green glass of typical pharmaceutical bottle (Hume 1956, p. 102) dated to the second half of the 17th century. Feature F3.

Fig. 17/4 A piece of flat watery-green glass, 1.7 mm. to 3.5 mm. thick, edge rounded by re-heating. Feature F3.

Fig. 17/5 Fragment of heavy base of vessel with pontil mark, completely

de-vitrified. Probably base of urinal like the base from Winchester (Charleston 1964, p. 150) from the Tudor cellar which was dated to 1550-1600. The Waltham Abbey base was in Feature F4, the Dissolution destruction level, dated 1540-1600.

Fig. 17/6 Rim fragment of shallow plate with folded rim in dark-green glass. Feature F3.

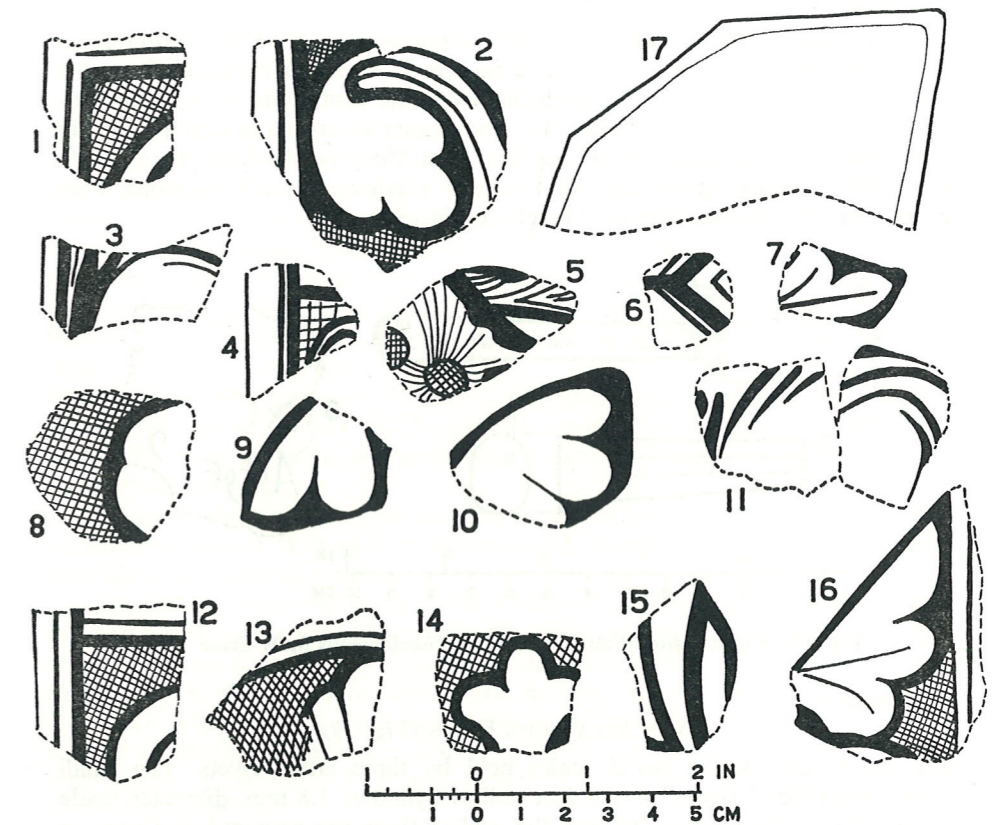


Fig. 18 Cloister site, Waltham Abbey. Window glass.

Appendix 4

WINDOW GLASS (Fig. 18)

1. CLOISTER AREA

Some 50 pieces of window glass were found during the 1955-62 Cloister area excavation; about 25% had purple painted grisaille decoration, see Fig. 18/1 to 11. The designs show a geometric and naturalistic blend. All the glass was more or less laminated and devitrified, where still translucent it was watery green in colour; it varied in thickness from 1.5 mm. to 4.5 mm. One unpainted quarry having lead calme stain round four edges is illustrated as Fig. 18/17.

2. GARDEN OF NO. 8 SUN STREET

Five pieces of similar decorated glass, copied from a drawing dated 1954, are included as Fig. 18/12 to 16. The gardens at the back of the north side of the Sun Street properties are likely to have been inside the monastery precinct wall throughout the monastic period, so that all the window glass illustrated may have come from the same source.

3. DATING

Woodforde (1954) includes grisaille windows as a 12/13th century form of decoration. All the glass illustrated in Fig. 18 could therefore be from the original Henry II foundation, probably from the central nave or choir windows. Two similar fragments of glass were found in excavations at no. 46/48 Sewardstone Street, Waltham Abbey (see *Post-Medieval Archaeology* 3, 1969, pp. 47-99) suggesting perhaps that Abbey windows as well as stone were re-used in town houses after the Dissolution in 1540.

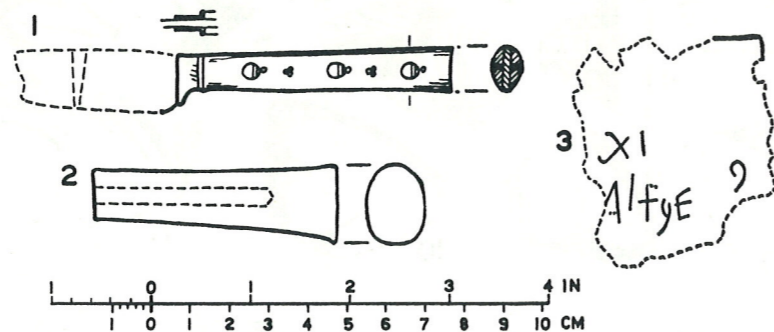


Fig. 19 Cloister site, Waltham Abbey. Miscellaneous finds. Scale 1/2.

Appendix 5

MISCELLANEOUS FINDS (Fig. 19)

Fig. 19/1 Iron knife; wood scales held by three latten rivets. The small decorative latten "rivets" are in fact hollow cylinders 1.8 mm. diameter made from 0.5-mm.-thick sheet let into the scales; these are arranged in threes to form a clover leaf design and singly in association with each fixing rivet, each real rivet has two scribed lines so as to form some decorative motif; the latten shoulder is applied in sheet form. The handle end, now missing, was remembered to be of fish tail form. Found in 1960. This knife compares with examples (*Hayword 1956, Plate 1*) which are dated to the first half of the 16th century.

Fig. 19/2 Bone handle of knife, iron tang remaining. Found in 1967 in Feature F9 with 17th century pottery.

Fig. 19/3 Piece of lead plate 1.5 mm. thick with incised inscription. Found in 1955-62. The plate is corroded with the result that the inscription is not completely determinate. The Department of Manuscripts of the British Museum considers that the inscription may be of the 17th century on typographical evidence.

Appendix 6

CONSTRUCTIONAL MATERIALS

1. STONE

Five types of Abbey stone have been classified by Mr. F. G. Dimes and are used as standards for purposes of identification.

Stone A Merstham, Reigate or Gatton stone. A fine grained calcareous sandstone with some mica and glauconite, the latter giving it a greenish tint. Mr. Dimes states that these quarries were considered so important that in the reign of Edward III they were kept in the possession of the Crown.

Stone B Lincolnshire Limestone. Possibly Barnack stone. A fairly fine-grained oolitic limestone with much broken and comminuted fossil matter. Mr. Dimes states that Barnack stone was held in great reputation in the 11th and 12th centuries but it appears to have been worked out by the 15th century; it was extensively used in East Anglia.

Stone C Caen stone from Normandy. A fine-grained limestone with no exact equivalent in this country. Mr. Dimes states that this stone has been extensively used, especially for ecclesiastical building and is recorded at Winchester and Canterbury cathedrals, Westminster Abbey and elsewhere.

Stone D Purbeck marble.

Stone E Kentish ragstone. A hard sandy glauconitic limestone. Mr. Dimes states that this stone was widely used in London in Roman and Medieval times; the London stone probably came from the Maidstone area and was transported by water.

A great deal of moulded and faced stone was found in the 1955-62 excavations and it is hoped at a later date to collate types of stone and moulding with building periods.

Kentish ragstone was used in the foundations of the cloister wall and of the north wall of the central nave. In the 1967 excavations moulded material of Stone A was found in the Dissolution destruction level F4; fragments were also found in the earliest features found in 1967, viz. the gully F26 and the ditch F21. Fragments of Purbeck marble were found in the Dissolution level F4 and in the post-Dissolution features F3, F6 and F11. Fragments of chalk were found in the gully F27, and ditch F21 and a dressed piece was in the Dissolution level F4.

2. BRICKS

Bricks were used in the Cloister buttress foundations F14; one of these "Tudor" bricks measured 9.2 ins. x 4.4 ins. x 2.1 ins. The large medieval Waltham Abbey bricks so notable in the walls of the Abbey gateway (see Fig. 1) were detected in tombs and drains in the 1955-62 excavations; one measured 13 ins. x 6.4 ins. x 2.2 ins.; larger ones are known.

3. LEAD

Waste lead sheet with sheared edges found in 1967 varied in thickness from 1.5 mm. to 3.8 mm. One 3-in. length of window calme came from the garden make-up F3. A drain from the Denny garden pond over the north cloister walk incorporated an outlet made from a 12 ins. x 11 ins. lead plate, soldered on to a lathe-turned flanged brass pipe some 2½ ins. in diameter;

nail holes in the lead plate showed how the drain had been fixed. From the same garden pond came a length of 1-in. diameter seam-soldered lead pipe.

Appendix 7

BURIALS IN GARDEN OF No. 8 SUN STREET

Excavations at the north end of the garden of no. 8 Sun Street (see Fig. 1) were carried out in 1954. Eight adult burials, male and female, were found at a depth of 6 ft. below present ground level. Mr. G. C. Dunning, F.S.A., Inspector of Ancient Monuments, concluded that they all represented the same tall round-headed racial stock. Two of the burials underlay the present wall at the back of the garden, and on the assumption that this was the 1370 precinct wall (mentioned by Stamp 1904, p. 20) the burials were taken to be pre-1370.

It is now thought, for at least three reasons not detailed here, that the precinct wall was further south and the present wall is early post-Dissolution, say 1540-1600. If this is so the burials could be much later and in fact could be part of the "new Churchyard" mentioned in two documents of 1531 (detailed by Winters, 1888, p. ix) and described as on the north side of a property on the north side of Sun Street, thought to be the "White Horse". On this basis the burials might date from about 1500 to 1540.

The presence of 13th century pottery "over and down to the burials" was accepted as supporting an early date. Pottery so described cannot date a burial; the ground level in the gardens is 2 ft. 6 ins. higher than to the north of the present wall so that make-up material was clearly brought in, no doubt with derived material in it.

Appendix 8

ANIMAL BONES

This report refers to animal bones from the trenches excavated in 1967. No bones were retained in previous excavations of the Abbey site. Thanks are due to Mr. R. E. Chaplin for his help with identification of the bones and to Mr. G. S. Cowles for examining and reporting on the bird bones.

Animal bones were found in quantity in two pits only, neither being of the 1177-1540 monastic period. Pit F22 can be dated to pre-1177 and pit F10 to c. 1540-1600. Animals represented in both pits are cattle, sheep, pig and horse, with duck, goose, pheasant (or chicken) and possibly crane in F10 and a possible pheasant in F22.

Two documents throw light on the numbers of animals on the Manor lands at Waltham for both periods and these numbers are included in Table 2. The documents are the entry for Waltham in Domesday Book c. 1086 and the Inventory of Church Goods (Winters 1888, p. 128) taken in 1540 at the dissolution of the monastery. At both periods the Manor was a rich one; 40 hides being held by Holy Cross in 1086, while Anthony Denny paid Henry VIII £3,553 for the conventual estates of the Abbey. The Inventory probably lists only animals on the demesne land. Cattle, pigs and horses are still present today on the Manor lands, but sheep are no longer kept.

TABLE 2 — ANIMAL BONES

	PRE-CLOISTER PIT F22					PIT F10, c. 1540-1600							
	Pig	Sheep	Cattle	Horse	Pheasant(?) <i>Pheasianus colchicus</i>	Pig	Sheep	Cattle	Horse	Crane <i>grus grus</i>	Mallard <i>Anas platyrhynchos</i>	Greylag or Dom. goose <i>Anser anser</i>	Pheasant <i>Pheasianus colchicus</i>
Cranium	1(1)		1(1)			2(2)							
Mandible				1(1)		12+baby (13)							
Dentary	3(13)	1(5)	1(3)	complete			4(10)	1(3)					
Coracoid					1 (right)								
Scapula	3(3)		1(1)			2(2)							
Humerus		1(1)				2(2)							
Radius						1(1)							
Ulna						1(1)							
Metacarpal						3(4)							
Pelvis						1(1)							
Femur	1(1)		1(1)			1(1)							
Tibia						2(2)							
Calcaneum						3(3)							
Astragalus						1(1)							
Metatarsal						1(1)							
Phalanges						1(1)							
Cervebrae						1(2)							
Ribs		1(1)				1(3)							
No. of bones	18	6	7	1	1	37	35	18	3	1	15	3	2
Min. of animals	3	1	1	1	1	12+baby	6	4	1	1	4	1	1
Domesday entry 1086													
1540 Inventory of Waltham Abbey	40	80 (12 goats)	20†	2	immature								
						21	100	14 cattle 19 oxen	13 work horses				

Numbers of bones are shown in parentheses.
† 6 ploughs on demesne and 37 ploughs of the men included in the entry suggest oxen are omitted. At 8 oxen per plough this would give an additional 344 cattle.

Birds are not mentioned on either document and may have been regarded as wild or semi-wild animals of little value. The numerous streams and marshes at Waltham would be ideal habitat for ducks and geese. Mr. Cowles states that "the immature bones of the pheasant and domestic chicken are very similar and difficult to identify with certainty. . . . The single bone identified as crane is also doubtful and may be a very large domestic goose".

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