

# ESSEX

## ARCHAEOLOGY & HISTORY



VOLUME 4

1972

## THE ESSEX ARCHAEOLOGICAL SOCIETY

The Essex Archaeological Society was founded in 1852.

Its objects are:

- (1) To promote the study of the archaeology and history of the County of Essex.
- (2) To collect and publish the results of such studies in annual issues of *Transactions* and other publications.
- (3) To make researches, undertake excavations and field surveys, and assist in the preservation and recording of ancient monuments, earth works, historic buildings, documents, and objects of archaeological interest and importance.
- (4) To provide library facilities for members and approved students.

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A list of officers, with addresses, will be found on the inside back cover.

Cover by Barbara Scorer.



FREDERICK G. EMMISON, M.B.E., F.S.A., F.R.HIST.S., F.S.G.

President 1970-72

Taken at Salt Lake City, 1968, with David E. Gardner

*(Frontispiece)*

# ESSEX

## ARCHAEOLOGY AND HISTORY

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# TRANSACTIONS OF THE ESSEX ARCHAEOLOGICAL SOCIETY

VOLUME 4, 1972

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# Editorial

IT has long been recognized that local studies are a microcosm of national history. Out of local needs grow pressures for legislation, and prosperity and adversity, even in the farthest corners of the globe, leave their mark in the fields and churchyards of the smallest community. In earlier times before the advent of written sources, the arrow unrecovered from the quarry and the brooch sorrowfully interred with its owner, provide for us the links in the great chain which is the story of mankind.

To publish local history is therefore a duty incumbent upon all to whom the study of our heritage is an integral part of civilization. This task the Essex Archaeological Society has undertaken since 1858 and today 33 volumes in three series, with several monographs, stand on the shelves of Essex citizens and libraries throughout the world to testify to the faithfulness with which the task has been fulfilled.

Essex has seen many changes since 1858. It was then a county of 405,000 people stretching from Stratford-atte-Bow to Harwich. There were limited facilities for travel, no public libraries, no Record Office and no museums. Today, the county's population numbers 1,354,000 and even so it has been substantially reduced in size by the inclusion of its most densely populated western area in Greater London. This expansion of population has led to intense pressure for new development. Hundreds of historic buildings have been swept away, and new foundations have plunged deep into the buried evidence of our remoter past, often, perhaps, unrecognized in our clay and gravel soils.

The writing of history has also undergone a great change in the intervening century. Moralizing and speculation, however entertaining, have given place to demands for detailed and accurate documentation from original sources, and here the county has contributed greatly by the creation of a Record Office which, under the guidance of our retiring President, has grown to be the cynosure of all England, while there are now libraries within reach of every door, and specialist staff are concerned with the protection of historic buildings.

Archaeology, the younger science, has progressed more slowly. True, it is no longer a pastime for a sunny afternoon, since for many years individual societies, or, in Colchester, and more recently in Chelmsford, in Gray's Thurrock, and on the M11, excavation committees have worked patiently, and against heavy odds in terms of time and finance, to recover buried evidence before it was swept away. The county itself has this year recognized this ever-growing need by the appointment of an archaeologist to its staff, and much will depend on the support which the Authority is in future prepared to give. Interest has grown steadily also, and there are now nearly 40 societies concerned with the study and preservation of our history in their respective areas.

These bodies have felt the need for closer co-operation, and some ten years ago formed the Essex Archaeological and Historical Congress, which this Society

has supported from the beginning, for the problems which we all face are frequently best confronted in common.

Study, however, is but half the task, for unless the results can be properly published and widely circulated there can be no material advance. The time therefore seems ripe for a renewed effort to offer a medium of quality for its propagation, and with this in mind the Society has re-organized its publication sub-committee and charged it with the task of reviewing and revising its responsibilities in this field. The first results of these deliberations are evidenced in the present volume, which it is hoped, will appear annually each December, and not in parts, as heretofore. Hence it is numbered 4 and there will be no Volume 3 part 2.

In offering this new approach we owe a special debt of gratitude to the retiring Editor, Leonard Gant, who has served the Society for 9 years, and in whose time many improvements to this journal have been implemented. Indeed the present alterations would have been impossible to achieve in so short a time had they not been founded on the preliminary work which he has done. Essex in general, and the Society in particular, has good cause to be grateful to him and it is good to know that he is still amongst us, working on the clay pipes of the area, a study which he has so particularly made his own, and the knowledge of which he is so generously ready to share with all who seek his help.

It is thus the hope of the Editorial Committee that the changes now introduced, and which will be continuously reviewed and improved, will offer to all those concerned with the story of our county a medium through which their researches may be recorded and made widely known and which, with its accompanying quarterly newsletter, can fully deserve their support. We seek to encourage and unify the many interests now at work and we look forward to receiving for review monographs which appear in individual localities, while we also hope to develop a bibliography of related material.

It is in this spirit that this journal is, as it always has been, offered; the response of its readers must be the measure of its success.



# Preliminary Report

## The Romano-British Settlement at Chelmsford, Essex: *Caesaromagos*

By P. J. DRURY

### SUMMARY

*EXCAVATION and observation in Chelmsford, 1969-71 have indicated pre-Flavian military occupation, together with an early timber building complex succeeded post c. 60 by a probable mansio. An 'artisan and trading settlement' of c. 8 hectares developed from c. 60-5 onwards, the buildings within it being of timber frame construction, occupying the frontages of two main roads.*

*The temple site, described in greater detail, had its origins in a prehistoric earthwork; a later ditched enclosure was succeeded c. 65-75 by a shrine complex of partly open timber structures and ancillary features. An octagonal Romano-Celtic temple was constructed c. 320-5, and continued in use until the early 5th century; sub-Roman and possibly Germanic occupation followed. The site was re-occupied briefly during the 13th century probably as part of a dyers establishment.*

THE existence of a Romano-British settlement in the vicinity of Chelmsford, suggested by Stukeley<sup>1</sup> (though on the north side of the Chelmer) in 1758, was confirmed in observation and excavation by Chancellor in 1849,<sup>2</sup> in what were then open fields adjoining the Moulsham suburb of Chelmsford. As development of the area progressed, a number of chance finds were made, and small-scale excavation was undertaken in 1947 by Maj. J. G. S. Brinson<sup>3</sup> for the Roman Essex Society. During the fifties and sixties, the increasing pace of re-development produced more chance finds, further small scale excavation being undertaken by various local bodies and individuals.<sup>4</sup>

In view of the serious threat posed by the second phase of the Inner Relief Road and other large scale redevelopment projects, Chelmsford Excavation Committee was formed in 1968 to undertake rescue excavation on the required scale in the Chelmsford conurbation. Excavations began under the direction of Miss B. R. K. Dunnett, and continued from 1970 under the direction of the

<sup>1</sup> *Itinerarium Curiosum*, published 1776, cent. ii, p. 12.

<sup>2</sup> *Trans. Essex. Arch. Soc.*, 1857, vol. i, p. 59 ff.

<sup>3</sup> *Arch. Newsletter*, i (1), 8; i (10), 12; ii (9), 145.

<sup>4</sup> *Victoria County History of Essex*, 1963, vol. iii, p. 63 ff. (referred to below as 'V.C.H.') gives a summary of finds to c. 1961; later work is mostly unpublished but some specific notes and interim reports are referred to below.

writer.<sup>5</sup> With the practical completion of the Inner Relief Road works at the beginning of 1972, three of a planned five seasons of excavation and observation have now been completed.

The settlement was located on the southern slope of the Chelmer valley, between 80 and 100 feet above O.D. Newlyn; the subsoil is brickearth, overlying cohesive, clayey gravel (hoggin).

This report reappraises its origins, development, and functions in the light of work to date, and presents a preliminary report on the temple complex, the most important single site so far investigated.

## ORIGINS AND EARLY DEVELOPMENT

The evidence for earlier prehistoric occupation is discussed in connection with the pre-Roman features of the temple site, below; suffice it to state here that there is no evidence for the existence of a substantial Iron Age settlement in the immediate vicinity. Some three miles along the Chelmer valley to the north, however, at Little Waltham, there was a considerable settlement in the earlier pre-Roman Iron Age, with indications of continuity into the Belgic period.<sup>6</sup>

Excavations during 1968-9 on an area of relatively level ground above the flood plain—site 2 on FIG. 17—yielded a bronze chape,<sup>8</sup> a coin of Drusus Junior, one of Augustus, and several of Claudius I, together with pre-Flavian samian,<sup>9</sup> and other imported wares. Further excavation<sup>10</sup> immediately to the west located structures of this period, the timber slots of which were visible beneath, and were filled with, a leached buried soil generally extant in this area. A building c. 2.60 m. wide and in excess of 6.00 m. long, was flanked by another of indeterminate width and length, a gap of 0.30 m. separating the two. The plan form, dating, and military items from the area, suggest that the structures belong to a fort whose extent is as yet unknown; their alignment corresponds to that of the road leading south-eastwards out of the settlement, itself presumably of military origin. Site 1<sup>11</sup> has produced a bronze terminal from a military apron strap,<sup>12</sup> the temple

<sup>5</sup> My thanks are due to Chelmsford Corporation, the Trustees of Thomas John's Almshouses, Messrs. Link House Investments Ltd., and others, for consent to excavate; Messrs. Tilbury (C.P.S.) Ltd., for their forbearance; the Department of the Environment, Chelmsford Corporation, and others for financial support; and to the excavation staff (Miss J. Secker, Messrs. S. R. Bassett, S. Loscoe-Bradley and P. Sewter) and the officers of the excavation committee. I am grateful to Prof. S. S. Frere, Mr. W. J. Rodwell, and Miss B. R. K. Dunnett (now Mrs. Niblett) for their comments on earlier drafts of this text; the views expressed are, however, wholly the responsibility of the author.

<sup>6</sup> Excavations by the author for Chelmsford Excavation Committee and the Department of the Environment in advance of the construction of the Little Waltham bypass, 1970-71. Report in preparation, notes in *Archaeological Excavations*, 1970, 1971, H.M.S.O. (forthcoming) and elsewhere. The excavation of a large pre-Belgic Iron Age settlement produced Belgic features (stockpens, a well-furnished burial, etc.), peripheral to an unexcavated area which has produced Belgic pottery in the past.

<sup>7</sup> Trial excavations by W. J. Rodwell for Chelmsford Museum, 1968—interim report *Trans. Essex Arch. Soc.*, Third Series, Vol. II, p. 332—were followed by excavation under difficult conditions by Miss B. R. K. Dunnett for Chelmsford Excavation Committee, 1969—note in *Britannia*, I, 1970. Further information from the excavators; the conclusions of the first interim report were largely superseded by the results of the second season.

<sup>8</sup> For a similar example, see D. Atkinson, *Wraxeter*, 1942, plate 48, no. 1.

<sup>9</sup> I am grateful to Mr. Rodwell for his assessment of the samian ware from Chelmsford.

<sup>10</sup> By the author, early in 1972 on land not available in 1968-9.

<sup>11</sup> 29-31 Rochford Road, excavated in advance of road construction, spring 1970, by the author.

<sup>12</sup> Similar to Hawkes and Hull, *Camulodunum*, 1947, plate CII, nos. 25, 27.

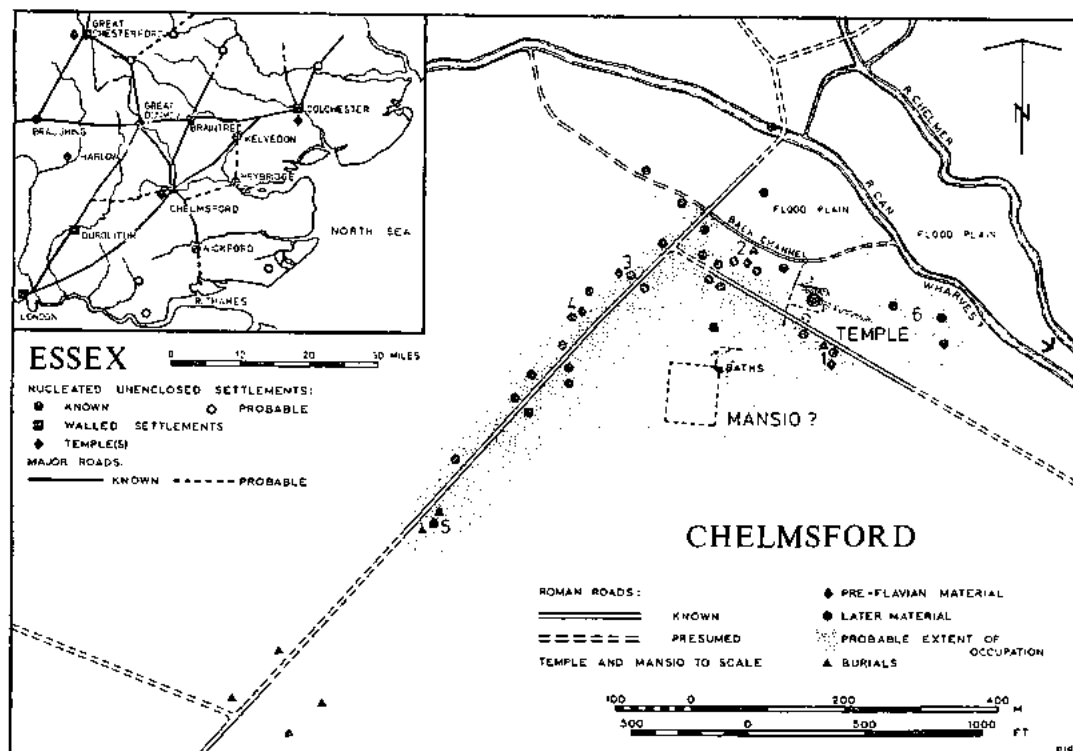


FIG. 1  
CHELMSFORD, general plan of settlement.

site a coin of Tiberius and five of Claudius I,<sup>13</sup> and Chancellor found a bronze hinged fastener<sup>14</sup> presumably on the site of the apparent *mansio*.

In view of its strategic position, at an important river crossing where two routes, probably of pre-Roman origin—London to Colchester, and south from Dunmow and Little Waltham<sup>15</sup>—converged, a fort would clearly be expected following the invasion, and again in the wake of the revolt of 60. It is generally accepted that in this area, there was a hiatus between these periods of military occupation, during the advance westwards under Ostorius Scapula.<sup>16</sup> A passage in the *Annals* (xiv, 33), however, seems to be at variance with this assumption; Tacitus states that the rebels, en route from Colchester to London ‘. . . passed by forts and military stations and fell upon places rich in spoil which had no garrisons

<sup>13</sup> I am grateful to Mr. Richard Reece for his identification of the coins from the 1970–71 excavations. The coins of Tiberius, Augustus and Drusus should only be current in the immediate post invasion years.

<sup>14</sup> For a parallel see *Hod Hill I*, fig. 4, A 100.

<sup>15</sup> The case for a pre-Roman origin of the London-Colchester route is put by I. A. Richmond in *V.C.H.*, p. 4; the Chelmer valley route seems a logical part of the early system which seems to have included the Colchester-Braughing ‘Stane Street’. The course of the route in question (based on fieldwork by the author) is less regular than would be expected of a route wholly of Roman origin, and its relationship to the site at Waltham should not be overlooked.

<sup>16</sup> For the latest appraisal see G. Webster, ‘Military Situations in Britain, A.D. 43–71’, in *Britannia I*, p. 179 ff.

to defend them'. It is not possible to determine, on present dating evidence, whether military occupation was continuous or interrupted; if the former, it is unlikely that a constant strength, and therefore size of establishment, would have been maintained.<sup>17</sup>

Chancellor, excavating in 1849 on the site of what now appears to be a *mansio*, found 'a stratum of ashes or burnt earth', c. 1.00 m. below the surface and perhaps up to 1.00 m. thick, which clearly represented the remains of a timber framed structure with wattle-and-daub infilling, destroyed by fire. At that date the excavation was not, of course, conducted on modern scientific principles; the plan makes it clear that at least two phases of masonry foundations were present, much robbed. Whether both were later than the burnt building, or whether some of the walls, clearly designed at 0.70 m. thick to carry timber superstructures, were connected with it, it is impossible to say from the surviving records; the depth of the debris suggests that it lay within a basement or sunken floor space. The date of destruction of the early building was indicated by three samian vessels, Drag. f. 29, Claudian-Neronian period;<sup>18</sup> these were clearly complete before the fire, being broken and badly blackened in the conflagration.

Further indirect evidence of early timber structures destroyed by fire comes from two sites on the north-west frontage of the London-Colchester road. Site 3<sup>19</sup> produced fragments of burnt samian ware, Drag. f. 29, Neronian, residual in later contexts including the backfilling around the walls of a post-medieval cellar; the filling also produced considerable quantities of burnt daub, not, of course, certainly related to the samian. Site 4<sup>20</sup> produced a pit containing much burnt daub and some early coarse pottery; contractor's excavations nearby located a second pit with similar filling. There was no evidence to suggest that this material was derived from structures on the sites in question; the impression was one of debris buried in pits dug to obtain fresh brickearth for tile manufacture or daub. Their distance from the building complex located by Chancellor would not be inconsistent with that site being the source of the debris.

Thus there is clear evidence of a building or buildings, whose standard of furnishing, demonstrated by the contents at the time of the fire, perhaps implies at this date an official function. There is no evidence of contemporary occupation in the vicinity, other than the possibly garrisoned fort to the north. Whilst it is

<sup>17</sup> The 'ditch, with ramparts and palisade trench', *V.C.H.*, Plate X, is shown by the plan p. 70 to have been a drainage ditch, into which the splayed outfall of the drains from the *mansio* baths discharged. The ditch in any case seems too shallow to be military; the 'palisade' slot is perhaps a fortuitous appearance in the observed section. The second feature to the south gives a superficial impression of a rampart remaining between it and the ditch, crowned by the 'palisade'. The dating—'Claudian'—was arrived at by back reckoning from the date of the baths, the earlier phases of which were placed too early on the evidence of coarse pottery; the earliest of these perhaps dates from c. 61–5, see below.

This is the 'early ditch and rampart' quoted by G. Webster, *op. cit.*

<sup>18</sup> These are extant in Chelmsford Museum, the date given in *V.C.H.* being confirmed by a recent re-examination. The later samian from the site shows no indication of burning.

<sup>19</sup> Excavations in advance of the redevelopment of 191–2 Moulsham Street, 1970, by the author.

<sup>20</sup> Excavation and observation by the author for Chelmsford Museum, during the extension of the Midland Bank premises at the junction of Moulsham Street and New Writtle Street, 1968. Interim report in *Trans. Essex. Arch. Soc.*, Third Series, vol. ii, p. 334 ff. A reappraisal of the excavation records and pottery suggests that the apparent sequence of pit following building was due to animal disturbance; the pottery in the backfilled slot (including a sub-Belgic platter) could, in the light of recent work, be Neronian-Vespasianic in this area.

tempting to connect the destruction of the establishment with the revolt of Boudicca, the date being in agreement with the evidence available, the lack of evidence of the destruction of the apparently military structures mitigates against this conclusion, if the fort were indeed in continuous occupation.

At this point, it seems appropriate to consider the implications of the name of the site, given by the Antonine Itinerary as *Caesaromagos*,<sup>21</sup> a hybrid Latin-British name meaning 'the plain of Caesar'. This is the only place name in the province known to incorporate the Imperial prefix; such names on the continent were generally assigned to new Imperial foundations intended to become of some importance.<sup>22</sup> The 'plain' is perhaps the area now central Essex, which by external standards might justify the description; Chelmsford lies at its natural centre, upon which the main lines of communication converge—it should be noted here that the Chelmer would have been navigable to this point, providing communication with the (probable) port at Heybridge<sup>23</sup> at the mouth of the river.

Topographically, therefore, Chelmsford would appear well suited as an administrative centre, its position between the *Colonia* at Colchester, and London, possibly implying a sphere of influence of about 15 miles radius. This figure may have been considered the optimum in the area, for if Great Chesterford<sup>24</sup> be included as a fourth centre on the same basis, the area of the present county is covered reasonably consistently. The building previously referred to might then perhaps represent the headquarters of a member of the staff of the governor, on a permanent or itinerant basis;<sup>25</sup> the later buildings on the same site, whose size, standard, and general layout seem to be consistent with a provisional identification as a *mansio*, being its natural successor. If this attribution is correct, the presence of such a building might have provided the motivation for the retention of a permanent, and probably small garrison.

What might perhaps be called 'native' settlement begins in the later Neronian period, say from c. 65 onwards, the settlement appearing to build up to c. 70 per cent of its final size in a short time, perhaps little more than a decade. On the evidence of the pits on sites 3 and 4, this occupation lags behind the rebuilding of the possible *mansio*, as would be expected in the wake of the revolt, and its rapid build-up suggests migration from a not too distant site—possibly Little Waltham. This settlement took the form of frontage development to the London-Colchester road, and the road leading to the south-east; the absence of occupation away from the road frontages being confirmed by observation of extensive sewer works in existing streets in 1971. The development of this settlement is reflected in the

<sup>21</sup> Following K. Jackson in *Britannia*, vol. i, 1970, p. 69. 'Caesar's Market' is a possible alternative interpretation. A. L. F. Rivet's identification of *Caesaromagos* with Widford in the same article, is inexplicable in the light of *V.C.H.*, published 1963.

<sup>22</sup> But not always cantonal capitals, as I. A. Richmond notes in *V.C.H.*, p. 16—e.g. *Caesarobriga* in Lucitania (Spain), 'a small community centre'.

<sup>23</sup> For a summary of chance finds here see *V.C.H.*, p. 146 ff. A settlement in excess of 30 acres in extent, at the head of the Blackwater estuary, near its confluence with the Chelmer.

<sup>24</sup> Its 4th-century walling and contemporary internal masonry buildings (summary *V.C.H.*, p. 72 ff.) suggest an administrative function at that period; there is as yet no positive evidence of its having been an administrative centre in earlier periods, though comparatively little of the site has been scientifically explored.

<sup>25</sup> For a short discussion of this point see M. Todd, 'The Small Towns of Roman Britain', in *Britannia*, 1 (1970), p. 114.

first major phase of building on the temple site, the coincidence of the period of development of both native settlement and temple probably suggesting that the latter was essentially in the patronage of the former. The conquest period coins need indicate no more than a casual interest on the part of the military.

The reason why *Caesaromagos* did not develop in the manner presumably implied by its name, as an economic as well as an administrative centre, may possibly lie in the form of the settlement pattern in central Essex in the Roman period. With the exception of Colchester, and the peripheral *Durolitum*<sup>26</sup> and Great Chesterford, nucleated settlement appears at present to have taken the form of a number of sites so distributed that in most areas no point in the countryside lay more than about 4–6 miles from any one of them. In a region where on present evidence numbers of smaller holdings, rather than large estates, seem to have been the norm, other than in the hinterlands of Colchester and London, these sites appear to have fulfilled an artisan and trading function, apparently in the context of a sphere of influence much smaller than that of the administrative centres.<sup>27</sup>

There is some evidence to suggest that this pattern may be of pre-Roman origin, in that Colchester appears to have remained the major centre,<sup>28</sup> whilst of the settlements apparently of similar size and function to Chelmsford, Wickford,<sup>29</sup> Kelvedon,<sup>30</sup> and Heybridge show continuity of occupation. In addition, there appear to have been substantial Belgic sites, apparently not prominent in the Roman period, within 1–3 miles of Braintree,<sup>31</sup> Dunmow,<sup>32</sup> and Chelmsford.

<sup>26</sup> Perhaps more likely at the site known as Little London, Chigwell (*V.C.H.*, p. 88) than at Romford (*V.C.H.*, p. 175). The name '*Durolito*' means 'walled town or enclosed town with gateways, near the ford' (Jackson, 1970, above). This suits Little London admirably, as it lies on a bend in the river Roding, immediately south of the point where the London-Great Dunmow (and beyond) road crosses the river, but is difficult to reconcile with Romford, where the Rom is of no size. Much of the Romford area is developed; if *Durolito* was located there, it seems probable that more would have been found in the past than is on record. The Little London site has been shown recently by the West Essex Archaeological Group to be yet more extensive than the *V.C.H.* entry implies; the absence of the identified remains of a wall may be explained by reference to the extant remains of the wall at Great Chesterford, examined by Brinson in 1948 (*V.C.H.*, p. 72 ff.)—similar remains could easily have been overlooked by the observers of gravel quarrying. The discussion by S. S. Frere (*Britannia II*, xvi–xvii) is also relevant. To reconcile the identification with the Antonine Itinerary, it is necessary to assume a road westwards from Chelmsford to the London-Great Dunmow road, for which the evidence is admittedly circumstantial. It would, however, resolve the differing mileages of Iter IV—London-Chelmsford, 28—and Iter IX—London-*Durolito*, 15, *Durolito*-Chelmsford, 16, a total of 31. The omission of *Durolito* from Iter V is not in itself proof of the use of a different route to Iter IX, however, since *Canonium* (Kelvedon) is omitted from the same Iter, this settlement lying between Chelmsford and Colchester.

<sup>27</sup> Basically the view propounded by Oelmann in 1922 in respect of apparently similar settlements in *Germania Inferior* and eastern *Gallia Belgica*—F. Oelmann, 'Gallo-Römische Strassenseidelungen und Kleinhausbauten', in *Bonner Jahrbucher*, cxxviii (1922), p. 77 ff.

<sup>28</sup> It is now clear that the suggestion put forward in the past that the cantonal Capital of the *Trinovantes* was at Chelmsford is erroneous (see *V.C.H.*). It is inappropriate at this point to discuss its possible location, though the existence of the Gosbecks complex, 2 miles SW. of Colchester—c. 20 acres in extent with theatre and temple, abandoned c. A.D. 200—should be borne in mind. For a description of Gosbecks, see M. R. Hull, *Roman Colchester*, 1958, p. 259 ff.; excavations on the theatresite, B. R. K. Dunnett, *Britannia II*, 1971, p. 27 ff.

<sup>29</sup> Information from the excavator Mr. W. J. Rodwell. For interim notes on excavations 1965–70, see *J.R.S.*, *Britannia*, *Trans. Essex Arch. Soc.*, etc.

<sup>30</sup> Information from Miss K. A. Gomer, who has undertaken excavations in advance of housing development, 1970–1. Interim notes in *Britannia II*, III (forthcoming), summary previous finds in *V.C.H.* p. 149 ff.

<sup>31</sup> See *V.C.H.*, p. 55 ff. for summary; the Belgic site was at Skitts Hill, see *Vict. County Hist.*, vol. i, p. 270.

<sup>32</sup> For summary to c. 1961 see *V.C.H.*, p. 125–6. Excavations by the author 1970–1 noted in *Britannia II*, III (forthcoming). The Belgic site seems to have been at Lindsell, further up the Chelmer valley, where at least one amphora burial has been found—*V.C.H.*, p. 155 ff., also *Essex Arch. Soc. Trans.*, vol. i, p. 198.

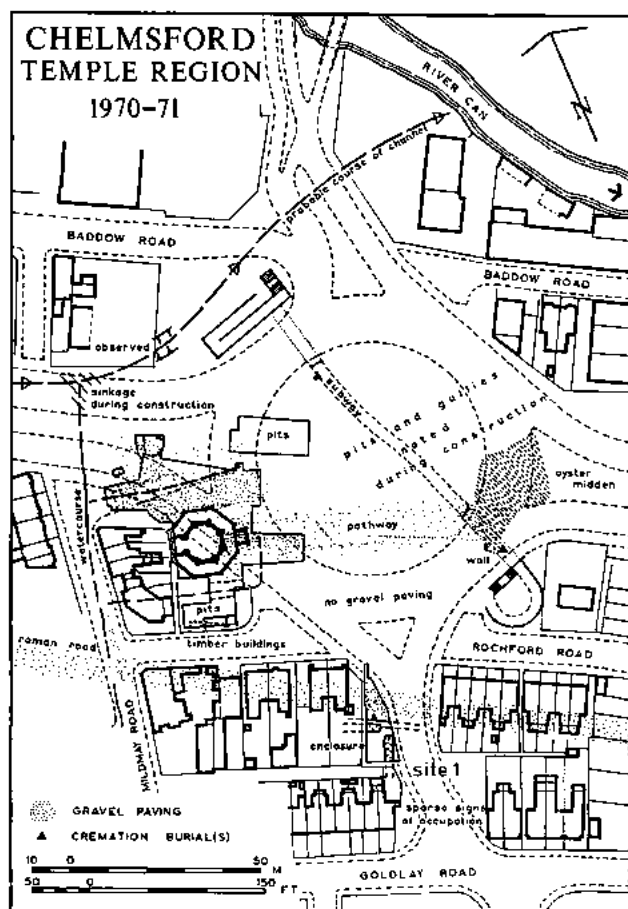


FIG. 2  
CHELMSFORD, plan of temple region.

This brief digression into the difficult question of the settlement pattern in this area in the Roman period is presented not as a definitive outline, but, in the light of present information, an attempt to reconcile the nature of the settlement at Chelmsford, as demonstrated by the excavations of 1969-72, with the implications of its name *Caesaromagos*. It is tentatively suggested that its economic role was limited by the survival of a pre-existing pattern, whilst its administrative role was determined by a pattern based on wider spheres of influence, reflecting the greater mobility given by the post-conquest communications system. The two roles would seem to be expressed in the 'native' settlement and the apparent *mansio* respectively; the two appear to have remained physically separate throughout the remainder of the Roman period. The different—and consistent—standards of each, in terms of buildings and furnishings—are illustrated in the sections below. It is perhaps worthwhile to mention that no other settlement in the area, apparently fulfilling a similar function to that at Chelmsford, has produced any

indication of buildings of a similar standard to the possible *mansio*, despite extensive disturbance of the soil over the past century.

### THE ARTISAN AND TRADING SETTLEMENT

The form of the settlement once established, appears to have remained basically unchanged throughout the Roman period, expansion apparently taking the form of peripheral extension of the developed frontages. There do not appear to have been any side lanes as such, though there must have been an access to the *mansio* and to the suspected wharf area to the north-east of the main settlement, on the river Can.

The line of the London-Colchester road is preserved generally in the line of Moulsham Street, though since much of the relevant section of this became a hollow way in the Medieval period little Roman structure survives.<sup>33</sup> It has, however, been observed in fragmentary section immediately south of the back channel of the river Can, where 0.80 m. of hoggin, representing five successive metallings, survived; this may represent a bridge abutment rather than a typical section of the road. At the point where this road appears to cross the river Can, slightly east of the modern crossing, what may have been a ford was encountered in 1931; it need not have been of Roman date.<sup>34</sup>

Two sections have been cut across the road leading to the south-east,<sup>35</sup> and three more have been observed;<sup>36</sup> these suffice to establish the line within the settlement. This road was initially constructed on apparently virgin ground; the gravel metalling was c. 5.00 m. wide, on a slight agger, between ditches some 12.00 m. apart. When development of the frontages took place, the ditches were filled and built over; the surface appears to have been kept in repair until late in the Roman period. Excavation on site 1, 29-31 Rochford Road, showed that subsequent neglect had allowed the crown to wear flat, the metalling being reduced to a minimum of 0.10 m.; dark loam containing refuse built up on the edges, reducing the effective width to c. 2.00 m.

A natural rear boundary to the occupation on the northern side of the road leading to the south-east was formed by the back channel of the river; though this was effectively blocked by silt and refuse by the close of the 2nd century, it is unlikely for practical reasons that occupation penetrated seriously into the flood plain beyond. Pottery found, often at great depth in the silt in this area, is probably refuse, with the possibility of occasional burials. In other areas of the settlement, the depth of occupation, as evidenced by chance finds, appears to be of a similar order, i.e. c. 40-60 m. from the road frontage.

To the north-east of the main settlement area, site 6, contractor's excavations<sup>37</sup>

<sup>33</sup> It is this phenomenon which gave rise to the 'escarpment' taken as the western side of an enclosed settlement of 16½ acres in *V.C.H.* The north side is due to terracing of the slope, and the south to brickearth digging in the 19th century.

<sup>34</sup> *Essex Review*, vol. xli, 1932, p. 15 ff.

<sup>35</sup> On site 1, and in Cables Yard, south of site 2, the latter in November 1969 by the author.

<sup>36</sup> At the rear of the Prince of Orange Beer House, east of Cables Yard, is an excavation by a local archaeological group; in Mildmay Road, immediately west of the temple site; and in a sewer trench c. 100 m. east of site 1.

<sup>37</sup> During the construction of the Inner Relief Road, 1970-1.



have indicated somewhat sparse occupation, on and near the frontage to the river Can. Here, the course of the Can coincides with the south side of its flood plain, the channel abutting a slight gravel ridge; further west, the main channel is separated from the settlement, sited on firm ground above the flood plain, by what must have been marsh or water meadow. It seems possible that the river frontage in this area was occupied by wharves in the Roman period; despite the fact that this section of river was not canalized with the Chelmer early in the 19th century, the area concerned has been occupied by wharves within the present century.<sup>38</sup>

The buildings of the settlement appear to have been wholly timber framed, the cills being either ground laid, or set on a course or two of flint or tile. Floors were mostly of gravel, and probably timber; roofs seem more often to have been thatched than tiled. The standard is simple and reasonably consistent; it is reflected in the quantity and quality of metal objects and imported pottery normally present.

The buildings seem to have been placed generally on or near the road frontages; excavations on the seriously disturbed site of 191-2 Moulsham Street,<sup>39</sup> site 4, indicated a basically L-shaped building on the street frontage, constructed in the later 1st century and in use until at least the early 3rd century. Remains of buildings located on other frontage sites have been too fragmentary to warrant description at this juncture.

Miss B. R. K. Dunnett explored in 1969 a considerable area in what is now clearly the rear of the plot(s) lying between the south-eastern road and the back channel of the river (site 2); the main features located were three sub-rectangular huts c. 6.10 × 7.60 m. These structures, and others found in 1972, seem to represent the extension of frontage buildings rearwards into the plots, and may well have been intended primarily for storage or trade use. Other features located on the site included ovens, drainage gullies, and pits, some certainly quarries for brickearth or the gravel beneath.

The initial phase of occupation of site 1, following brickearth extraction, was apparently within a ditched enclosure, one corner of which lay within the excavated area. This was backfilled towards the middle of the 2nd century; buildings were subsequently erected on the frontage in the usual manner. It is not impossible that the enclosure is indicative of agricultural occupation, which would be consistent with a peripheral position in a settlement of this nature. Field boundary ditches, some at least apparently of Roman date, are often noted in the general Moulsham area.

Evidence of what might loosely be termed 'industrial' activity is not substantial. Iron slag has been found on a number of sites, especially on the north-west side of the London-Colchester road, in sufficient quantities to suggest smithing in the vicinity. In 1839, '1-2 cubic yards' of small fragments of Roman pottery, thought to be wasters, were found in Cherry Garden Lane, 'between Widford and

<sup>38</sup> The rivers in this area were rationalized by the Essex River Board c. 1960 to prevent the flooding of the town formerly prevalent; the lines shown on Fig. 1 are those extant prior to that date.

<sup>39</sup> A recurring problem on the London-Colchester road frontages is that of adjoining sites being lowered to (sunken) street level in the 17th-19th centuries, thus destroying the Roman levels—see note 33 above.

Chelmsford';<sup>40</sup> the description would fit a waste dump from a kiln site. Cherry Garden Lane, now mostly Elm Road, may preserve the line of a Roman road leading westwards, though evidence remains at present circumstantial. The hollows resulting from brickearth extraction on site 1, referred to previously, contained much later 1st century pottery in their fillings; most was underfired and some fragments distorted. Though no kilns were found in the excavated area, it is not inconceivable that the material was kiln waste. The foregoing is entirely consistent with an artisan and trading function in the context of the surrounding countryside.

Burial was, of course, peripheral to the occupied areas, though as the settlement expanded it did so in some cases over earlier burial areas. This was shown clearly on the site of St. John's Service Station, site 5,<sup>41</sup> which probably represents the maximum extent of occupation along the south-eastern frontage of the London-Colchester road. In addition to burial near the roads on the periphery of the settlement, occasional burials have been noted at the rear of the plots, a situation paralleled in the settlement at Great Dunmow. To the south of the occupied area, near the possible junction with a road leading westwards, a number of cremation burials have been found; whether these were really separated from burials on the settlement periphery must await further investigation, for although many burials have been found in this area, close locations are generally not recorded.<sup>42</sup> All the burials referred to are cremations; no inhumations have yet been recorded, perhaps due to the acidity of the soil.<sup>43</sup>

It is difficult to express the size of these sites in meaningful terms<sup>44</sup> on present evidence; even in the case of a settlement with a clearly defined pattern of frontage development 'occupied area' based on the extent of known find spots is dependent on 'plot' depth, which appears to vary considerably from one settlement to another.<sup>45</sup> Comparison of developed frontage length might provide a more accurate impression, on the assumption that the figure for each settlement would include sparse and intensive development in approximately the same proportions; though this would clearly only be applicable to settlements of regular linear form. Chelmsford has a developed frontage (including river frontage) of c. 1,600 m., and an area (excluding temple precinct and *mansio*) of c. 8 hectares (20 acres).

<sup>40</sup> *Gentleman's Magazine*, 1840 (2), pp. 258-9.

<sup>41</sup> Unpublished excavations during redevelopment, c. 1965, by the then assistant curator of Chelmsford Museum, D. Gareth Davies. Information from the excavator. This site has also produced a copy of an *as* of Claudius I.

<sup>42</sup> Unpublished excavations c. 1966 by I. G. Robertson, then assistant curator of Chelmsford Museum, were undertaken in the grounds of the College of Further Education in this area. A ditch, probably a field boundary, was located, from which was recovered pottery perhaps the remains of cremation burial(s). Verbal information from the excavator; the interpretation is the responsibility of the author. For other burials here see *V.C.H.*, pp. 65-6.

<sup>43</sup> The lead coffin found near the British School in Friar's Place in 1898 (*Essex Review*, vol. vii, p. 20), should be Medieval, for the area is that of the Dominican Priory Church and cemetery, which stood on silt of late or post-Roman origin. For a summary of excavations by Mrs. E. E. Sellers in advance of the Inner Relief Road works, 1970-1, see note in *Med. Arch.* (forthcoming). Since writing the above, accession B 18931, Chelmsford Museum, has come to my attention. This is part of a human skull, found April 1937 in Mildmay Road; its date is uncertain, and the location—east or south-east of the *mansio*—too uncertain to map.

<sup>44</sup> Ideally, one would estimate population on the basis of number and size of buildings.

<sup>45</sup> Compare Dunmow, apparently c. 120-30 m. on present evidence.

THE APPARENT *MANSIO*

The building complex first recorded by Chancellor, and later the subject of excavations by Brinson, was shown by the construction of a new surface water drainage system in 1971<sup>46</sup> to have been basically of courtyard layout, with overall dimensions in the order of 65 m. by 80 m. The baths located by Brinson occupied the north-east corner, logically, the lowest point of the site. The form of this complex, though the plan is not yet known in detail, suggests interpretation as a *mansio*; the only reasonable alternative—a villa—seems unlikely in view of the fact that it succeeds an earlier, apparently official, building, and further, in view of its relationship to the artisan and trading settlement.

Excluding the early phase referred to previously, there appear to be two main structural phases, the earlier presumably dating from c. 61–5; whilst there is no direct evidence for the dating of the latter, it may well coincide with the introduction to the site of roller stamped box flue tiles in the mid-2nd century. The presence of walls of two main thicknesses—c. 0.60 m. and c. 1.00–1.20 m.—suggests the use of both timber-framed walls on masonry foundations, and true masonry walls, at least to first floor level; it is unlikely, however, that there is any correlation between period and wall thickness.

Some rooms, certainly in the baths suite, were heated by hypocaust; tessellated pavements are indicated by the presence of many small white limestone tesserae,<sup>47</sup> and tiled roofs by quantities of roof tile fragments. The courtyard appears to have been at least in part sunken,<sup>48</sup> presumably for aesthetic reasons; external paving, of flint, septaria, and gravel, has been noted in the vicinity of the baths.

The existence of 'late patching' of the walls in the baths area was taken by Brinson to imply a continuation in use until the late 4th century, the latest coin from the site being of Valens. In this connection it is perhaps worthy of note that, whilst the temple was totally robbed in the early 5th century (see below), there is evidence to suggest that this building was robbed in the Medieval period.<sup>49</sup>

## THE TEMPLE SITE

Excavation of the temple site was undertaken in a number of stages between March 1970 and April 1971, both before and during the currency of the road contract. The consequent lack of continuity, coupled with the hurried final season in February–April 1971, proved a great disadvantage in view of the nebulous nature of many of the features encountered.

<sup>46</sup> Observed by the author, with valued assistance from members of the Chelmsford Archaeological Group.

<sup>47</sup> There is, however, no evidence to suggest that the fragment of a marble mosaic pavement, or the fragment of marble sheathing mentioned in *V.C.H.*, p. 71, came from Chancellor's excavations of 1849. The pavement seems Roman, but is probably a 19th-century import by a member of the now defunct Chelmsford Philosophical Society, whose collections formed the original basis of Chelmsford Museum. In an old accession list of the society, many fragments of Roman building materials are listed, generally, as with these items, unprovenanced, though some are noted as 'from Rome' or the like. As an architect, Chancellor would surely have remarked on the presence of marble, especially work of the quality implied by the pavement fragment.

<sup>48</sup> By about 1 m. in the western area—from observation 1971 by the author.

<sup>49</sup> Medieval pottery was found in robber levels in 1971, and, by implication, in 1947—*V.C.H.*, p. 69.

The basic stratification of the area consisted of topsoil and building debris, overlying an average of *c.* 0.60 m. of alluvial silt, which in turn overlay truncated Romano-British levels or the natural brickearth. The nature and date of the alluvial action giving rise to these conditions is discussed briefly under period VI below.

The successive phases of the shrine, its precursors, and successors are described in chronological sequence, without reference to the sequence of excavation; a description of the peripheral features follows.

#### PERIOD 0

A total assemblage of about 400 flints, the majority unworked blade flakes, was found in residual contexts. There were a small number of cores and a few recognizable artifacts; most appear to be Mesolithic/Neolithic in date. Other excavated sites, particularly those in the vicinity of the river, have produced similar material in lesser quantity.

#### PERIOD I

The layout of the shrine in the Romano-British period seems to have been dominated by the presence of a prehistoric 'earthwork'; whilst a detailed consideration of this feature is deferred, it can be briefly described here.

The earthwork had taken the form of a mound or platform, which, by the mid-1st century A.D. had completely weathered away; its general outline was preserved because the ground beneath it had been protected from the effects of weathering, leaving an area upstanding above the general level by some 10–20 cm. Patches of leached material, of much the same consistency as the underlying brickearth, capped the raised area and presumably represented the last traces of a buried soil; there was heavy iron panning at the interface. The feature was in excess of 38.00 m. long, *c.* 9.00 m. wide at its eastern end, tapering to *c.* 6.00 m. near the western limit of excavation. In the absence of flanking ditches or quarry pits, it must be presumed that the materials of its construction were scraped from the surrounding area. A large number of stakes, varying from *c.* 0.07 to 0.30 m. in diameter, had been driven through the buried soil into the brickearth beneath. It would be reasonable to suggest that they were driven from the natural surface level, in which case they were presumably later buried within the earthwork; if they were driven from a higher level, through a mound, the latter could have been no more than perhaps 0.30 to 0.50 m. high. It seems dubious whether such an earthwork could give rise to the weathering effects noted above.

The interpretation of the stake-holes is rendered speculative by the extent of later destruction; their relationship to the overall plan of the feature does, however, rule out any possibility that they are earlier and merely preserved by the earthwork. In the western section, the stakes were of small diameter within the range and appear to have formed a random scatter; at the eastern end, however, it seems possible that they formed a band surrounding an area *c.* 4.00 m. by 8.00 m., within which was a feature *c.* 1.00 m. by 0.70 m. by 0.75 m. deep, the upper 0.45 m. of which had been destroyed by medieval disturbance. Use

of a considerable proportion of larger stakes was general in this area. The feature was filled with apparently natural brickearth, with much ferruginous staining, distinctive against the gravel encountered below the brickearth at this level; its sub-rectangular plan, sharp sides, and near flat bottom suggested, however, that it was not natural.

Dating evidence for the 'earthwork' was confined to a few sherds of coarse flint tempered pottery from the buried soil and the fillings of the stake-holes; a few were also found unstratified in later disturbances. That the structure was still visible in the mid-1st century A.D. is shown by the close regard taken of it by the principal period III timber structure, which virtually follows its outline<sup>50</sup> (see FIG. 4). The slight rise of the earthwork at that time tempts one to suggest that the period II enclosure ditch (see below) had an earlier origin than the Romano-British material in its filling would imply, perhaps in the later pre-Roman Iron Age; thus preserving the identity of the site in a reasonably prominent form into the Roman period. If so, a date not later than the earlier pre-Roman Iron Age would perhaps be indicated for the construction of the mound; on the evidence of the pottery, it should not be later, though it could be considerably earlier. A further corollary of the suggestion is that the western limit of the feature, beyond the limit of excavation, would presumably have been included within the enclosure; in which case the total length of the feature was in the order of 45.00 m.

There seems to be no close parallel for this structure. Some resemblance to a long barrow is evident, in terms of size, proportion, and alignment, though this is almost certainly superficial. Prehistoric earthworks formed by scraping are evidenced rarely, though it should not perhaps be assumed that the method was infrequently employed, for it is only in exceptional circumstances, as in this instance, that any evidence of such structures can survive. The absence of any obvious utilitarian function, coupled with the absence of domestic detritus (though this is not crucial) tends to suggest that the feature was connected with religious activity.

Finally, other prehistoric material found in the immediate vicinity may be summarized. Almost all excavations on any scale within the Romano-British settlement area have produced a sherd or two of well weathered flint-tempered pottery, though none but this one have produced features of prehistoric date. A Bronze Age cremation was found in 1901 south-west of the Romano-British settlement area,<sup>51</sup> and 'several urns of *unbaked* clay' (my italics), one 12 in. high by 10 in. in diameter, 'containing several fragments of burnt bones' were found between 1849 and 1857 in the area of the Roman settlement 'buried little more than one to two feet below the surface'.<sup>52</sup> These latter were thought at the time

<sup>50</sup> It should perhaps be noted that (i) the level of the natural brickearth both under and adjoining the other gravelled features of period III was similar; (ii) a leaching horizon similar to that described above was just beginning to develop in the slight agger under the Roman road excavated on site 1.

<sup>51</sup> On the site of what was then Messrs. Crompton's Arc Works. The urn, together with remains of Belgic interments from this site, are now in Chelmsford Museum. Observation of development in the surrounding area has failed to locate any trace of contemporary settlement.

<sup>52</sup> Footnote to Chancellor's report on the baths, published 1857, see above.

to be Roman, but seem more likely to have been of Bronze Age date; they unfortunately do not survive.<sup>53</sup>

## PERIOD II

A number of features were excavated, in addition to the period I earthwork, which predated the timber building complex of period III; these features were not wholly contemporary, though there were few stratigraphical relationships between them. The most important of these were the ditches, apparently forming two sides of an enclosure, shown in broken line on the plans Figs. 3 and 4; the excavated area included a considerable length of the northern (1) and part of the western (2) sides. In view of the contrast between the areas to the north and south of the post-Medieval dyke (3) (the areas on the south being perhaps of domestic usage, see below), it seems probable that the southern side of the enclosure had been obliterated by this later feature. A ditch or watercourse located in Mildmay Road, in an area much disturbed by recent services, may well have marked the western boundary of the enclosure. The resulting probability is, therefore, of an enclosure in the order of 30 × 40 m. overall; it is perhaps significant that within this enclosure no pits seem to be dug for utilitarian purposes during the Roman period, in direct contrast to the immediately surrounding area.

The western end of the northern ditch showed at least three phases; the feature was generally in the order of 0.30 m. to 0.50 m. deep. The butt ends of the ditches were widened, and the feature deepened, to c. 1.10–1.30 m.; these deeper sections appeared to have been lined with a very clayey brickearth, as if to retain water. The possibility of this enclosure being of Iron Age origin has been mentioned above; it is certainly the dominant feature of period II, its filling marking the close of that phase prior to the construction of the timber buildings.<sup>54</sup> The remaining features of this period are relatively minor, lying both within and without the enclosure; they are not indicated on the plans and will not be discussed in detail here.

Five coins of Claudius I (three barbarous) and a coin of Tiberius, together with a fragment of Claudian samian ware, Drag. f. 30, should indicate usage of the site in the immediate post invasion period, though none were significantly stratified. The samian ware incorporated in the filling of the enclosure ditches provides dating evidence for the close of period II and the commencement of period III; a preliminary assessment would indicate a date of c. 65–75.

## PERIOD III

This period is characterized by timber structures and gravel paved areas forming an increasingly complex plan. A gravel pathway, at least 75 m. long, was constructed, approaching the sacred area from the east, and stopping within the period II enclosure without approaching any obvious feature; the gully (4)

<sup>53</sup> An intact collared urn, unprovenanced, in Chelmsford Museum, was a 19th-century accession and may be local.

<sup>54</sup> For the question of IA enclosures as precursors of later temples on the same site, see M. J. T. Lewis, *Temples in Roman Britain*, 1966, pp. 4–5. The temple at Gosbecks, within a ditched enclosure of pre-conquest date, is particularly relevant in view of its location—see *Roman Colchester*, 1958, p. 261 ff.

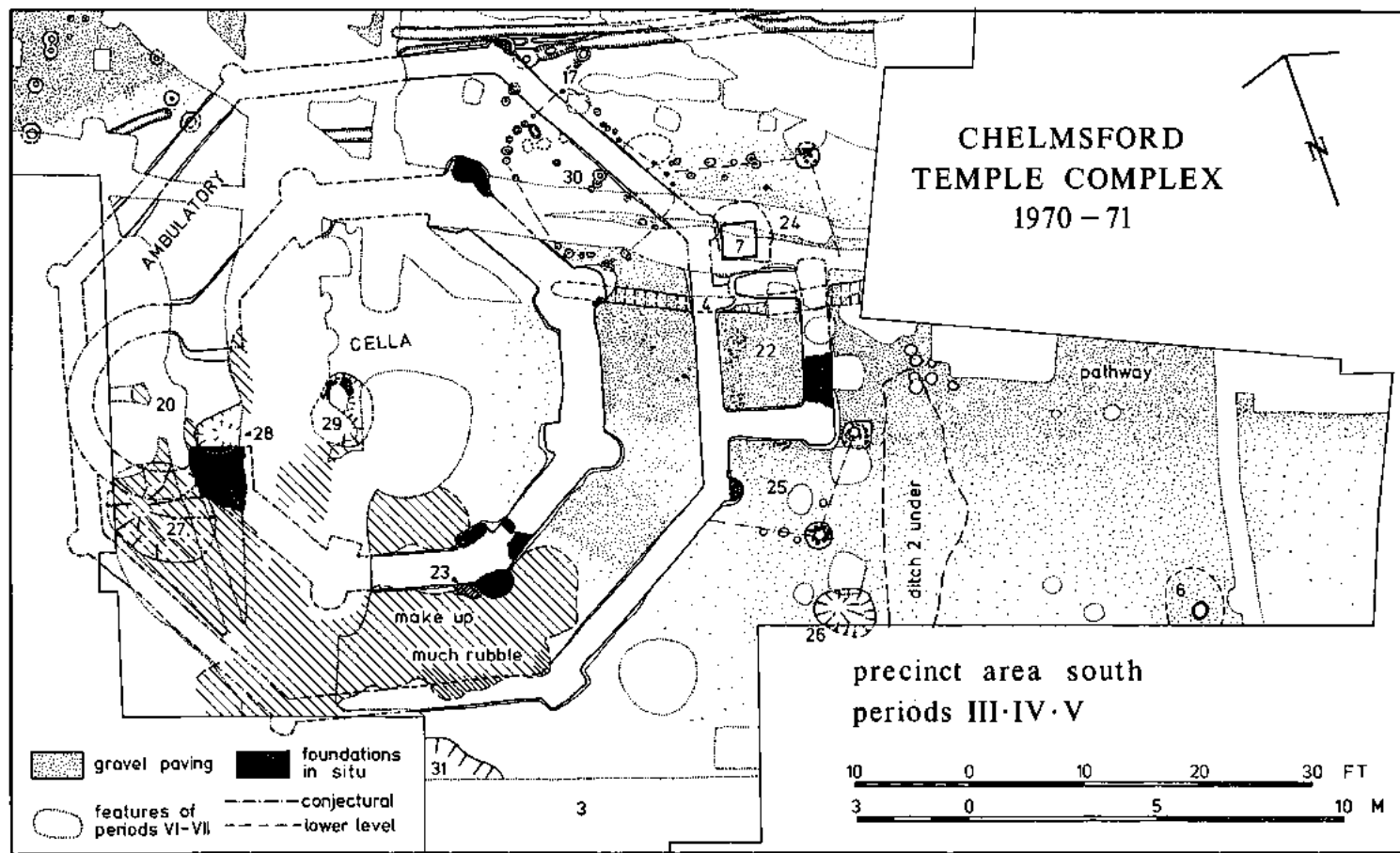


FIG. 3

CHELMSFORD, Temple Excavations 1970-1: plan of temple precinct area south.

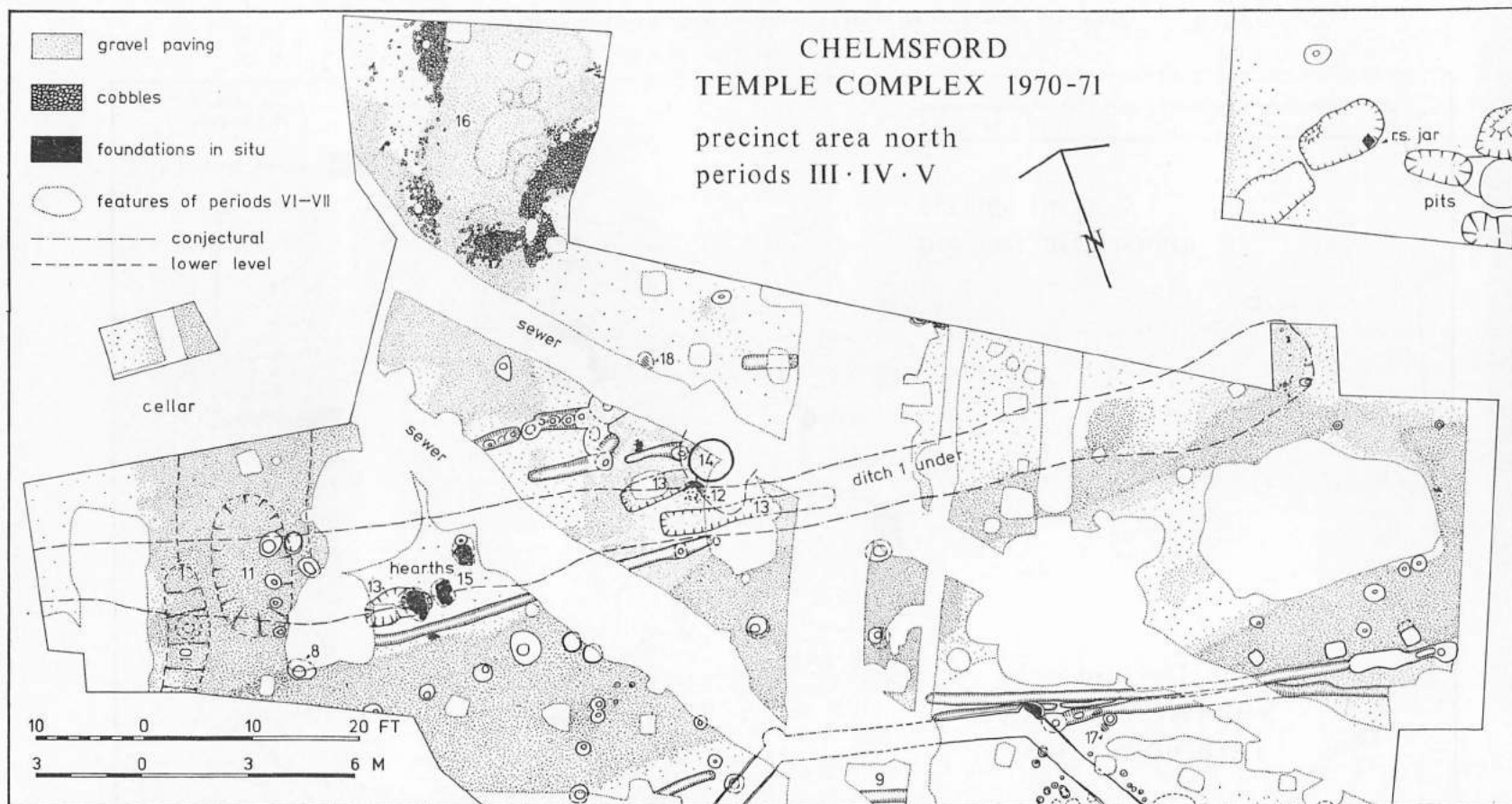


FIG. 4

CHELMSFORD, Temple Excavations 1970-71: plan of temple precinct area north.



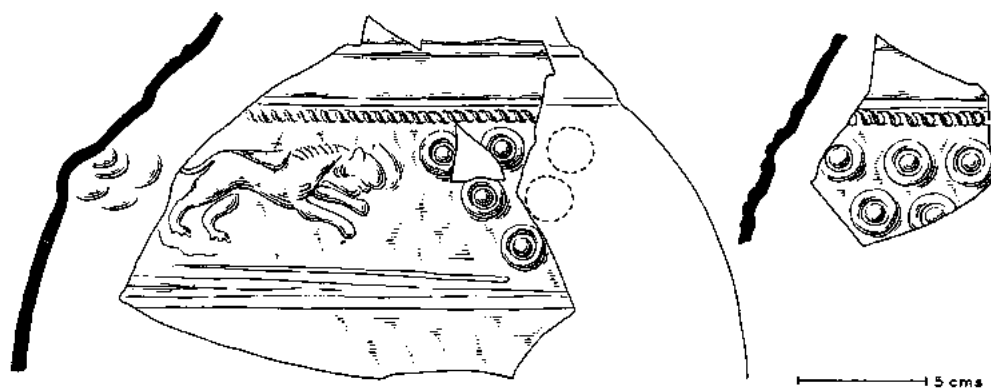


FIG. 5

CHELMSFORD, Romano-Saxon pottery, Scale  $\frac{1}{2}$ .

on the north apparently being for drainage purposes. It seems possible that it was the area itself, or perhaps a group of trees within it, or a feature which left no trace in the ground, which formed the focus of attention; or that the pathway continued to a feature or structure in the area under the existing cottages to the west, its extension having been eroded away where it would have passed over a natural rise in the ground. There is no clear evidence in favour of any of these alternatives, and others are possible.

Associated with the earlier phases of this path, were two features of particular interest. On the south was erected a post *c.* 0.40 m. in diameter, in a pit *c.* 0.90 m. deep packed with flint and septaria in clay (6); around this post, a considerable scatter of *fibulae*, two finger rings, and a bracelet were found, clearly complete when deposited. The evidence seems to imply a relatively tall pole, with some means of attaching votive objects to the lower parts.

On the north side, there was a timber lined well (7) *c.* 1.00 m. square by *c.* 2.30 m. deep, of timber *caisson* construction. This finds a close parallel in the published example from Wickford,<sup>55</sup> Essex; the use of such a sophisticated method is noteworthy at this date. A secondary framework was inserted, presumably when the upper part of the original lining began to rot. Following its final abandonment, the well was cleared of sludge, and backfilled with hardcore and gravel; whether, in the light of the pole noted earlier, this was a ceremonial 'deconsecration' involving the removal of votive objects, or whether it was simply to prevent excessive subsidence, is impossible to deduce. It was clear, however, that both pole and well had a relatively short life compared with that of the pathway.

A complex of timber structures principally with gravel floors, together with gravel paved external areas, was constructed in the northern part of the site, centred on the period I earthwork; the nature of the construction, however, makes

<sup>55</sup> *Britannia* I, p. 291; a similar well of early 4th-century date has been noted in sewer trenches in the occupation area near the river Can, site 6 on fig. 1.

detailed interpretation of the complex difficult. At the eastern end of the feature, however, one structure, or element of the structure, stands out clearly; it seems to have had a timber floor, with walls rising from a ground-laid cill. Within the building there is a thin scatter of pebble only, both the first and second of the two surviving general external paving levels preserving its outline. The structure was aligned almost due east-west, in distinction to the alignment of the underlying earthwork.

On the south side, there is clear evidence for an extension, in the presence of three rectangular post-holes; the gravel paving had been laid around the posts after erection implying an open-sided 'verandah' form of construction. The slots probably represent successive rebuilds of the same structure, the full extent of which is not clear; there is no evidence that the gravel to the north of the main structure is anything more than external paving. The gravel does, however, extend westwards; if any pattern is discernible from the few surviving structural features it is clearly one of two main groups, along the southern periphery and c. 1.50 m. inside the northern periphery. A number of post-holes within the area of this apparent structure seem to be contemporary with it, again on the evidence of the paving having been laid after the posts were in position; others, however, could be later, especially (8), but in the absence of significant finds from most it is impossible to be certain. A general interpretation would therefore be of a perhaps partly open-sided, roofed structure, within which a probably enclosed structure was sited on an apparently significant alignment; the feature *in toto* almost coincides with the known limits of the period I earthwork. The gap in the foundation slots on the south, coupled with the offset slot (9) may represent a small 'porch'.

Early in the life of this complex an extension was made on the west, extending for an unknown distance to the north; this too was perhaps open sided, though virtually no structural evidence survived at least in respect of its later phases. In the earliest phase, the structure—or at least its gravel paving—was much narrower, as indicated by broken lines on the plan FIG. 4. There was an eaves-drip gully or foundation slot (10) along part of the western side, and an apparently significant post-hole. It overlay a shallow pit of elliptical plan and unknown function (11) which itself overlay the period II ditch.

In the angle between the main structure and the extension lay a collection of features which seem to belong to, or lie within, one 'structure' of two main phases. Lengths of foundation slots for timber walls are clear, though much disturbed by later features; the area was covered by somewhat sporadic gravel paving, again of two phases and extending to the north-west. Within the 'structure' were three vertical-sided trenches of varying length, with a filling rich in charcoal (13); their function is uncertain. Two were cut by a second well (14), a circular timber-lined example c. 1.20 m. in diameter by c. 2.00 m. deep; none of the lining survived and the filling contained a considerable quantity of material which would not have been out of place in a domestic context. Overlying the well were the remains of approximately one half of a large storage jar, set into the ground and apparently used as a hearth (12), though it had not been heated

to any great temperature; to the west were three others in a better state of preservation<sup>56</sup> (15).

An extension of the excavation to the north produced a further building (16), apparently constructed on a pre-existing gravel paved area. It was in excess of 5·60 m. long, and *c.* 2·10 m. wide on the south, extending to 3·00 m. further to the north at what may have been its centre. The entrance appears to have been on the east, via a porch extended outwards. The lines of the walls were defined by closely laid flints and septaria around the exterior of the building, the walls presumably rising from ground-laid cills. External post-holes may indicate the provision of external support in the lines of the roof trusses.<sup>57</sup>

Various minor features also appear to belong to period III, in particular two apparently votive deposits of pottery vessels (17, 18), one much disturbed in a later period. To the north of the early enclosure ditch (i.e. outside the enclosure), a number of fairly large excavations were made through the brickearth to, but not into the underlying gravel; they were generally backfilled with subsoil containing a reasonable quantity of rubbish, in all somewhat similar to the filling of the period II enclosure ditch. It seems probable that these features belong early in period III, their most likely function being sources of brickearth for daub.

The date of commencement of period III has been established previously. There is little evidence to indicate, directly, how long the timber structures continued in use, since upper paving levels had been eroded away, and those which remained contained little dating evidence; it is also possible, indeed probable, that not all of the structure went out of use at the same time. It is noteworthy that coins of the 3rd century are rare on the site, the period 275–310 being unrepresented except for two barbarous radiates; whilst this need not indicate abandonment, it is probably indicative of a decline. In spite of this, two centuries seems a long period for the survival in use of structures of the form of those overlying the earthwork; it should be borne in mind that the unexcavated western area of the period II enclosure could contain substantial period III buildings, which could occupy an intermediate stage between the period III timber structures excavated and the period IV masonry temple. The upper levels of the pathway surviving at the time of excavation were probably laid not later than the end of the 2nd century; none the less, the relationship of the path to the period IV temple suggests that it continued to function in relation to the latter. If this temple was built in front of its predecessor, the latter being later demolished, this could explain the extent of the pathway westwards referred to above.

#### PERIOD IV

The timber buildings of phase III were superseded by a Romano-Celtic temple of masonry; this building was octagonal in plan, *c.* 17·70 m. overall, with a cella *c.* 11·00 m. overall. The cella walls were *c.* 1·00 m. thick at foundation

<sup>56</sup> The form of these hearths is not significant, similar examples have been noted on nearby domestic sites.

<sup>57</sup> In view of the fact that this structure was to be sealed under the central reservation of the new road, it was cleared, recorded, and backfilled.

level, with rectangular piers internally and semi-circular piers externally at the angles; on the west side, the foundations terminated in relatively heavy pier bases, which presumably carried an arch over an opening *c.* 2.50 m. wide. Beyond the opening lay an alcove (20), which presumably housed the cult statue; its plan, largely destroyed by later disturbance and lying partly outside the excavated area, appears to have been apsidal, as at the square temple Caerwent I.<sup>58</sup> If this was indeed its shape, it must either have totally blocked the ambulatory, or the latter must have been extended outwards in parallel, which seems unlikely.<sup>59</sup>

The ambulatory walls were *c.* 0.70 m. thick at foundation level; it is probable that there were semi-circular piers at all external angles, though due to later disturbance there was definite evidence of shape in only three cases, and presence in four cases. The relative wall thicknesses of cella and ambulatory suggest a tall cella with clerestory lighting, rising through an ambulatory with low external walls and a lean-to roof supported on columns at the angles. On the east, two additional columns were provided at the outer quarter points, clearly flanking the entrance; at a later date, a portico (22) was added, projecting forward some three metres, the sequence and prior existence of the column foundations being clearly indicated by the misaligned foundation trench of the north portico wall.

The surviving sections of the foundation were of flint rubble, with some septaria and tile, in a hard lime mortar; the section of portico foundation contained some possibly reused lumps of greensand. It is improbable that the foundation trenches, surviving to a depth of not more than *c.* 0.50 m., were ever more than *c.* 0.70 m. deep below contemporary ground level; they were, however, generally taken through the brickearth to the stiff gravel beneath, making any further penetration superfluous. A small patch of 'layered', lime rich, mortar adjoining one of the piers on the south (23) probably represents the last remains of a mortar mixing pit,<sup>60</sup> sunk into the ground against a completed section of the wall; it was too deep to indicate ground level at the time of construction, and in any case rested on clean brickearth.

Principally under the south-western part of the temple, certain areas had been excavated prior to its construction, the excavations being backfilled with almost clean brickearth and rubble; the rubble was noticeably concentrated under the ambulatory wall on the south side. The excavations took the form of many lobed hollows, which seem to conform overall to a discernible plan despite extensive later disturbance; whilst they may represent a collection of pits, their position suggests that they represent the site of a group of trees grubbed up prior to the commencement of building work. It also seems unlikely that the position of the cella wall in relation to these features is accidental. The plan FIG. 4 indicates by

<sup>58</sup> *Archaeologia*, LIV (1894), p. 206 ff. The only known Romano-Celtic temple with an apse in the province. It is perhaps worth noting, however, an octagonal room *c.* 8.00 m. overall with an apse at Witcombe Villa, Gloucestershire (plan in *Britannia* I, 1970, p. 294), reasonably interpreted by the excavator, Mr. E. Greenfield, as a shrine.

<sup>59</sup> The possibility of a rectilinear alcove is apparently ruled out by the presence of a block of natural brickearth intact between the two large disturbances occupying most of the alcove area.

<sup>60</sup> For a similar pit on the mansio site, in an excellent state of preservation, see *V.C.H.*, plate XI.

hatching the surviving extent of these hollows, and of areas, whose filling, though disturbed by stone robbers, suggests that they were once part of the complex.

It is probable, though proof is lacking, that the walls were constructed of similar materials to the foundations, and totally rendered. Little building material survived in later features; no architectural fragments were found, and only a small quantity of a coarse two-coat plaster predominantly red in colour.

Floor levels had been totally eroded. Lack of tesserae in later features, though not conclusive, seems to mitigate against such paving; concrete is possible but gravel on brickearth would surely be inconsistent with the standard of the remainder of the structure. The continuity of the walls of the portico and ambulatory through the entrances may argue for the floors being raised somewhat above the general ground level—a wise precaution in a fairly low-lying area such as this, possibly liable to occasional flooding. A raised floor in the cella could have been in timber, but this would be difficult to visualize in the ambulatory or portico. The matter cannot satisfactorily be resolved on the evidence available.

The structural form of the building suggests a cella roof based on a system of radial main beams transmitting the weight to the piers;<sup>61</sup> if the cella reached any substantial height, ties would have been necessary at wall plate level to contain the outward thrust. The ambulatory columns, which may themselves have been of timber, presumably supported timber beams spanning from column to column; though this span, at c. 7.00 m., is wide, the possibility of intermediate support seems to be ruled out by the absence of intermediate column bases, clearly visible where provided on the front elevation.

The roof appears to have been tiled, for the packing of the north post-hole of the southern period V lean-to structure (see below) consisted of tiles and mortar bedding, seemingly taken direct from the eaves of the building. Two points of interest arise from this material; first, one tile had been purpose-made for the abutment to a valley gutter or hip,<sup>62</sup> in this case presumably the latter; secondly, from impressions in surviving mortar bedding, the tegulae appear to have been laid with staggered horizontal joints in each row, quite feasible with a two-part tile system and perhaps aesthetically desirable in this case. The visual emphasis of the roof tiling would then be wholly vertical, echoing the form of the roof—an octohedral pyramid—and adding to the effect of height.

Romano-Celtic temples of polygonal as opposed to square plan, form a relatively small percentage of the total number known; further, the two examples in this province, Pagans Hill<sup>63</sup> and Weycock,<sup>64</sup> appear to be of a different architectural form (Lewis type III). On the continent, octagonal temples are mostly of the same architectural form as the present example (Lewis type I), the nearest parallel being Herapel, near Cocheren (Moselle).<sup>65</sup> With a floor area of c. 232 sq. m.

<sup>61</sup> The presence of piers shows that the walls of the cella were of masonry, at least to ambulatory roof height; it is possible that the structure above this level was wholly of timber.

<sup>62</sup> For an example from a villa site at Mill Green, Ingatstone, Essex, see *Trans. Essex Arch. Soc.*, Third Series, vol. ii, p. 336.

<sup>63</sup> *Proc. Somerset Arch. and Nat. Hist. Soc.*, xcvi, 112 ff.: ci-cii, 15 ff.

<sup>64</sup> *Arch. J.*, vi, p. 114.

<sup>65</sup> H. Koethe, *Die Keltischen Rund- und Vielecktempel der Kaiserzeit*, 23rd Bericht der rom.-germ. Kommission, Bonn, 1933, no. 14 in list.

the building is above the British average for Romano-Celtic temples generally, c. 200 sq. m., but near the continental average of 233 sq. m.; taking polygonal temples alone, however, the example is much smaller than the British average of 310 sq. m. and the continental average of 365 sq. m.<sup>66</sup>

Dating evidence for the construction of the building is scanty, being limited to material in the make-up in the south-east quarter; the subsequent disturbance of this make-up in robbing operations (period V below) further made the recovery of securely stratified material difficult. A single coin of 313-17 seems securely stratified in the make-up, implying a date of not earlier than c. 320-5 for the construction of the building; the small quantity of pottery found would not contradict this. A preliminary study of the coins indicates 31 datable to the period c. 44-275, two of c. 270-90, and 95 more or less evenly spread from 310-402. This latter continuity would seem to imply that the *terminus post quem* of c. 320-5 approximates to the date of construction. The number of coins is not sufficient to suggest votive deposition, but may well be indicative of financial offerings to the temple, a practice not apparently current in the earlier phases of the site.

The site thus well illustrates the Romanizing of Celtic religious practice, the enclosure of period II giving way to the somewhat open timber structures of period III, and culminating in the masonry temple of period IV.<sup>67</sup>

#### PERIOD V

On the evidence available, it is not possible to fix a terminal date for the use of the temple as such, though the coin series indicates a date not earlier than c. 410. Subsequent occupation of the site into the 'sub-Roman' period was, however, evidenced by a number of features, falling into three distinct groups. Though there was no stragraphical connection between these groups, they are treated below in what would appear to be a logical sequence.

A. There was considerable evidence for the existence of two apparently lean-to structures to the north (24) and south (25) of the portico. With the exception of the corner post-holes, packed with flint and tile, their construction appears to have been flimsy, as evidenced by the shallow stake-holes which could hardly have penetrated below the contemporary topsoil. It seems probable that, with the ruins of the portico (22), the structures formed a three-roomed habitation. To the south, a shallow pit (26) perhaps associated with the structure contained fragments of a distinctive and probably sub-Roman shell-tempered pottery, as did one of the main post-holes; no floor levels survived.

It is probable that much of the robbing of the temple structure was carried out contemporarily with the occupation of the building described, the task being completed following its vacation. The robbing was a thorough one, which extended to much of the flint rubble packing in the made-up areas beneath the structure, thus in some areas destroying the outline of the foundation trenches proper. The robbing of stone at this time is worthy of note, and prompts speculation as to its destination.

<sup>66</sup> Figures taken from *Lewis*, 1966, p. 25.

<sup>67</sup> For a discussion of this question, see *Lewis*, 1966, Chapter 1.

B. Extensive medieval disturbance in the south-western area of the temple, having been cut through levels no longer extant at the time of excavation, contained relatively large quantities of late/sub-Roman domestic refuse in an area corresponding approximately to the smallest circle which would contain features 27, 28 and 29. Feature 27 was shallow pit, somewhat ill defined, containing domestic refuse; 28 a small hollow showing signs of burning *in situ*, and 29 the much disturbed remains of an oven, lined with substantial lumps of kiln structure. The only dating evidence other than pottery provided by this group of features was a fragment of a bone comb with 'circle and dot' decoration from feature 29, apparently dating from *c.* 400;<sup>68</sup> if this date is correct, the object should be residual or an heirloom. Since features 27 and 28 partly overlie the robbed walls it is clear that they post-date the robbing operations. No traces of structures were found in this area, though this is not, of course, conclusive proof that none existed; it is possible even that they lie outside the excavated area. Pit 31 may possibly belong to this phase.

C. Straddling the ambulatory wall in the north-east quarter was a structure *c.* 4 m. × 3 m. overall, of sub-rectangular plan (30). It appears to have consisted of relatively small scantling posts penetrating the subsoil *c.* 0.10–0.15 m.; there was evidence of internal support on the long axis, presumably in the line of the ridge. No dating evidence was associated with this structure; its constructional method does not appear dissimilar to that of the lean-to structures, though substantial posts are absent. The plan appears remarkably Germanic, showing a resemblance to the normal form of sunken hut; indeed, it is not impossible that it was sunken, though to no great depth.<sup>69</sup> As with complex B, it is clear that the temple structure in the vicinity had been robbed at an earlier date.

In summary, there are two certain phases of occupation following abandonment, one making use of part of the old structure, the other clearly subsequent to the robbing of the masonry. It is possible that complex B may represent a further occupation phase, intermediate between A and C or contemporary with C, though if the C building really is Germanic this latter possibility is unlikely. Almost in contradiction with the evidence for period V occupation, none of the small finds, on a provisional assessment, seem to be later than *c.* 400,<sup>70</sup> with the possible exception of a polychrome bead, and Germanic pottery was completely absent.

#### PERIOD VI

The site appears to have been deserted from the 5th century until the 13th, when it became part of what was probably a dyer's establishment.<sup>71</sup> The principal features of this period were large tanks, mostly timber lined; a boundary passed through the excavated area, originally defined by a palisade, and in its later

<sup>68</sup> The opinion of Miss V. I. Evison and Mr. S. E. West, for which I am grateful.

<sup>69</sup> For a similar structure at Fladbury, Worcestershire, see *Current Arch.*, no. 5.

<sup>70</sup> The opinion of Miss V. I. Evison.

<sup>71</sup> A number of dyers were active in the area at this time, principally on the evidence of ——— le Dyer personal names. When the surname and the trade no longer corresponded, the 'le' element would be dropped. Information from Miss H. E. P. Grieve, of the Victoria County History of Essex.

phases by a ditch. With the exception of a few shallow pits and a single tank, the Medieval features lie west of, presumably inside, the boundary. This aspect of the site will not be discussed in further detail here.

The profiles of certain of the features described above would suggest that the water table in the vicinity was high; probably as time passed, uncomfortably so, though the presence of water, downstream of the town, was probably the reason for the initial selection of the site for the use suggested. This Medieval occupation does not seem to have outlasted the 13th century.

#### PERIOD VII

The truncation of the Roman and post-Roman levels on the site by alluvial action has been noted previously. This clearly did not occur before the mid-13th century, following, indeed probably causing, the abandonment of the site; the surviving Medieval features contained material from late or post Roman levels through which they had been cut, the levels themselves not being extant at the time of excavation. The smooth contours of the level beneath the silt seemed consistent with erosion in an enlarged flood plain, followed later by deposition as conditions altered.

The silt probably accumulated gradually in the later Medieval period, though by the close of the 16th century the area was under cultivation;<sup>72</sup> it remained so until the later 19th century. Town expansion at that time resulted in the residential and light industrial development which survived largely intact until the clearance of the line of the Inner Relief Road in 1970-1. Though alluvial erosion had caused much damage to the site, the resultant silt layer had insulated it, in most cases, from serious disturbance by the 19th-century buildings. It was highly unfortunate, however, that between the two principal phases of the work, the road contractors laid the two sewers which form the prominent disturbances in the northern part of the excavated area.

#### THE TEMPLE AREA—BOUNDARIES AND PERIPHERAL FEATURES

With the exception of the period II enclosure, the precinct lacked positive definition; whilst this may in part have been due to the limitations of the excavated area, it is probable that the limits of the precinct beyond this enclosure were not decisively defined in the Roman period (FIG. 2). The road provided a boundary on the south, the frontage being occupied by a somewhat enigmatic group of buildings discussed further below. On the north, the boundary was partly formed by the back stream of the river; on the north east, however, no positive boundary between the occupation area and the temple was observed. The western boundary seems to have lain under Mildmay Road, where, in contractor's excavations, traces of a ditch were noted; disturbances for recent services made certain interpretation or dating impossible, but the boundary may here coincide with the boundary of the period II enclosure. It should be borne in mind, however, that the watercourse carrying the discharge from the mansio baths should emerge in this

<sup>72</sup> Illustrated by an estate map of Moulsham, 1591, in the Essex Record Office.



area. To the east, there was no definite boundary, nor any evidence of occupation beyond the temple site—it is not inconceivable that here the temple area gave way to open meadow. A total area of c. 1.2 hectares is probably approximately correct.

To the south of the sacred area originating in the period II enclosure lay a group of timber buildings, which must have occupied the frontage to the Roman road leading south-eastwards out of the settlement. The buildings were separated from the sacred area by an extensive collection of pits, the boundary between the two areas being lost in a wide post-Medieval drainage dyke. The major part of this group of buildings lies under the present Rochford Road, beyond the Inner Relief Road site boundaries; however, the rear parts of two successive phases extended into the excavated area. The walls of the earlier building were defined by a plinth c. 0.40 m. wide, formed of one or two courses of dry-laid flints; they overlay a number of pits filled with brickearth subsoil, approximately datable to the later 1st century. Where these disturbances occurred, a trench was, in some cases, taken through the filling to the underlying natural, the plinth being built in the trench; in other cases, no precautions were taken and subsidence ensued. This structure, perhaps because of the subsidence, was rapidly succeeded by another, whose limit was marked by an eaves drip gully; samian ware in its filling gave a *terminus ante quem* for the complex in the mid-2nd century. Two perhaps successive clay-lined ovens predated the second structure, lying within the earlier structure but not necessarily contemporary with it.

The pits mentioned above encroach only slightly on these structures; it therefore seems probable that the building complex to which they belong continued to develop beyond the 2nd century, though in a less deep plan form. With the exception of a large 2nd century pit of parabolic profile c. 1.70 m. deep, lined with clay presumably to retain water, the pits were cut to, rather than through, the gravel normally underlying the brickearth. So many pits were dug that the final effect in many areas was a depth of c. 0.75 m. of dark soil. Their function is difficult to interpret; most belonged to the 4th century, though probably by survival. They would appear at first sight to be domestic in character, though generally they contained little 'refuse', and indeed were notable for their relatively high content of coins and small finds; this latter seems to make a connection with the temple reasonably clear. A provisional interpretation of the buildings with which they seem to have been associated as shops or a 'priest's house' connected with the temple is suggested.

The area to the north-east of the temple was again occupied mostly by pit complexes of various dates, though lacking the intensity of the southern area. On this site, a level of dark loam survived in some areas beneath the silt; it contained much late/sub-Roman pottery, including the exceptional sherds illustrated in FIG. 5, which lay in the sinkage hollow above a shallow, probably 4th century pit containing building debris.

The fragments comprise parts of the shoulder and upper section of the body of a large jar, in a fairly coarse red fabric lightly burnished externally. The decoration, in low relief, consists of a lion *passant* (presumably between) bosses

in 3-2-1 pendant triangle formation. Both figure and bosses were formed by holding a mould against the outside of the vessel, and pressing the vessel wall into the mould. The example is interesting in that 'Romano-Saxon' and zoomorphic motifs are combined on one vessel.

Other features in this area included the vestiges of an oven and a possible cremation burial of 2nd century date, both badly disturbed; some Medieval pits were present.

Observation of contractor's works<sup>73</sup> yielded further information concerning the temple area. The gravel pathway mentioned previously terminated in the area shown in FIG. 2, where it was overlain by a considerable deposit of oyster shells; the deposit continued beyond the limits of the path, and contained no dating evidence. More pits, again principally of the 4th century, were noted in the general area between the end of the path and the area excavated to the north-west. Excavation for the subway also produced two cremation burials, and a short length of mortared flint foundation; there was no clue as to the form of the structure to which it belonged, but it is unlikely to have been extensive. Excavation for the southern section of the carriageway of the roundabout revealed no evidence of structures or gravel paving in that area; it is interesting to note at this point, however, that in excavation on the site of 29-31 Rochford Road (Site 1), immediately to the south, it was shown that there was no ditch on the north side of the Roman road at that point. This is surely a further indication of the importance of the temple site at an early date, for the ditch is certainly present further west, towards the junction.

To the west of the temple site, excavations in Mildmay Road indicated the presence of a gravel paved area, in addition to the watercourse mentioned previously.

#### CHRONOLOGICAL SUMMARY: TEMPLE SITE

PERIOD I	Prehistoric	Construction of earthwork.
	Early Iron Age or Earlier	
PERIOD II	? Iron Age—c. 65-75 A.D.	Ditched enclosure emphasizing period I earthwork; some minor features.
PERIOD III	c. 65-75 A.D. to c. 320-25 A.D.	Shrine complex of partly open timber structures, gravel approach path, and ancillary features.
PERIOD IV	c. 320-25 A.D. to ? 410-20 A.D.	Romano-Celtic masonry temple.
PERIOD V	c. 410-20 A.D. to mid/ later 5th century?	Robbing of masonry; sub-Roman and possibly Germanic occupation.
PERIOD VI	13th century	Probable dyers establishment, terminated by flooding.
PERIOD VII	late 13th century-present	Agricultural usage followed by development in the 19th century.

<sup>73</sup> My thanks are due especially to Messrs. D. Biglin and H. Young for their efforts here.

PLATE I



CHELMSFORD; temple precinct area north, from the east, showing period III timber structures.

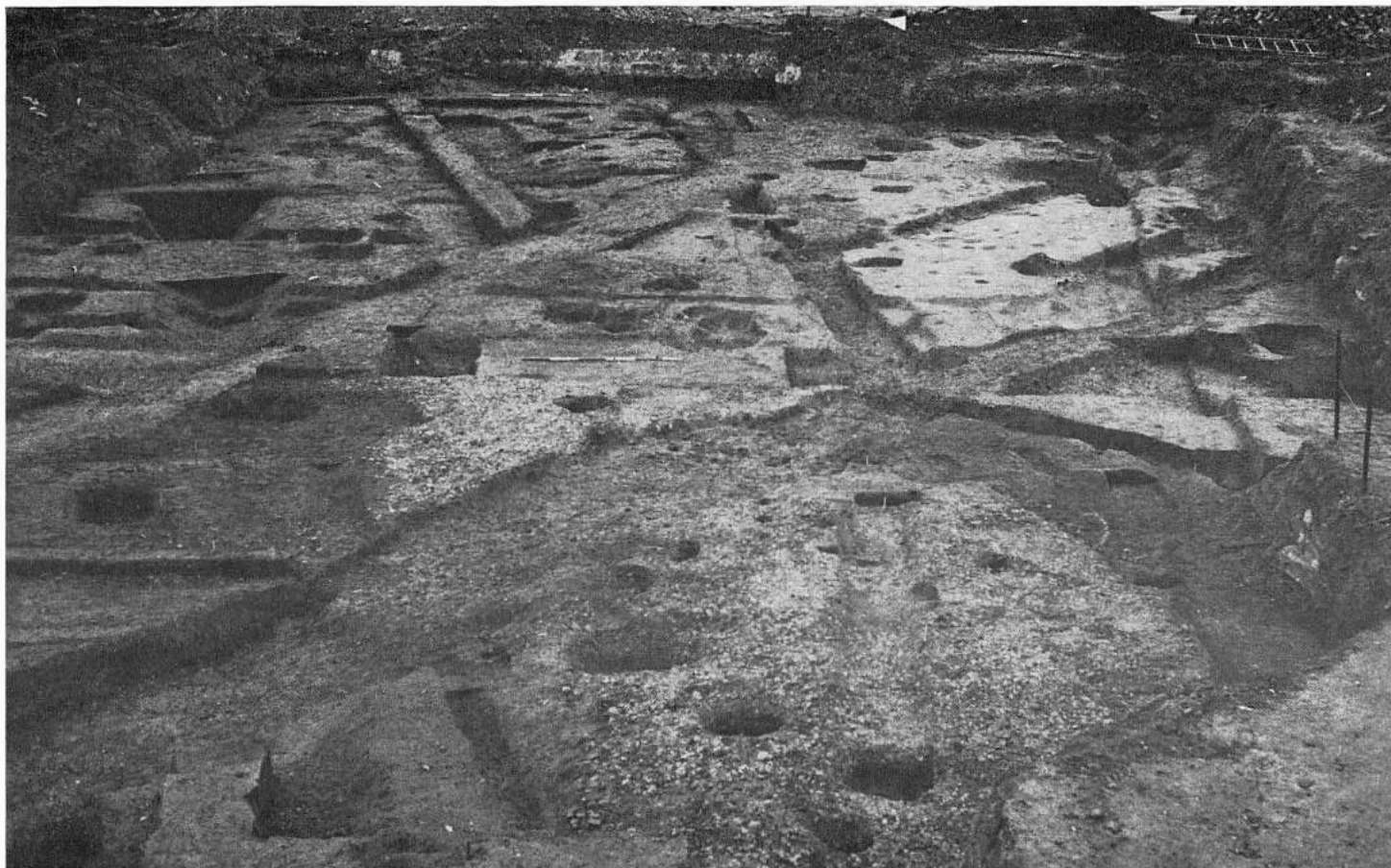


PLATE II

CHELMSFORD; temple precinct area north, from the west, showing period II enclosure ditch (left), period III timber structures, and period IV temple (right).

## POSTSCRIPT

Since writing the above, excavation at 59-63 Moulsham Street, on the London-Colchester Road frontage c. 225 m. south of the junction near site 2, has revealed a defensive ditch c. 2.60 m. deep with associated rampart. This was constructed late in the 2nd century, following the demolition of a substantial timber framed building with a gravel floor. Previous observation suggests a continuation eastwards to a point close to the south-west corner of the *mansio*; the line of its eastern side is as yet uncertain. Contractor's works have recently located a section west of Moulsham Street, approximately extending the line of the excavated section. The ditch observed in New Writtle Street in 1968<sup>74</sup> is now seen as part of the circuit, providing a line for the western side of the enclosure, approximately parallel to Moulsham Street and c. 60 m. from it. The northern side was probably formed by the back channel of the river.

The context is as yet unclear, though the earthwork had a limited life, being backfilled within a few years. The filling contains much burnt structural debris, providing further evidence of an extensive Antonine fire in the town. Extensive fires have been noted in other settlements in south-east Essex at this time; the settlement at Wickford appears to have been in the throes of constructing an enclosing earthwork when disaster struck. It has been suggested that Saxon raiding was the cause of this destruction.<sup>75</sup> Frere<sup>76</sup> suggests that the late 2nd century earthen defences of many towns may belong to the period of Albinus, 193-7, during which the province was virtually stripped of troops for his attempt on the Empire. This would not be at variance with the present evidence, nor would it preclude the suggested explanation for the fires; indeed it would provide a context for such raiding.

An alternative reconstruction<sup>77</sup> of the temple has been proposed by Mr. W. J. Rodwell. He suggests that the ambulatory walls were solid, the wall between cella and ambulatory consisting of a stone arcade. This is a possibility but the inter-relation of the apse presents problems, as it admittedly does in the reconstruction proposed by the writer. The matter requires further consideration.

September 1972

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<sup>74</sup> *Transactions of the Essex Archaeological Society*, Third Series, Volume II, Part 3, 1970, pp. 334-5.

<sup>75</sup> By Mr. W. J. Rodwell. The settlements of Wickford, Kelvedon and the villa at Rivenhall particularly illustrate the destruction.

<sup>76</sup> S. S. Frere, *Britannia*, 1967, pp. 250-1.

<sup>77</sup> W. J. Rodwell, *Roman Essex*, 1972, p. 22.

# Monastic Grange and Outer Close Excavations, Waltham Abbey, Essex, 1970-1972

By P. J. HUGGINS

*Rescue excavations were carried out in the Grange Yard of the monastic home farm of the Augustinian Abbey and in an outer monastic close called Veresmead. A total of twelve medieval and two post-medieval buildings was investigated, covering the period c. 1200 to c. 1600. A two-bay timber-framed aisled hall, with an associated store, and two successive dovecotes lay in Veresmead. All the other buildings were set around the Grange Yard. A twelve-bay aisled timber-framed barn was situated close to a dock and wharf. The other buildings included a timber-framed hay barn with central posts to support the loft; a long brick building with stalls and a solar end; three successive farm entrance lodges and a forge.*

*Among the finds were: medieval and post-medieval pottery, including a large early 16th-century group; bricks from c. 1200; objects of bone, bronze, lead and iron, including keys and horse and ox shoes; the share beam and stilt of a 15th-century oak plough.*

*The buildings are compared with those listed in the Dissolution Inventory and as shown on a map of c. 1600. The demesne lands were over 1,200 acres in extent and discussion is included of the development of the farm, the staff required, the animals, and the ability of the land to support the monastic community.*

## THE SITE (FIGS. 1 and 2)

THE TOWN OF WALTHAM ABBEY, with its monastic settlement, lies on a gravel terrace to the east of the river Lea (or Lee) in the parish of Waltham Holy Cross, 14 miles due north of Greenwich, London. The marshes and lush meadows, in the valley bottom at 18 metres O.D., are drained by numerous channels of the Lea. To the east the London clay, capped by sands and gravels, rises to a height of nearly 120 m. at the parish boundary in Waltham (now Epping) Forest.

The Abbey of Augustinian Canons was situated at the E. end of a causeway across the marshes from Cheshunt, Hertfordshire. Waltham Grange, the home farm, lies to the north-east of the Abbey precinct and the outer close called Veresmead lies directly to the north of the precinct. Rescue excavations were carried out during 1970-72, by the Waltham Abbey Historical Society, in the Grand Yard (TL 383009) and in Veresmead, before and during the construction of a relief road and car park.

The meadows north of the monastery are known locally as the Abbey fields. Redholm, bordering the Lea, and part of Veresmead consist of recent deposits of silt, peat and marsh clay. The east and south of Veresmead and the Grange

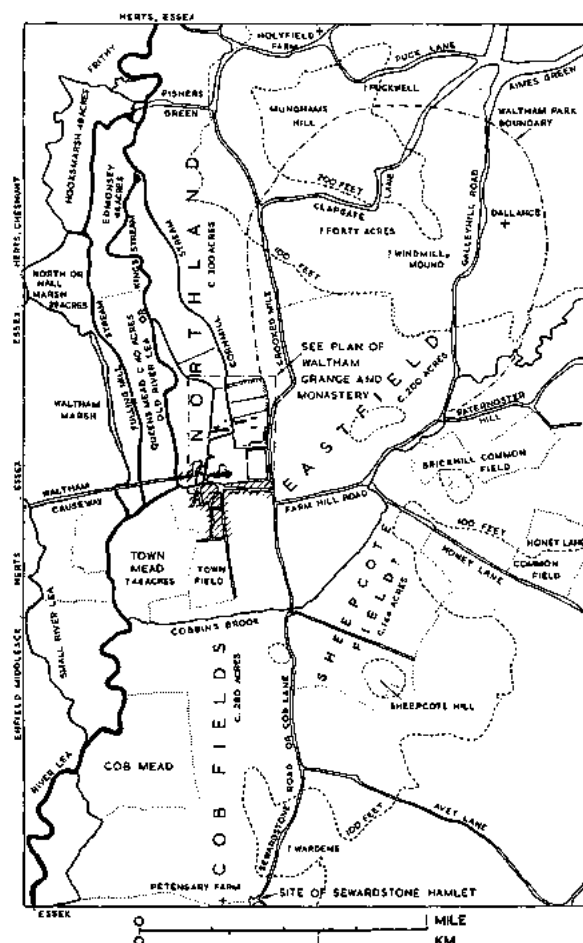


FIG. 1  
WALTHAM ABBEY, ESSEX  
The Grange and demesne lands.

are on the well-drained gravel terrace some 1 to 2 m. higher. The Cornmill stream, which was constructed to follow the edge of the gravel terrace, maintains about 2 m. head of water at the mill site; it would also have supplied water to flush the monastic sewers and for the Abbey fishponds in Veresmead. A slightly raised causeway runs across Veresmead from the existing, but incomplete, medieval Stony bridge over the Cornmill stream, to the remains of the bridge<sup>1</sup> which spanned the lower mill stream. This causeway connected the Grange Yard with the Abbey gateway and the mill site to the south. A bank and ditch delimits, on the E. and N. sides, an area of 18 acres here identified as Waltham Grange.

<sup>1</sup> Huggins, 1970.

## DOCUMENTARY, by K. N. Bascombe

Earl Harold, on his refoundation<sup>2</sup> in 1060 of Tovi's church of the Holy Cross as a secular college for a dean and 12 canons, endowed it with land called 'Northlande' which was said to have been given to the church of old, and therefore presumably had also been part of Tovi's gift<sup>3</sup> to his church of *villam praesentem scilicet Waltham*. This grant amounted to 15 acres per canon,<sup>4</sup> but this possession of the canons, amounting to 180 acres or 1½ hides of land, is not mentioned in Domesday.<sup>5</sup> Queen Matilda, however, c. 1108 restored<sup>6</sup> to the canons 2½ hides called Northland. The block of land tithe-free in 1776,<sup>7</sup> including the Sun Street area and the fields up to Fishers Green between Crooked Mile (B146) and the Old River Lea (FIG. 1), amounts to some 300 acres and can be identified as Northland. It includes the site of the excavations.

Queen Adeliza, c. 1130, gave<sup>8</sup> the tithes of the manor to the canons; after c. 1163 the manor was let out on lease, being held from 1166–75 by Guy Ruffus, dean of the college. In 1189, after the refoundation in 1177 for Augustinian canons regular, the canons acquired the whole manor from the crown.<sup>9</sup>

The contiguous relationship of Redholm and Veresmead was demonstrated in a document of 1220–22<sup>10</sup> when the causeway across Veresmead was said to border 'our close'. The name of Veresmead may be derived from William de Vere, a canon of St. Paul's, who with the first abbot of Waltham directed the rebuilding after the 1177 refoundation,<sup>11</sup> but his association with this particular field is not at present clear.

References to the grange begin in 1363 when *Hugh de la Graunge*,<sup>12</sup> who was apparently living in the town, is mentioned. In 1527 a *grangeator* was to receive rents for land in Waltham.<sup>13</sup>

An inventory<sup>14</sup> taken at the dissolution of the abbey in 1540 lists items of value building by building, but does not mention any buildings not containing such items. After mentioning many rooms surely within the monastic precinct, such as the buttery, the kitchen and the scullery, there follows:

<i>The Bakehouse</i>	2 kneading troughs with a <i>brake</i> and 2 moulding boards; a pan with a <i>leade</i> to heat water in
<i>The Brewhouse</i>	2 great vats with leads on them, a mashing vat and 28 <i>kymnells</i> ; a great furnace of copper and another less(er) furnace likewise of copper

<sup>2</sup> Stubbs, 1861, 46.

<sup>3</sup> Stubbs, 1861, 11.

<sup>4</sup> Stubbs, 1861, 17.

<sup>5</sup> *V.C.H., Essex*, I, 446.

<sup>6</sup> British Museum (henceforth B.M.), Harleian MS. 3739, f. 8.

<sup>7</sup> Essex Record Office (henceforth E.R.O.), D/DH P53.

<sup>8</sup> B.M., Additional MS. 37665, f. 15.

<sup>9</sup> *V.C.H., Essex*, v, 156–7.

<sup>10</sup> B.M., Harl. MS. 391, ff. 1–5.

<sup>11</sup> *V.C.H., Essex*, v, 172.

<sup>12</sup> E.R.O., D/DJg T12.

<sup>13</sup> Public Record Office (henceforth P.R.O.), E303/3/Essex no. 231. At Battle Abbey the granger was a member of the community and seems to have been responsible for the storage and accounting of the produce of the abbey's manors which lay within carting distance; Searle and Ross, 1967, 17–18.

<sup>14</sup> P.R.O., E117/11/24.



*The Graner there* 7 quarters (q) of malt  
a horsemill and a horse for the same mill

(SPACE IN MS. BUT WITHOUT HEADING)

2 drag nets for fishing

(SPACE IN MS.)

*The Smythes Forge* 2 anvils the one the *stele* worn out and other *trashe* for a smith  
*parte*

(FOLLOWED BY A BLANK FOLIO)

### *The Graunge*

*In the garner there* 10q of wheat

*The Otebarne* 5q threshed oats; 15q unthreshed oats

*The hey barne* 25 loads of hay

*The plowhouse* 3 pair of harrows and a plough; a little furnace of lead; 2 pair of iron draughts, 7 yokes; the bodies of 2 dung carts and 1 lime cart with 1 pair of wheels; 2 carts with iron bound wheels

*The deyhouse* a cauldron of brass bound with iron; 3 brass pots, a kettle, a trivet, a bar of iron and 2 pot hangers; a little cauldron in a furnace; a gridiron and 2 spits.

*The Cattell* 88 sheep with 12 lambs; 6 kine, 2 bulls, 2 bullocks, 5 yearlings; 7 oxen; 13 boars and sows young and old with 8 pigs; 6 cart horses; 6 malt horses; 12 oxen in the stall.

*corne* in wheat in a field called *Cobbefeld* 140 acre; in the same field in oats 100 acre.

*Also upon measure/made by the Tenants and the kyngs officers there was in whete* 81 acre

*Item after measures the oats which amount to 3 acres* 63<sup>15</sup>

Among the recipients of *rewards* forming part of the same document is the *wyff of the bayly of the graunge*.

In 1541 'All that grange called Waltham Grange . . . lately belonging and appertaining to the . . . monastery of Waltham Holy Cross . . . with all the buildings, barns, stables, granaries, yards, orchards and gardens and the courtyard of the grange' was leased<sup>16</sup> for 21 years to Anthony Denny. The lease specifically excepted 'those houses and buildings called *le Forge* and a certain stable assigned to *les charet horses* of the king', which buildings, by implication lay within the grange. Also leased were lands 'vulgarly called *lez demesne landes* of the monastery' (some listed below) and *inter alia* 'a tenement and two crofts of land and pastures by (*apud*) the Grange next to the Stone Bridge there, lately in the tenure of John Palmer'. The rectory of Waltham Holy Cross with its appurtenances, including all the tithes of grain, corn and hay as well as wool, lambs, calves, piglets, milk and cheese, except in so far as they had already been granted to others, was included in the lease. In 1544 Denny was granted the reversion<sup>17</sup>

<sup>15</sup> From the prices given this is taken to mean 63 acres.

<sup>16</sup> Northamptonshire Record Office (henceforth N.R.O.), W.C. 163.

<sup>17</sup> N.R.O., W.C. 164.

of the lands and most of the tithes. Shortly after 1541 he appears to have sub-let,<sup>18</sup> *inter alia*, 'one croft beside (*extra*) the barn in *le graunge*' and 'one tenement with two crofts lying in the Grange next to the Stone Bridge', both to Matthew Peke.

The forge and stable mentioned above, together with an unidentified barn and granary, were granted<sup>19</sup> to Sir Edward Denny, Sir Anthony's grandson, later Earl of Norwich, in 1608; in the previous year James I had acquired alternative accommodation for his horses by his purchase of Theobalds in Cheshunt two miles to the west of Waltham. The first mention<sup>20</sup> of royal stables at Waltham is in 1294, when the king's war-horses (*dextarii*) are said to be kept there. Some idea of the requirements of the animals can be gauged from a document<sup>21</sup> of 1587; 30 horses and geldings at Waltham *in ordenarye of her ma<sup>ty</sup> caridge stable* required annually 120 loads of hay, 80 loads of straw and 540 quarters of oats.

Until the 1590's the Waltham seat of the Denny family was at Dallance (FIG. 1), 1½ miles north-east of the Abbey, but Sir Edward Denny then took up residence on the Abbey site.<sup>22</sup> The building is shown on a map<sup>23</sup> of c. 1600 (PL. 1) which also depicts some of the excavated buildings.

From 1540, until the building of the Abbey House, the grange area may have been leased in comparatively small holdings on short leases.<sup>24</sup>

Sir Edward Denny, builder of the Abbey House, was succeeded in 1637 by his grandson James Hay, whose lands were sequestered in 1643 following his participation on the Royalist side at the first battle of Newbury. The last regularly resident owner of the Abbey House, Charles Wake Jones, died in 1739.<sup>25</sup> Building XVII appears to have been rebuilt by him as stables, which were converted<sup>26</sup> into a house at some time before 1766. Extensive repairs were made to the Abbey Great Barn (building X) between 1740 and 1742, £40 4s. 2d. being spent.<sup>27</sup> The evidence, taken together, suggests that the Abbey Farm based on the converted stables and the grange yard, dates from this time, although the first apparently extant lease<sup>28</sup> is of 1800. This lease refers to 'Waltham farm otherwise Abbey farm', and at the head of the list of associated fields stand Grange Yard, Cockfield, Orchard, and Bakers Close (FIG. 2). This is the group of fields here taken to comprise Waltham Grange. Comparison may be made with Particulars of 1660<sup>29</sup> and 1674<sup>30</sup> which suggest the contiguous relationship of fields called Dovehouse Close and Dog Kennel Mead<sup>31</sup> with Cockfield. The former can tentatively be

<sup>18</sup> P.R.O., S.C.6/Hen VIII/964 m. 105r.

<sup>19</sup> N.R.O., W.C. 194.

<sup>20</sup> B.M., Harl. MS. 391, f. 64.

<sup>21</sup> B.M., Lansdowne MS. 51, f. 71.

<sup>22</sup> K. N. Bascombe in Huggins, 1970, 218.

<sup>23</sup> Hatfield House, Maps and charts II, f. 23; copy in British Museum, maps, 186.h.2 (f. 23).

<sup>24</sup> As note 18.

<sup>25</sup> K. N. Bascombe in Huggins, 1970, 218-19.

<sup>26</sup> Maynard, 1865, 27.

<sup>27</sup> N.R.O., Acc. 1965/129, Account Books of Wake Estates in Northants, Essex, Oxon, and Bucks, 1740-1744.

<sup>28</sup> N.R.O., W.C. no. 2/16.

<sup>29</sup> N.R.O., W.C. 229.

<sup>30</sup> N.R.O., Acc. 1965/129, Particulars of Waltham and Nazeing manors, 1674.

<sup>31</sup> The canons owned house dogs and were permitted to keep hounds to hunt the hare, the fox and the woodcat; Fisher, 1887, 201 and 229.

identified with the 13th-century Veresmead and the latter with the field to the north of it.

The barn (building X) was insured in 1801 with the Royal Exchange Assurance<sup>32</sup> for £400; it was described as 'a large barn at the Abbey Farm, timber and tiled'. The barn is first mentioned in the Waltham Abbey Poor Rate records<sup>33</sup> in 1784, and in 1800<sup>34</sup> Sir William Wake, the lord of the manor and lessor, reserved 'the free use and enjoyment of the barn and also of a sufficient and convenient part of the said field called the Grange Yard . . . for laying, stacking and threshing tithe corn and grain'. By 1820<sup>35</sup> the reservation had become 'the free and sole use of the East end of the Barn standing upon the said farm and the joint use of the floor there and of a sufficient part of the stackyard there for the purpose only of laying up and threshing all such corn, grain and hay . . . by way of tythes'. The term 'Tithe Barn' was apparently first used<sup>36</sup> in 1826, when Grange Yard was divided into 'Field in front of house, tythe barn and yard, E part of barnfield and W part of barnfield'. The term 'Grange Yard' was still in use in 1820. A map<sup>37</sup> of 1826 (FIG. 10) shows Barnfield divided as above, and suggests that only the eastern 100 feet of the barn was then standing. The barn is not shown at all on the tithe redemption map<sup>38</sup> of 1842; in 1859 it was stated to have been pulled down<sup>39</sup> some 20 years before. Some of its timbers were, according to local tradition, re-used in another barn at the Abbey Farm, which continued to function as a farm until 1970; this barn was destroyed by fire in 1971.

The extent of the demesne lands which were probably farmed from the grange by the Abbey can be gauged from the lease<sup>40</sup> to Denny in 1541. A number of the fields can be identified; the list includes *Cobbefield*, 280 acres; *Shepecotefield*, 144 acres; *Pukwell*, 45 acres; *Northfelde*, 112 acres; *Estfeild*, 200 acres. These are all called *campus* and amount to 781 out of 1,033 acres in all so described. There were also 165 acres called *pratum*, including 30 acres in *Cobbe Meade*; 33 acres of *pastura*; and one *croftum* of 3 acres besides others whose areas are not given.

## THE EXCAVATIONS (FIG. 2)

Crop marks in Veresmead were numbered I to VI before excavation began. Of these, I was excavated and V and VI have been identified as filled-in cart ruts along the W. bank of the Cornmill stream. The buildings discovered as a result of the work here reported are numbered VII to IX in Veresmead and X to XVI, XVIII and XX to XXI in the Grange Yard. The numbers XVII and XIX have been given to buildings on the c. 1600 map which have not been investigated.

<sup>32</sup> Guildhall Library MS. 7243/41: policy no. 179741.

<sup>33</sup> E.R.O., D/P 75/11/5.

<sup>34</sup> As note 28.

<sup>35</sup> N.R.O., W.C. no. 2/37.

<sup>36</sup> N.R.O., W.C. no. 42/1.

<sup>37</sup> Crawler map of the town of Waltham Abbey, surveyed 1826; Waltham Abbey Historical Society Collection.

<sup>38</sup> E.R.O., D/CT 381.

<sup>39</sup> Littler, 1863, 49.

<sup>40</sup> As note 16.

<sup>41</sup> Plotted in the dry summer of 1933 by S. F. and R. E. Puddephatt, their plan traced as drawing PL/570/001 of the Lee Valley Regional Park Authority.

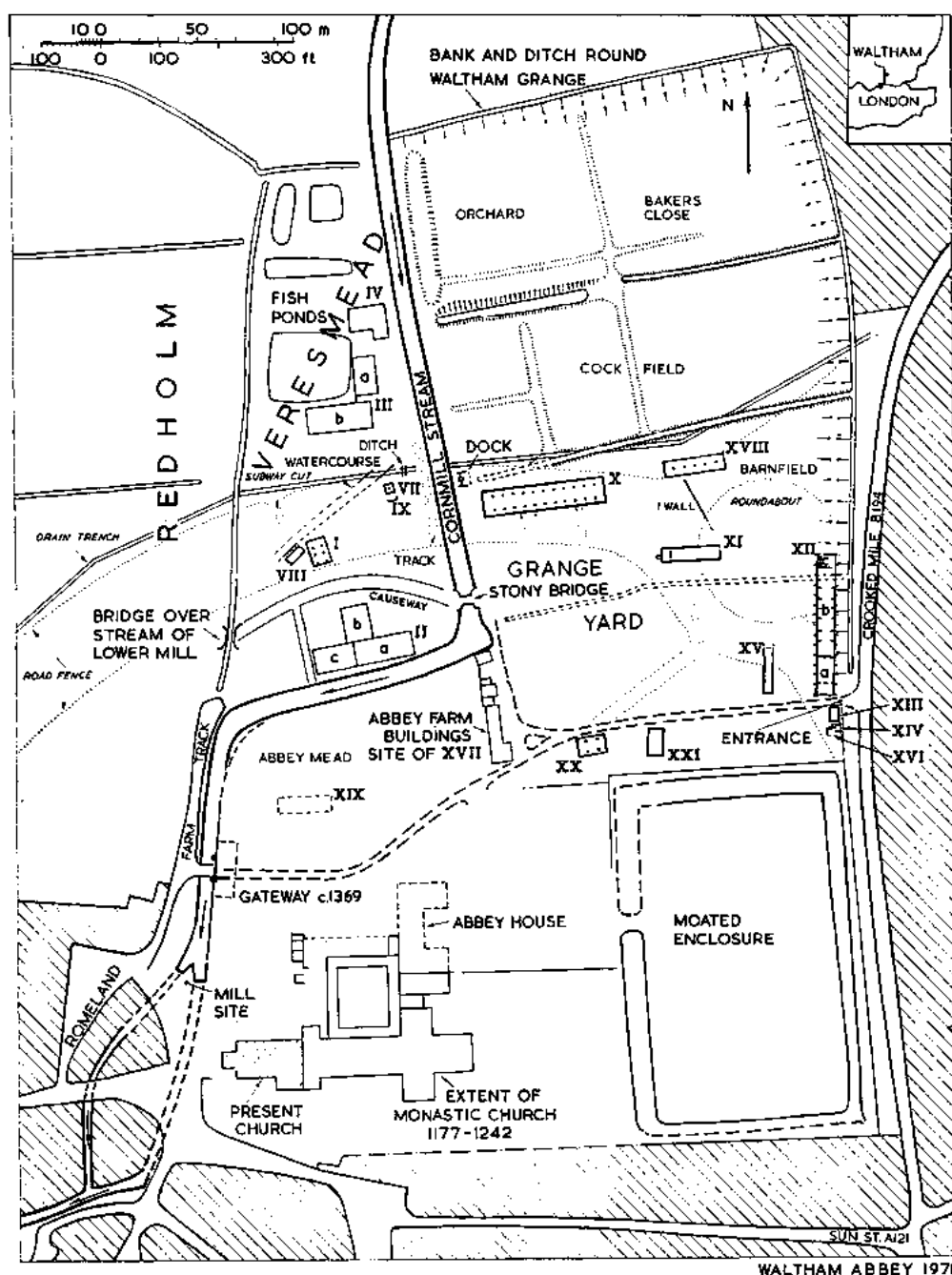


FIG. 2

## WALTHAM ABBEY, ESSEX

Waltham Grange and Veresmead: plan showing location of sites.

The excavations were carried out in two periods of two weeks, at Easter and in August 1970, prior to machine stripping of the topsoil, and continued at weekends and evenings up to October 1971. Excavation re-started in April 1972 and is continuing on Building XX.

In this account the buildings are treated singly or in associated groups. The excavated features have been given Feature numbers, e.g. F27, which are used on the plans and sections so that reference can be made to lists for details of the features and for the record of associated finds. The dock and wharf have been treated together as have miscellaneous features seen in drain and subway trenches.

Excavation of the 14th-century bridge<sup>42</sup> over the stream of the lower mill was carried out in 1968 to establish its form and extent. The road was later aligned further to the north so that the threat to the bridge disappeared.

#### BUILDING I (PLAN, FIG. 3; SECTIONS, FIG. 4; PHASES, FIG. 5; PL. 1B and 2A)

This building, timber-framed at all stages, began as a 2-bay aisled hall. Four main phases of construction are detected. The building had five successive hearths and an oven, with ash layers causing a general build up.

Prior to building, the area had been raised in level by the deposition of a layer of stony clay F11 on the underlying silt F12; a few sherds in F11 are consistent with an early monastic date for this activity. The excavation was carried out in two weeks at Easter 1970.

#### BUILDING I, FEATURE LIST (F1-F97)

FEATURE NUMBER	DESCRIPTION OF FEATURE	SIGNIFICANT FINDS
F1	NW. stylobate, 51 cm. square × 10 cm. high. Three courses remaining—1 brick, 1 roof tile, 1 brick. Central area of mortar and roof tile, 20 cm. × 21 cm. Covered by ground wall F66. Phase 1. Pl. 2A.	<i>Bricks: G108</i>
F2	NE. stylobate, collapsed to the north-east. Remains of 3 brick courses, 11 cm. high. Partly covered by ground wall F67. Phase 1.	<i>Bricks: G108</i>
F3	SE. stylobate, 51 cm. square × 15 cm. high. Five courses remaining, 1 brick at bottom, 2 roof tile, 2 brick. Central area of mortar and roof tile, 22 cm. square, covered by layer of slate. Covered by ground wall F76. Phase 1.	<i>Bricks: G108</i>
F4	SW. stylobate, 51 cm. square × 9 cm. high. Two brick courses remaining. Central area of mortar and roof tile, 21 cm. square. Covered by ground wall F76. Phase 1.	<i>Bricks: G108</i>

<sup>42</sup> Huggins, 1970.

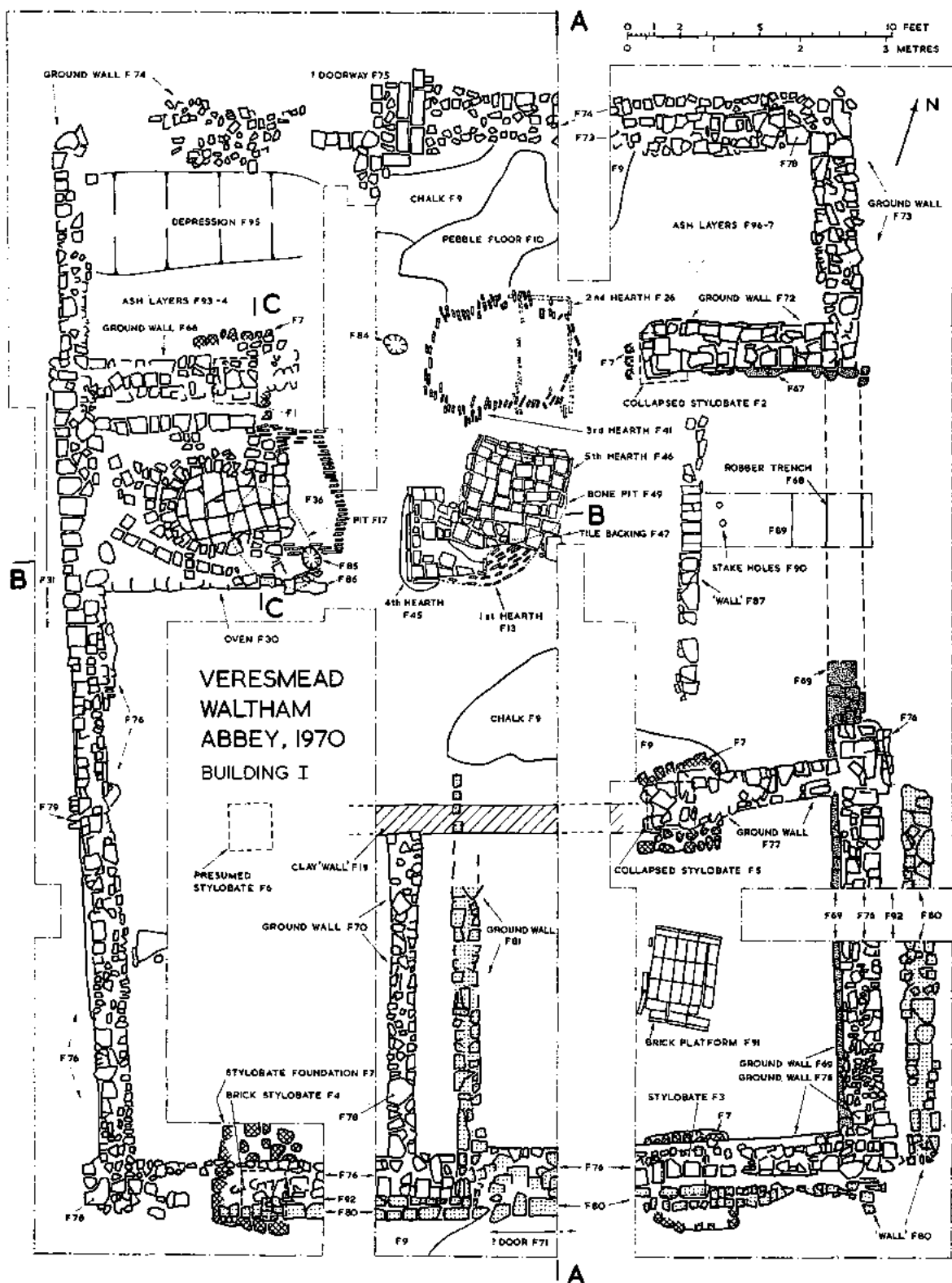


FIG. 3  
VERESMEAD, WALTHAM ABBEY  
Building I: plan of excavation (p. 37).

FEATURE NUMBER.	DESCRIPTION OF FEATURE	SIGNIFICANT FINDS
F5	Central stylobate on E. side, collapsed to the north-east. One complete brick course only remaining covered almost completely with pieces of slate. Covered by ground wall F77. Phase 1.	<i>Bricks</i> : G108
F6	Position of conjectural central stylobate on W. side. Phase 1.	
F7	Mortared chalk and flint foundations to brick stylobates F1-5. That under F1 was 90 cm. x 120 cm. x 70 cm. deep. Phase 1.	
F8	Yellow clay deposit, assumed to carry E sole-plate of the aisled hall. Pottery 1150-1250. Phase 1.	<i>Pottery</i> : 1E, 1G (no. 9)
F9	Patches of chalk forming ground level. See F10. Phase 1.	
F10	Pebble layer forming ground level. Phase 1.	
F11	Dirty yellow clay, more or less stony, 36 cm. to 51 cm. thick. Initial make-up over whole site prior to building. Pottery 1150-1250. Phase 1.	<i>Pottery</i> : 1D, 1E (no. 12), 1F
F12	Grey silt interpreted as the last flood deposit prior to deposition of F11, waterlogged.	
F13	The first hearth. Small pieces of broken roof tiles set on edge in clay F14. Phase 1.	
F14	Yellow clay, upper part more or less reddened; hearth F13 was set in it. Phase 1.	
F15	Layer of roof tile, flint and abbey stone. Phase 1.	
F16	Soft grey ash. Phase 1.	
F17	Shallow pit, grey ash+loam. Pottery 1150-1250. Phase 1.	<i>Pottery</i> : 18G (nos. 10 and 11), 2 green glazed greyware <i>Bone tool</i> (Fig. 28/1) <i>Lead</i> (Fig. 30/6), 20 pieces cane trimmings <i>Glass</i> : 2 fragments window
F18	Hard mauve and grey ash layers. Late Phase 1 or Phase 2 deposit, covers pit F17.	<i>Pottery</i> : 1G, 7H
F19	Yellow clay feature interpreted as east-west dividing wall between stylobates F5 and F6, in various stages of collapse. Phases 1 to 3.	<i>Pottery</i> : 1J, 1K
F20	Grey ash to south of hearth F13. Phases 1 or 2.	
F21	Grey ash mixed with charcoal and clay, raked to north of hearth F13. Phase 1 or 2	
F22	Dark grey ash above F21. Phase 1 or 2.	
F23	Light grey ash. Phase 2.	<i>Pottery</i> : 10D, 12H (no. 13), 9J (no. 14)
F24	Brown ash+clay. First collapse of clay wall F19 spread over it. Phase 1 or 2.	
F25	Grey ash. Potsherd could be later material trodden in.	<i>Pottery</i> : 1 buff

FEATURE NUMBER	DESCRIPTION OF FEATURE	SIGNIFICANT FINDS
F26	Second hearth. Roof tile fragments carefully laid on end in clay F27, mortared together at top. Shaped bricks used as kerb. Phase 3.	<i>Bricks</i> : SB5
F27	Yellow clay in which hearth F26 was set. Cut into Phase 1 ash deposits. Phase 3.	<i>Pottery</i> : 1D (derived)
F28	Mixture of yellow and reddened clay. Supports hearth F26. Phase 3.	
F29	Layers of ash, with charcoal, probably from hearth F26, filling a considerable 'pit' which cuts earlier layers F35 and F39. Layers separated in time by further collapse of clay wall F19. Phase 3.	<i>Pottery</i> : 5H (no. 36), 1 buff (no. 37)
F30	Oven or furnace contemporary with ground wall F31. Circular shape, 86 cm. diameter, interior oven wall remained to two courses of roof tile only. Two levels of brick floor thought to be one build. Substructure of roughly laid mortared chalk, Reigate stone, brick and roof tile. Sides of coursed roof tile, 9 courses remaining in places. Inserted in second half of 15th century. Phase 3.	<i>Bricks</i> : G194, SB1-3, 5, 7
F31	Ground wall of mortared flint and roof tile. Taken to be inserted between plinths F66 and F76. Phase 3.	
F32	Brown clay laid as foundation to oven F30 and ground wall F31. Phase 3.	<i>Pottery</i> : 4H, 1 pale buff yellow-green glaze
F33	Ash+charcoal laid as subsidiary foundation to oven F30. Pottery up to c. 1500. Phase 3.	<i>Pottery</i> : 16H (no. 22), 40J (no. 23), 1 buff green glaze
F34	(Number not used.)	
F35	Yellow clay in front of oven F30 on which F36 was set. Upper part reddened by heat. Phase 3.	
F36	Rake-out of roof tiles set on edge in clay. In front of oven F30 and as foundation to oven floor. Phase 3.	
F37	Grey ash in front of F36. Phase 3.	
F38	Hard cemented ash deposit immediately in front of oven F30. Phase 3.	<i>Pottery</i> : 1H (no. 35), 1K
F39	Grey ash raked out from oven F30 before fourth hearth F45 built and before ash pit F29 was cut and filled. Phase 3.	
F40	Hard grey ash layer left over second hearth F26. Phase 3.	
F41	Third hearth. Small fragments of roof tile laid on edge in clay F42. Phase 3.	
F42	Yellow clay in which hearth F41 was set. Phase 3.	<i>Pottery</i> : 1J
F43	Mixed ash and reddened clay. Perhaps laid at construction of hearth F41. Phase 3.	<i>Pottery</i> : 1G (no. 19), 9H (nos. 20 and 21) <i>None</i>
F44	Yellow clay in which ground wall F74 was set. Phase 3.	<i>Pottery</i> : 1K 1J (no. 18), 1 buff



FEATURE NUMBER	DESCRIPTION OF FEATURE	SIGNIFICANT FINDS
F45	Fourth hearth. Pieces of brick laid flat, set in mortar. Kerb of same bricks. Partially destroyed during construction of fifth hearth F46. Phase 4.	
F46	Fifth hearth. Pieces of brick laid flat on clay F48. Kerb of same bricks. Phase 4.	
F47	Roof tiles laid flat as backing to hearth F46. Not substantial enough for base to chimney. Phase 4.	
F48	Reddened clay foundation to hearth F46. Phase 4.	
F49	Pit, bones in ashy loam. A poor foundation to hearth F46. Phase 4.	
F50	Ash+charcoal to south of third hearth. Phase 3.	
F51	Yellow clay, support to kerb of hearth F47. Phase 4.	
F52	Grey ash associated with fourth or fifth hearth. Phase 4.	
F53	Brown ash, the latest ash deposit in centre of hall. Pottery early 16th century. Phase 4.	<i>Pottery:</i> 12M (nos. 77, 78, 83), 1 French green glazed
F54	Loam+ash+chalk. Presumably an early deposit, may have formed floor level in S. bay. Phase 1.	<i>Pottery:</i> 1J
F55	Loam+ash. Phase 1.	<i>Pottery:</i> 1J
F56	Dirty yellow clay. Probably floor in late stage. Pottery late 15th/16th century. Phase 4.	<i>Pottery:</i> 4M (nos. 56 and 82), 6K
F57-8	(Numbers not used.)	
F59	Yellow clay with roof tile fragments, outside building to south. Possibly a filled ditch or drain. Pottery late 15th/16th century. Phase 4.	<i>Pottery:</i> 6M, 1J
F60	Dirty clay outside building to north.	
F61	Clay+loam outside building to west.	<i>Pottery:</i> 1M
F62	Loam+grey ash outside building to west.	
F63	Loam with roof tiles. Destruction level outside building. Pottery could all have been in use at the Dissolution in 1540.	<i>Pottery:</i> 117M (nos. 56, 62, 69, 71, 73, 74, 76), 2L (nos. 51, 53), 3H (nos. 54, 55, 79), 14K (nos. 85, 86, 88), 1 Blue 'Malling', 2 delft, 3 Cistercian (no. 96), 5 brown glazed imports (no. 89), 2 Raeren stoneware, 9 buff (no. 103) <i>Lead</i> (Fig. 30/3) <i>Bronze</i> (Fig. 29/2)
F64	Loam with roof tiles. Destruction level inside building. Pottery as F63. See also F88.	<i>Pottery:</i> 6M, 6J, 1K, 2 buff, 1 tin-glazed (no. 93), 5 brown glaze import (no. 102) <i>Bronze</i> (Fig. 29/1) <i>Ridge tile</i> (Fig. 26/1)

FEATURE NUMBER	DESCRIPTION OF FEATURE	SIGNIFICANT FINDS
F65	Topsoil. 15-25 cm. build-up. Ground never ploughed. Pottery like that in F63 and F64. Only clearly post-Dissolution material: 2 sherds 18th century, 44 fragments pipe stem 1650-1800, 1 pipe bowl A & O 20, 1680-1710.	<i>Pottery</i> : 8J (nos. 47, 49, 50), 1L (no. 52), 175M (nos. 48, 60-66, 68, 70, 72, 75, 77, 78, 80, 81, 84, 97), 12K (no. 87), 6 buff (nos. 90, 91, 106), 7 red fine ware imports (nos. 92, 95, 100, 101, 104, 105), 1 blue 'Malling', 1 tin-glaze, 6 Raeren stone-ware (nos. 98, 99), 1 black Cistercian (no. 94) <i>Lead</i> (Fig. 30/1, 2, 7, 8) <i>Bronze</i> (Fig. 29/5-9) <i>Bone</i> (Fig. 28/2) <i>Iron</i> (Fig. 31/1, 7; Fig. 32/13, 15) <i>Counter</i> : no. 1
F66	Ground wall of mortared chalk and flint covering stylobate F1. Phase 2.	
F67	Ground wall of mortared chalk, flint and roof tile fragments overlying stylobate F2. Phase 2.	
F68	Vague remains of robber trench indicating continuation of ground wall from F67 to F69.	
F69	Ground wall of carefully laid roof tiles, taken to have existed at same time as F67. Must have continued along S. and W. sides but early ground wall not easy to distinguish from ground wall F76. Phase 2.	
F70	Ground wall of chalk, flint and roof tile fragments running north-south inside building, integral with S. plinth. Meets clay wall F19 to form SE. and SW. 'rooms'. Phase 2.	
F71	Possible doorway in S. side suggested by less substantial nature of ground wall F76. Phase 2.	
F72	Ground wall, with square W. end, overlying earlier plinth F67. Mainly roof tile, some brick and slate. Separated from F67 by ash and loam. Phase 3 or 4.	
F73	Continuation of ground wall F72 to north and west, mortared roof tile, Reigate stone and flint. Possibly overlying F74 to some degree. Phase 4.	
F74	Insubstantial ground wall at NW. and N. Butted up to earlier ground wall F66. Phase 3.	Finds in F44
F75	Large bricks, flint and tile suggest doorway in N. ground wall F74. Phase 3.	<i>Brick</i> : G136
F76	Substantial ground wall of mortared flint, Reigate stone, roof tile and brick fragments. Built over F69 at south-east, continuing round S. and W. sides. Phases 2 and 3.	

FEATURE NUMBER	DESCRIPTION OF FEATURE	SIGNIFICANT FINDS
F77	Turned ground wall on E. side with squared W. end like F72. Mortared flint, roof tile and brick fragments with slate remaining like F72. Phase 4.	<i>Brick</i> : SB8
F78	Essex Puddingstone lumps. At SW. corner, at NE. corner and internal ground wall F70. Phases 2 and 3.	
F79	Flint foundation to possible blocked doorway in W. side.	
F80	'Wall' of broken brick, roof tile and Abbey stone forming outer skin to ground wall F76. Remained at SE. and along most of S. side. An additional feature rather than replacement, perhaps a defence against flooding. Phase 4.	<i>Bricks</i> : f95, SB4
F81	Internal plinth remaining to higher level than F70 which it replaced. Integral with F80. Overlay clay wall F19. Phase 4.	<i>Stone</i> : no. 3
F82-3	(Numbers not used.)	
F84	Shallow post hole, 25 cm. diameter, at W. side of hearth F41. A companion on E. side could not be found.	
F85	Post hole at side of oven rake-out, 23 cm. diameter. Phase 3.	
F86	Remains of mortared roof tile at entrance to oven. Phase 3.	
F87	Insubstantial 'wall' partially closing E. entrance. Bricks, flint and Abbey stone. Phase 4.	
F88	Destruction level, loam with tiles, in E. opening.	<i>Pottery</i> : 8M (no. 57), 1J (no. 38), 2 buff, 1 brown imported, 2 black surface <i>Pottery</i> : 9M
F89	Extent of hard grey ash into E. opening. Pottery as F88. Phase 4.	
F90	Two 8 cm. diameter stake holes in ash F89. Possible predecessor to blocking F87. Phase 4.	
F91	Square platform, one course of bricks, in SE. corner. A late feature, use uncertain. Phase 4.	
F92	Gap between Phase 3 ground wall and outer 'wall' F80, filled with loam. Pottery as F63. Phase 4.	<i>Pottery</i> : 1 M (no. 59), 1K, 1J, 1 black surface
F93	Grey ash in NW. compartment. Pottery trodden into surface. Phase 3.	<i>Pottery</i> : 25J (no. 34), 14H (no. 30), 2 buff (nos. 31, 33), 1 redware import (no. 32) <i>Pottery</i> : 49H (nos. 24-29), 1J
F94	Reddish ash in depression in F93. Phase 3.	<i>Pottery</i> : 1K; 10 sherds of no. 39
F95	Shallow depression in NW. compartment, filled with clay+loam+roof tile. Phase 3.	<i>Pottery</i> : 17H, 1L (no. 40), 9J (nos. 41-42), 11K
F96	Grey ash in NE. compartment. Presumed after ground wall F72/73 built. Phase 3.	<i>Lead</i> (Fig. 30/4) <i>Counter</i> : no. 2
F97	Mixed ash+clay under F96. Extends under ground wall F73. Phase 2.	<i>Pottery</i> : 18H (nos. 16-17), 1J (no. 15) <i>Iron</i> : cleaver

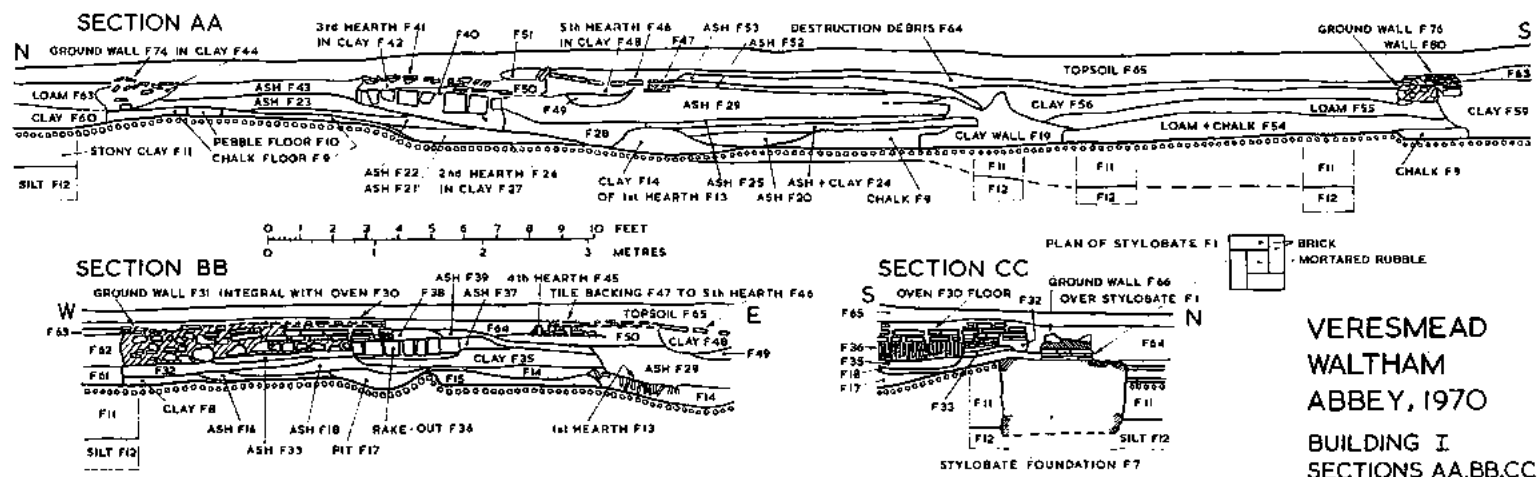


FIG. 4  
VERESMEAD, WALTHAM ABBAY  
Building I: sections AA, BB and CC, for location see FIG. 3 (p. 38).

## BUILDING I, PHASES OF CONSTRUCTION

The four phases of construction illustrated in FIG. 5 are based on major changes in ground plan. The dating of the early phases is not firmly established since very little pottery was found in these levels. A logical relationship between the hearths and the ground plan is assumed.

*Phase 1*

The earliest structural features detected were brick bases or stylobates to support the principal posts of a two-bay aisled hall. Five such bases, F1-5, were seen; a sixth must have existed in the unexcavated area. The bricks (Appendix 3) were laid to form bases 0.51 m. square (PL. 2A) and were set on mortared chalk and flint foundations F7 (FIGS. 3 and 4/CC). Trial trenches to the north and south showed there were no further stylobates there.

The side walls of the building were presumably carried on timber sole plates of which no evidence remained. Such sole plates would have been laid on the layer of clay F8 (FIG. 4/BB). The ends of this building left no trace and may

## BUILDING I

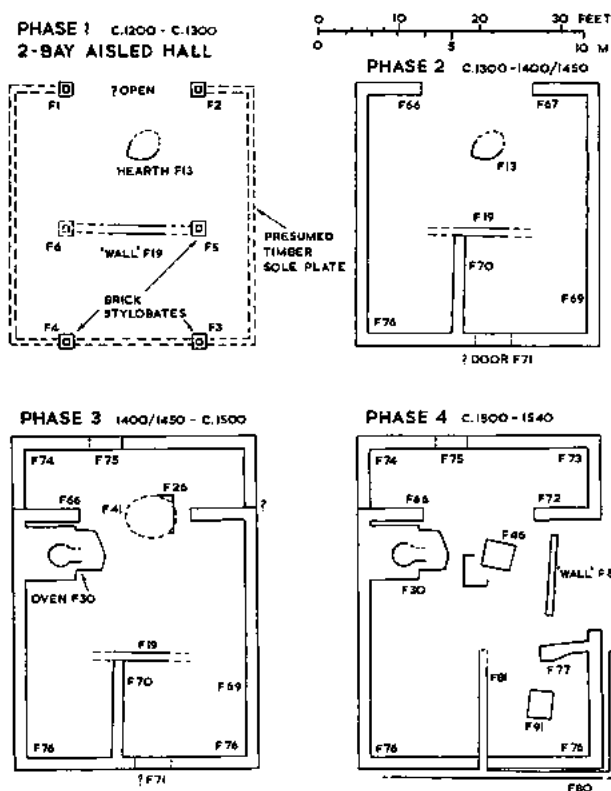


FIG. 5  
VERESMEAD, WALTHAM ABBEY  
Building I: phases of construction (p. 45).

have been partially open; this is certainly suggested at the N. end where ash layers accumulated (FIG. 4/AA) between the stylobates.

Deposits of chalk debris F<sub>9</sub> on the site make-up material F<sub>11</sub> are Phase 1 deposits. These deposits, possibly waste from the construction of the stylobate foundations, would have formed the ground level both inside and outside the hall. To the north there was a layer of pebbles (F<sub>10</sub>) at the same level.

The N. bay, with its central hearth F<sub>13</sub> was cut off from the S. bay by a clay 'wall' F<sub>19</sub> which is interpreted as being in various stages of collapse (FIG. 4/AA). The N. and S. bays, measured from stylobate centres, were 5.2 m. (17 ft.) and 4.3 m. (14 ft.) long respectively. Ash layers in the N. bay, probably scraped from the first hearth F<sub>13</sub>, are F<sub>20-3</sub> (FIG. 4/AA), F<sub>16</sub> and F<sub>18</sub> (FIG. 4/BB); at least the lowest of these can be attributed to Phase 1. A shallow pit F<sub>17</sub> (FIGS. 3 and 4/BB) contained leaded window fragments and window glass; together with a large lump of lead came debris in F<sub>16</sub>; this may suggest that window making was one of the first activities carried on, perhaps only for the windows of the building itself.

Sherds in the first deposits indicate a date of 1200  $\pm$  50 years for the initial use of the building. The date of construction is likely to be after 1177 (Documentary) and the stylobate bricks can date from the end of the 12th century so that a building date of c. 1200 is suggested. The end of the phase is taken to be the collapse of the building towards the north-east, as evidenced by the sinking of the stylobates F<sub>2</sub> and F<sub>5</sub> in that direction; this could have occurred c. 1300 (see Phase 2).

#### *Phase 2*

The collapsed stylobates were not repaired so that the aisled hall must have been superseded and new timber trusses made which spanned the width without recourse to aisle posts. A ground wall of mortared stone, flint and roof tile for the timber frame defined the extent of the building; this ground wall, labelled F<sub>66</sub>, F<sub>67</sub>, F<sub>69</sub> and F<sub>76</sub> overlay the stylobates F<sub>1-4</sub> (F<sub>76</sub> is thought to have served in Phase 3 as well). On the E. side a robber trench F<sub>68</sub> showed that the ground wall had existed there. Where seen in section (FIG. 4/AA) the ground wall F<sub>76</sub> was particularly insubstantial and may indicate the presence of a doorway F<sub>71</sub> in the S. end. No ground wall closed the N. end.

Internally the clay 'wall' F<sub>19</sub> seems to have been retained and a ground wall F<sub>70</sub> built to meet it, thereby defining two small 'rooms' at the south. The original hearth F<sub>13</sub> is taken to have been retained and the upper ash deposit F<sub>23</sub> is judged a Phase 2 level. Pottery in F<sub>23</sub> could extend into the 15th century and in F<sub>97</sub> is dated late 14th/15th century so that the end of Phase 2 in the first half of the 15th century is suggested. If all the pottery in F<sub>23</sub> is representative of Phase 2 then it may have started c. 1300.

#### *Phase 3*

The phase 2 building, 9.7 m. long by 9.1 m. wide overall, was lengthened by the addition of a northern compartment 2.7 m. broad externally. It is taken

to be logical that the second hearth F26 was constructed at this time. The third hearth F41 is also included in this phase for the same reason.

The northern compartment was defined by a ground wall F74 butting up to the Phase 2 ground wall F66. At the north-east the ground wall F73 and F72 was more substantial and may represent Phase 4 activity. Medieval bricks in the N. end are taken to represent a doorway F75 there. The ground wall F74 was set in clay F44 (FIG. 4/AA) and pottery therein is consistent with a date of 1400/1450. The ash F43 (FIG. 4/AA) is likely to be a Phase 3 deposit and contains pottery which could last until c. 1500.

The oven F30 with integral ground wall F31 is presumed to be inserted between the ground walls F76 and F66 although there was no physical evidence of this insertion. Sherds in the clay F32 and in the ash F33 under the oven (FIG. 4/BB) could last to c. 1500. The oven rake-out foundation clay F35 and the oven ash F39 were both cut through by the digging of the pit filled with ash F29 but this ash underlay the third hearth. Hence because of the stratigraphy the oven is taken to be a Phase 3 insertion.

#### *Phase 4*

In the fourth and final phase an opening was made in the middle of the E. side by the removal of the Phase 2 ground wall there. It is assumed that the fourth hearth F45 facing south was constructed at this time. This was replaced by the fifth hearth F46, facing north, of similar brick construction but with a tile backing F47.

The making of the opening on the east seems to have involved both the rebuilding of the remaining E. side ground wall and the construction of inturned ground walls F72 and F77 to the north and south of the entrance respectively. Both these ground walls included slate and were of the same form; F72 overlay the earlier ground wall F67 and was separated from it by a layer of ash and loam; F73 was probably of the same build; F77 was a new ground wall built across the stylobate F5, it continued to the south as F76 which clearly overlay the Phase 2 ground wall F69. The rest of the ground wall F76 was possibly built at this time but probably contained Phase 2 work as well.

A 'wall' or windbreak F87 across the E. opening possibly succeeded a 'fence' which may be represented by the two stakeholes F90. The brick platform F91, from the appearance of the bricks, is a late feature.

The Phase 4 ground walls were at a higher level than the earlier ones and may represent a drastic repair to the building or be a response to flooding possibly due to the raising of the water level in the nearby Cornmill stream. A further late feature, the 'wall' F80 around the S-E. corner, may also have been built in response to flooding. This 'wall' was continued along the S. side and turned in the assumed doorway F71 as an internal ground wall F81; F81 presumably superseded the nearby ground wall F70, it overlay the remains of the clay 'wall' F19.

The latest ash deposits are F52 and F53, the latter with sherds of the early 16th century. Pottery in the 'ditch' F59 under the 'wall' F80 suggests a similar

late date. Pottery in the destruction levels F63, F74 and F88 and in the lower topsoil F65 is all consistent with destruction of the building at the time of the Dissolution in 1540. The final phase is therefore a short one from *c.* 1500 to *c.* 1540.

#### SUMMARY OF BUILDING I

<i>Phase 1</i>	2-bay aisled hall	<i>c.</i> 1200– <i>c.</i> 1300
<i>Phase 2</i>	new timber frame	<i>c.</i> 1300–1400/1450
<i>Phase 3</i>	extended to north	1400/1450– <i>c.</i> 1500
<i>Phase 4</i>	opened to the east	<i>c.</i> 1500– <i>c.</i> 1540

#### BUILDING I, DISCUSSION

The Phase I building is comparable in plan with the two-bay aisled halls known as Fyfield Hall and Lampetts,<sup>43</sup> both in the parish of Fyfield, some 12 miles ENE. of Waltham. At Waltham the N. and S. bays are of different lengths. A difference in bay lengths at Lampetts has been attributed<sup>44</sup> to the inclusion of a screens passage within the longer bay, but at Waltham the explanation may lie in the desire to keep the hearth away from aisle posts. A date of *c.* 1300 is suggested for Fyfield Hall but at Waltham the construction is dated to *c.* 1200. In Phase I the sole plates are assumed to have been laid on clay, this primitive method of setting sole plates in the ground is exemplified in the 13th century at Weoley Castle.<sup>45</sup> In Phase 2 the use of free-standing principal posts was abandoned; roof development generally precluded the need for aisle posts after the 14th century.

The building was timber framed at all stages, the only evidence of infilling was a piece of cob in F95 and a fragment of lath and plaster in F64. No constructional timber remained, although a possible doorway timber<sup>46</sup> was dug out by machine from swampy ground just to the north of the building. One piece of ornamental ridge tile in F64 (Appendix 5) may indicate the existence of a decorated ridge. One fragment of hip tile was found in F19. Slate was used in the construction of the stylobates and in the Phase 4 ground walls (Appendix 4). The early use of bricks in Essex is well known (Appendix 3).

The building could have had several uses during its life of about 350 years. The considerable build-up of ash and the wide openings, first to the north and then the east, suggest intensive use of the hearths and oven and the need for ventilation.

Some 400 sherds were found in the destruction levels and lower topsoil including dishes, bowls, jugs, pipkins and drinking vessels. This pottery was close to the walls as if stored on wall shelves. Sherds of a vessel (FIG. 20/39) which appears to copy a metal cauldron, were found in a Phase 3 level F95. There were

<sup>43</sup> Internal dimensions are: Fyfield Hall 12.2 by 9.0 m.; Lampetts ?12.2 by *c.* 7.3 m., from Wood, 1965, 46. The equivalent Waltham measurements are 9.1 by 8.3 m.

<sup>44</sup> Smith, 1955, 84.

<sup>45</sup> Oswald, 1962–3, 109–34. In Period III, *c.* 1230, the wooden building described was converted into a two-bay aisled hall with principal posts set in post-holes.

<sup>46</sup> An oak member 18 cm. square with integral arched top suitable (?) for a doorway some 2 m. high by more than 0.8 m. wide.



325 food-animal bones, 78 fowl bones, 175 oysters, 36 mussels, 15 cockles and 7 fish bones, mostly in the later levels. Some 400 nails, probably from the rafters, were recovered; the presence of 32 other iron objects (Appendix 12) including a cleaver and 6 knives, is not taken to indicate their manufacture therein. The lead drain cover (FIG. 30/1) could be part of a plumbing system. The above facts need to be borne in mind when uses for the building are suggested.

#### BUILDINGS II, III and IV (LOCATION, FIG. 2)

These buildings, all in Veresmead, have been seen as cropmarks, but as they were not threatened by the roadworks, they have not been excavated. Building II, in the south, appears to be about 53 m. (170 ft.) long by 9.1 m. wide internally; at the east stylobates show it to be an aisled building of bay length about 4.3 m. Buildings III and IV, both in the north by the fishponds, show as very complex crop marks. The arm IIIa may be a 3-bay aisled building with returns, some 18 m. long by 11 m. wide with a bay length of about 4.3 m.

#### BUILDINGS VII and IX (PLAN, FIG. 6)

Building VII, timber framed on a ground wall, was 4.7 m. square. It superseded building IX, 6.4 m. diameter, probably of mortared flint and stone. Investigation, in September 1970, followed discovery after topsoil stripping from IX and the S. part of VII. The rest of the ground wall of VII was uncovered and narrow trenches, A and B, were dug to sample the stratigraphy.

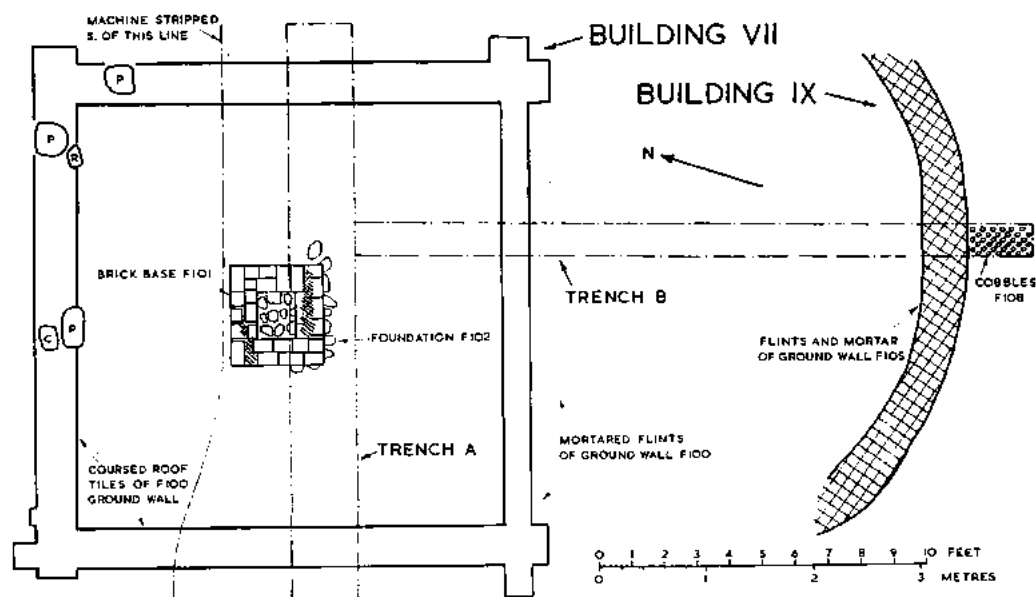


FIG. 6

VERESMEAD, WALTHAM ABBEY

Buildings VII and IX, dovetails: plan of excavation (p. 49).

## BUILDINGS VII AND IX, FEATURE LIST (F100-F107)

FEATURE NUMBER	DESCRIPTION OF FEATURE	BUILDING	SIGNIFICANT FINDS
F100	Ground wall of coursed and mortared roof tiles with lumps of Essex puddingstone (P), chalk (C) and Reigate stone (R)	VII	
F101	Central brick base to potence, 2 courses remaining, 90 cm. square. Recess in centre 35 cm. × 43 cm.	VII	<i>Bricks: f95</i>
F102	Flint and Reigate stone foundation to F101	VII	
F103	Clay with tiles, floor level	VII	<i>Pottery: 1A, 4D, 2G, 3 J Slate and plaster fragments</i>
F104	Clean yellow clay under buildings	Both	
F105	Flints and mortar, one remaining course of circular building.	IX	
F106	Clay with chalk under F105	IX	<i>Pottery: 17D (no. 1), one vessel</i>
F107	Topsoil	VII	<i>Slate fragments</i>
F108	Small cobbles to S. of foundation F105	IX	

## BUILDINGS VII AND IX, DISCUSSION

The ground wall F100 of the square building VII would have supported the sill of a timber-framed structure. The ground walls were extended in a random manner at the corners to provide extra stability there, these extensions are presumed not to have been visible above ground. The brick base F101 is likely to have supported the pivot for a vertical timber potence, a structure with arms carrying a ladder which could be rotated to provide access to the nesting boxes of doves. Potences are known in square dovescotes<sup>47</sup> as well as in circular and octagonal ones. The size of building VII is consistent with its identification as a dovescote.

The remains of the circular building IX were superficial and consisted of one course of flints and mortar F105 for the S. quadrant only. From the relative positions, VII must have superseded IX and is likely to be an earlier dovescote although no remains of a potence base was found. Probably flint or stone above ground, the walls would have been smooth plastered to discourage climbing by rodents, but no evidence of this remained. The foundation was only 0.46 m. wide compared to 0.9 or 1.2 m. often reported<sup>48</sup> for the walls of dovescotes, but perhaps the full width was not attained in the surviving course.

Pottery, in the clay F106, under the remains of the circular cote, is tentatively

<sup>47</sup> Examples in Essex are at Great Bardfield Hall and at West Tilbury Hall. In cotes at High House, West Thurrock and at Wendon Lofts, both octagonal, the potence was supported on brick 'tables'; Smith, 1931.

<sup>48</sup> Several examples in Cooke, 1920 and in Smith, 1931. Also Curnow and Thompson, 1969, 105-27.

dated 1050-1150 and suggests that the building could be as early or earlier<sup>49</sup> than the nearby building I which is dated from c. 1200.

From the evidence of the bricks, if original, in the base F101 the square cote<sup>50</sup> can be dated to the 15th century. There is no evidence to suggest it survived the Dissolution. It is not shown on the c. 1500 map although it appears that the name Dovehouse Close survived (Documentary). Fragments of slate in F107 and in the ditch to the north-east (FIG. 2) suggest this material was used for roofing or in nesting box construction.

#### SUMMARY

*Building IX* 1050/1150 to 15th century

*Building VII* 15th century to c. 1540

#### BUILDING VIII (PLAN AND SECTION, FIG. 7)

This timber-framed building, in Veresmead, on a brick and tile ground wall measured 10.7 by 4.7 m. Investigation, in September 1970, followed discovery after topsoil stripping. The damaged remains were cleaned up for recording and a narrow trench was dug across the building to establish the stratigraphy.

#### BUILDING VIII, FEATURE LIST (F110-F117)

FEATURE NUMBER	DESCRIPTION OF FEATURE	SIGNIFICANT FINDS
F110	Ground wall for timber sill. Sides constructed of 2 rows of part bricks, up to 2 courses remained, mortared and set on roof tile fragments. SW. end mainly roof tile fragments. NE. end destroyed, leaving only mortar spread.	<i>Bricks</i> : f95
F111	Length of ground wall on NW. side incorporating chalk (C) and Kentish ragstone (K) blocks. Probably to stabilize ground wall and/or block a doorway.	
F112	Floor make-up inside building of loam and clay with roof tile fragments. Pottery indicates 15th century date.	<i>Pottery</i> : 30J, 1 French green glazed
F113	Yellow clay foundation to ground walls. Two jug sherds probably 15th century.	<i>Pottery</i> : 1D (derived), 2J
F114	Ash deposit with some clay. A pre-building level. Pottery 13th to 14th century, burnt.	<i>Pottery</i> : 12H (no. 67), 4J
F115	Loam with snail shells. A pre-building level.	<i>Pottery</i> : 2D (no. 43), 1F (no. 44), 7J
F116	Dirty brown clay underlying building.	<i>Pottery</i> : 6H (nos. 45-46), 8J
F117	Loam with roof tiles, destruction deposit outside building. Pottery late 15th to 16th century.	<i>Pottery</i> : 28M (no. 58), 19J, 1 Raeren, 2 Surrey, 1 Dutch? bowl (no. 69)

<sup>49</sup> The oldest standing dovecote is at Garford, Hereford dated 1326; Cooke, 1920, 46. The earliest reference to the erection of dovecotes is 1214-29 on Evesham Abbey manor; Smith, 1931, 60. Accommodation for pigeons on castle keeps is known as early as 1126 at Rochester; Smith, 53. The first Essex reference is at the manor of Feering in 1289; Smith, 60.

<sup>50</sup> The cote at Sibley's Farm, Chickney, is square in plan and is timber framed, partly weatherboarded, partly lath and plaster, and is probably 15th century; it is the earliest cote standing in Essex; see Smith, 1931, 63.

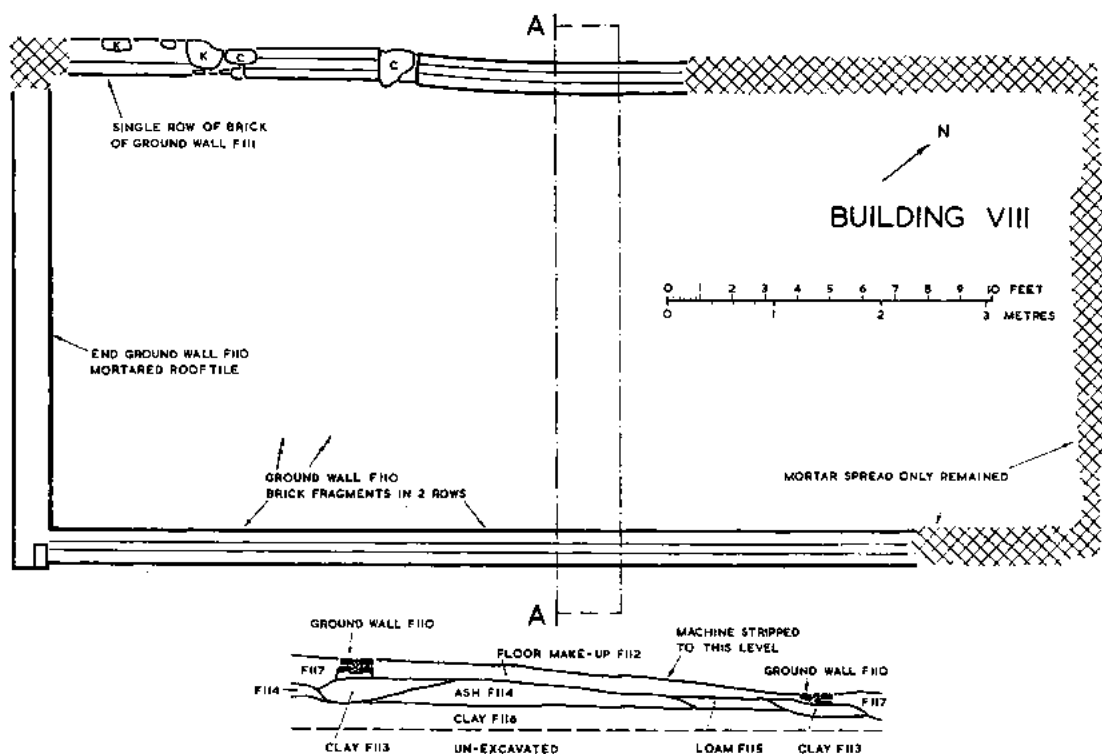


FIG. 7

## VERESMEAD, WALTHAM ABBEY

Building VIII: plan of excavation and section AA (p. 52).

## BUILDING VIII, DISCUSSION

The building was aligned along the bank of the medieval watercourse which ran approximately north-east to south-west across Veresmead (FIG. 2 and p. 35); peat was seen therein at a depth of some 2.1 m. below the level of the remains of the building. The position resulted in part of the ground wall F111 slipping to the north-west. The alignment of the building indicates that it postdates the watercourse and the presence of the peat suggests the watercourse went out of use and became stagnant before being filled in.

The N. corner was less than 1.2 m. from the Phase 2 NW. corner of building I. No internal features remained to suggest a use for the building, it may have been a store for some process carried out in building I. The land on which it was built had been raised by disposal of ash and pottery F114, presumably from building I.

A considerable amount of pottery was found in the narrow trench dug across the building. Some 40 sherds were found in pre-building deposits, 35 in building levels and 51 in destruction deposits. A 15th-century date is suggested for the construction and *c.* 1540 for the destruction.

## BUILDING X (PLAN, FIG. 8; SECTIONS, FIG. 9; PL. 2, B-D)

This 12-bay timber-framed aisled barn, which measured 64 m. (210 ft.) by 12.8 m. (42 ft.), lay at the north-east of Grange Yard and gave its name to Barnfield when this field was formed c. 1826. It lasted, in a shortened form, until c. 1840. It was referred to as the Abbey Great Barn in 1740 and as the Tithe Barn in 1826 (Documentary).

The building was not investigated until the eastern nine bays on the S. side had been stripped of topsoil; the remains are thus fragmentary on this side. Elsewhere topsoil and debris were removed by hand to recover the plan. Small trenches A to E were dug to investigate constructional features; sections AA to EE (FIG. 9) illustrate these features. The excavation took place from September to November 1970.

## BUILDING X, FEATURE LIST (F120-F165)

The 22 stylobate foundations are of two basic types, these are numbered F120 (PL. 2B) and F122 (PL. 2C); the separate foundations have been numbered in pairs from the east, so that F120/2N, for instance, refers to the *second* foundation on the *north* side which is of the F120 type.

## BUILDING X, FEATURE LIST (F120-F165)

FEATURE NUMBER	DESCRIPTION OF FEATURE	SIGNIFICANT FINDS
F120	Four eastern pairs of stylobate foundations 1.2/1.5 m. square. Rough-hewn chalk lumps set in yellow clay. Foundation 2N was 61 cm. deep, 4N was 50 cm. deep, set on clay. Foundations 1N, 3N, 3S, 4N, 4S incorporated mortared flint sub-base for stylobates F121. Foundations 2N, 3S repaired with brick and stone. Phase 1. Pl. 2B.	
F121	Stylobates or bases, c. 61 cm. square, for principal posts. Medieval bricks mortared in courses. Two courses, presumed original, remained in bases 1N and 4N, fragments remained in 3N, two re-laid courses remained in 4S. Phase 1. Pl. 2B.	Bricks: G168
F122	Seven western pairs of stylobate foundations, 75 cm./1.05 m. square. Mortared chalk blocks laid in rough courses with top course of rough-hewn Kentish rag-stone. Foundations 6N, 6S, 9S about 61 cm. deep set on natural clay or gravel. Foundation 8N was 1.4 m. deep, see F163. Phase 2. Pl. 2C.	
F123	Remains of original ground wall of mortared flints set on clay F153. Bays 1 to 5 on north and E. end. Repaired with roof tile and bricks. Phase 1. Pl. 2D.	Roman tegula: fragment
F124	Repaired ground wall of bricks, tile and Abbey stone, remains fragmentary. Bays 6 and 7 on N. side, see F131.	Brick: G338

FEATURE NUMBER	DESCRIPTION OF FEATURE	SIGNIFICANT FINDS
F125	Ground wall of carefully coursed roof tile. Up to 10 mortared courses remaining. Bays 9 to 12 both N. and S. sides and W. end, may represent a re-building of these bays, see F158.	
F126	Repaired ground wall of flint, stone, tile and brick, some good edges remaining. Bays 1, 2, 4, 5, 6 on S. side. Represents several periods of repair.	
F126A	Ground wall completely scraped away. Bay 7, S. side.	
F127	Ground wall return, bay 8 S. side, defining doorway F128. Phase 2?	
F127A	Vaguest suggestion of a pair to F127.	
F128	Doorway, 5 m. wide, into south side of Bay 8. Entrance for carts to presumed threshing floor. Phase 2.	
F129	Grand wall of flint, stone, tile. Added to enlarge porch, S. side of Bay B. Evidence of its pair completely destroyed.	
F130	Abbey stone and brick taken to represent blocking of N. door to bay 8.	Stone: no. 6
F131	Two pieces of tracery in ground wall F124, N. of bay 6.	Stone: no. 10
F132	No remains of ground wall or gravel F133 suggests doorway at S. side of bay 3. Phase 1.	
F133	Gravel foundation to ground wall F126 stretching across S. side of bays 4 and 5, different from any other ground wall foundation seen. Probably delimits extent of a particular ground wall repair.	
F134	Ground wall of brick, roof tile and Abbey stone, presumably porch to doorway at S. side of bay 3. Re-entrant arm may be part of unrecognized feature.	
F135	Position at N. side of bay 3 where doorway would be expected.	
F136	Post-plate ground walls of brick, 46 cm. wide, up to 3 courses remaining, set on clay with some flints under. At positions 1N to 3N only. At 1N bricks overlay medieval bricks of stylobate F121. Phase 3. Pl. 2B.	Bricks: f95
F137	Post-plate ground walls of coursed roof-tile fragments, 46 cm. wide, up to 7 courses remaining. Firm evidence at positions 5N to 10N and 10S, slight remaining evidence at 8S, at 9S mostly replaced by F138. In places clearly overlaid stylobate foundations F122, in others very badly aligned. Phase 3. Pl. 2C.	
F138	Blocking between bays 9 and 10. Large blocks of Abbey stone, medieval brick and roof tile. Interpreted as end ground wall to barn when shortened to bays 1-9. Phase 4.	Bricks: G160, G197
F139	Rough blocks of Abbey stone assumed to go right across bay 10. Interpreted as ground wall of lean-to to shortened barn, see F138. Phase 4.	
F140	Short ground wall of Abbey stone and roof tile probably defining doorway F141. Phase 4.	

FEATURE NUMBER	DESCRIPTION OF FEATURE	SIGNIFICANT FINDS
F141	Gap in ground wall F125 in bay 10. Seen as doorway cut through F125 into lean-to, see F139. Phase 4.	
F142	Line of bricks, 1 course only, in bay 10. A dividing feature in the lean-to, see F139. Phase 4.	<i>Bricks</i> : nearest f77 but thicker
F143	Rubble deposit as track into bay 8 of barn. Phase 2?	<i>Stone</i> : nos. 4-5
F144	Chalk debris filling rut by F143. Phase 2?	
F145	Metalled yard, cobbles and rubble round W., S. and E. of barn. At E. end 15 cm. deep with post-medieval rubbish and large flints set in clay. Much early 19th century pottery to S. of bays 1 to 5.	<i>Pottery</i> : 1F
F145A	Clay under F145 at E. end. Phase 1.	<i>Pottery</i> : 1D (no. 7)
F146	Close-packed chalk and flints under F133.	
F147	Yellow-brown clay with tile fragments. Deposited to form ground level inside bays 1 to 5 of barn.	<i>Pottery</i> : 4X, 1 coarse buff green glazed, 2D
F148	Clay, loamy at top, ground level before barn built.	<i>Pottery</i> : 1F, 1 Saxon grass-tempered <i>Iron</i> (Fig. 32/3) <i>Iron</i> (Fig. 32/7) <i>Clay pipe</i> : A and O 27, 1780-1820 <i>Coins</i> : no. 7, 1733; no. 8, 1740-54 <i>Clay pipes</i> : A and O 12 1640-70; 20, 1680-1710 <i>Pottery</i> : 1 mid-17th century. Bellarmine neck and mask <i>Piece of hip tile</i>
F149	Topsoil remaining, where not mechanically stripped, A Bays 1 to 5 B Bays 6 to 9  C Bays 10 to 12	
F150	(Number not used.)	
F151	Tile and brick rubble. Destruction of ground walls.	
F152	Roof-tile fragments in dirty clay. Possibly ground level to north of barn.	
F153	Brown clay. Foundation deposit in which flints of original ground wall F123 set. Sherd J is very small, painted white, clear glaze, fine redware. Phase 1.	<i>Pottery</i> : 1D (no. 8), 1J
F154	Weathered clay under F123. Formed ground surface before barn built. Probably same as F148.	<i>Pottery</i> : 6X
F155	Dirty clay under roof tile fragments. Associated with building of ground wall F123.	<i>Pottery</i> : 1F; 1 Saxon grass-tempered
F156	Light gravel spread under part of ground wall F123. Phase 1.	
F157	Grey silt under F123.	
F158	Flints and chalk set in distinctive white mortar. Interpreted as an early ground wall under F125. Phase 2.	
F159	Yellow-brown clay under F158.	<i>Pottery</i> : 1D, 2X
F160	Loamy clay. Formed ground surface inside bay 12. Phase 2.	<i>Pottery</i> : 1J (like F153)
F161	Layer of cobbles running across foundation F122/8N. Possible surface of track established after western bays demolished.	

FEATURE NUMBER	DESCRIPTION OF FEATURE	SIGNIFICANT FINDS
F162	Clay filling construction trench by base 8N. Phase 2.	
F163	Chalk lumps laid in water worn stones. Extra deep foundation material at position 8N due to unsatisfactory nature of F165. Phase 2.	
F164	Hard pan at side of F163.	
F165	Grey silt into which foundation F122/8N was set.	

#### BUILDING X, PHASES OF CONSTRUCTION

The ground wall of this 12-bay timber-framed barn was of heterogeneous form, there were two styles of stylobate and the post-plate ground walls and cross walls were clearly added features; all this indicates much change in its life of some 600 years. Five main phases<sup>51</sup> of development are postulated:

- Phase 1* original 5-bay barn
- Phase 2* addition of 7 western bays
- Phase 3* insertion of post-plate ground walls
- Phase 4* demolition of 3 western bays
- Phase 5* further reduction at W. end to 5 or 6-bay form.

To substantiate the phases of construction the measurements of the bay lengths are given (these are from estimated principal post centres and end ground-wall centres):

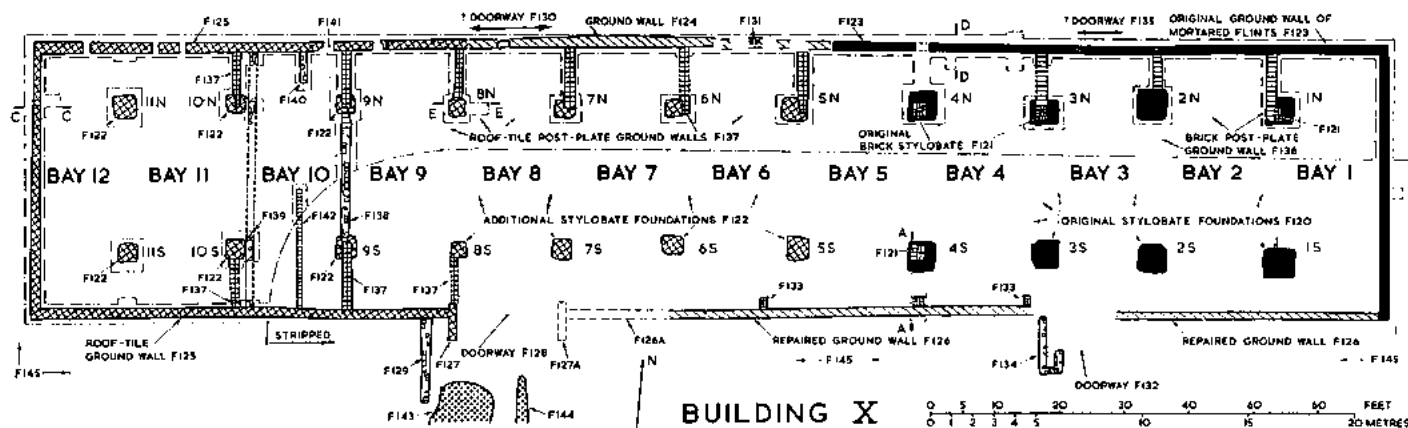
Bay 1	4.9 m.	(16 ft.)
2 to 4	average 5.6 m.	(18 ft. 4 in.)
5	5.5 to 5.8 m.	(18-19 ft.)
6 to 11	average 5.2 m.	(17 ft.)
12	4.3 m.	(14 ft.)

#### *Phase 1*

The average length of bays 2 to 4, with the large stylobate foundations F120 (PL. 2B), is significantly greater than that of bays 6 to 11 with the smaller foundations F122 (PL. 2C). This must indicate different periods of construction, as indeed is suggested by the differences in the foundations themselves (Feature List). Bay 1 is significantly shorter and indicates that it is a return bay with hipped roof. The intermediate bay 5 would, by symmetry, be a return bay in this phase; however, no remains were found of an end ground wall to define such a bay. The ground wall, for the timber sole plate, remaining around bays 1 to 5 was much repaired and is described under numbers F123 and F126. This ground wall was sectioned in three places. The two sections (FIG. 9/BB and 9/DD) on the N. side, although only 3 m. apart, show different foundation layers whereas the opposite ground wall on the S. side (FIG. 9/AA) is of completely different form. The ground wall F123 on the N. side of bays 1 to 5 (PL. 2D) has the common feature

<sup>51</sup> At South Witham, Lincs., in 150 years, there were 'at least 7 different phases of construction'; see the description of the 'Preceptory of the Knights Templar', *Current Archaeology*, 9 (July 1968), 232-7.





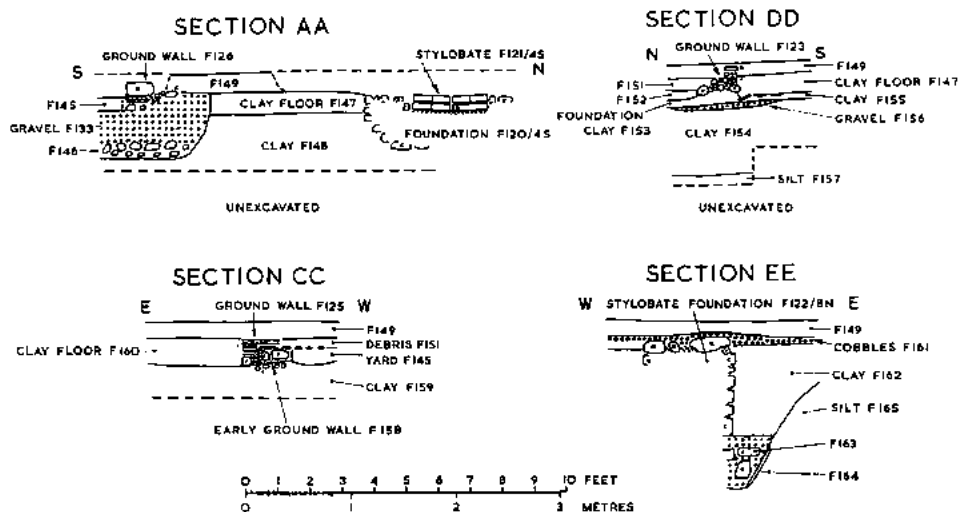


FIG. 9

## GRANGE YARD, WALTHAM ABBEY

Building X: sections showing constructional features, for location see FIG. 8 (p. 57)

of basal flints set in clay F153 and is taken to be original and to define the N. side of the Phase 1 5-bay barn about 28 m. (90 ft.) in length. On the S. side the gravel foundation F133 was found to stretch over bays 4 and 5, and slightly beyond, and may denote a re-build over this length. However, its eastern extent supports the idea of an original doorway F132 at the south of bay 3. Such a central doorway in bay 3 of the Phase 1 5-bay barn is indeed likely. There was no evidence of a similar break in the ground wall on the N. side so, perhaps, through doors usually considered necessary to obtain a draught for threshing, were not provided; no evidence of a threshing floor was detected. The ground wall F126, appearing partially to close the S. doorway, is taken to be a late alteration.

*Phase 2*

The addition of the 7 western bays, with the smaller stylobates F122 (PL. 2C), increased the length to 64 m. (210 ft.). The ground wall F125 round bays 9 to 12 was of uniform character whereas elsewhere it was of miscellaneous form or had been scraped away. When F125 was sectioned (FIG. 9/CC) there was clear evidence of an earlier ground wall F158. The re-built ground wall F125 ended, on the S. side, at the return F127, defining a S. entrance at bay 8. The ground wall F130 across the north of bay 8 is taken to represent the blocking of a doorway there. The metalled track F143 into the southern entrance was clearly defined but no metalling was seen to the north of the N. door. No evidence of a special threshing floor in bay 8 was detected, a clay floor only was noted.

No evidence of structural timbers remained but the roof would have been supported on eleven transverse frames each with a pair of principal posts. These

posts may have been free standing on the stylobates or have been carried on post plates spanning the aisles from the stylobates to the side walls; such plates would have stood slightly above ground level and would have run under the sole plates or been jointed into them, in the former case transverse accommodating slots would be expected in the ground walls but in fact no such evidence remained.

### *Phase 3*

Considerable repair must have taken place in Phase 3 as evidenced by the addition of two types of post-plate ground wall. Three of these F136, at positions 1N to 3N, were of brick (PL. 2B), probably of the 15th century. The others F137, at positions 4N to 10N and 8S to 10S, were of well-coursed roof tiles (PL. 2C), although the remains of 4N and 8S were fragmentary. Such ground walls at positions 1S to 7S would have been destroyed during topsoil removal. At positions 11N and 11S, where topsoil had not been stripped prior to excavation, the post-plate ground walls did not exist. At positions 1N, 5N, 6N and 7N the ground walls are so much off centre with respect to the stylobate foundations that original free-standing posts and repair posts on post-plates could have existed side by side. At positions 3N, 8N, 9N, 9S, 10N, 10S this would not have been possible but where the original frames could have been raised<sup>52</sup> for the insertion of post-plates under the existing posts, tying to the sole plates would have been problematical. The existence of the two types of post-plate ground walls would suggest that they were built at different times.

### *Phase 4*

The Phase 3 work presages a period of decline. The transverse feature F138 is interpreted as the end ground wall for a building shortened by the three western bays. The feature F139 may be the ground wall for a lean-to against the gable end of this shortened barn. The brick ground wall F142 seems to be an internal division within this lean-to. The short wall F140 probably defines the small doorway into the lean-to.

It may be considered logical that the western 'weather end' of the barn would deteriorate first, particularly since the major repair involving the post-plates was not applied at the extreme western end.

### *Phase 5*

As the 1826 Crawter map<sup>53</sup> shows (FIG. 10), in the final form, the barn had been further reduced from the west to a length of about 30 m. (100 ft.). Hence only the original five bays and possibly a sixth were then standing. This final building would have had a southern door only, but, by this time, the corn was threshed in the stackyard (Documentary) and there would have been no need for through doors.

<sup>52</sup> Notches in principal posts at Cressing Temple, Essex, show how principal posts could be raised by the use of two opposed struts being hammered together along temporary ground beams. Pointed out by C. A. Hewett during a visit.

<sup>53</sup> *Op. cit.*, note 37.

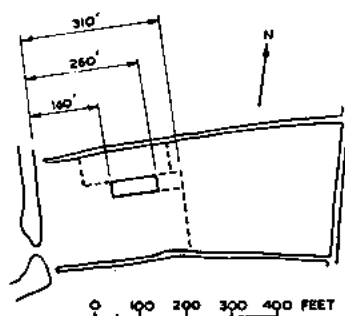


FIG. 10

## GRANGE YARD, WALTHAM ABBEY

Crawter map of 1826: Barnfield with building X (p. 60).

## BUILDING X, DATING

The pre-building clay F154 contained prehistoric sherds. A few sherds were found in the Phase 1 levels F145A, F153 and F155, including two shelly rims of 1150–1250. The bricks of the stylobates F121 appear (Appendix 3) to have a dimensional relationship with those dated *c.* 1190 and *c.* 1220 at Coggeshall. There is no evidence that the Phase 1 barn was pre-monastic, but it seems reasonable to date it quite early in the 1177 re-foundation period. The date of the extension to the Phase 2 12-bay form cannot be given with certainty but from the shelly sherd in the clay F159 it need not be much later than Phase 1, say possibly 13th century. The Phase 3 repairs to the timber trusses at the E. end can be dated to the 15th century on the evidence of the bricks in the post-plate ground walls F136. The roof-tile post-plate ground walls F137 to the west are possibly an earlier repair.

Finds in topsoil F149C in bays 10 to 12 are dated to the second half of the 17th century and suggest a shortening at this time. The coin and pottery from F149B in bays 6 to 9 suggest a further shortening *c.* 1740, and this was probably part of the extensive repairs made to the barn in 1740–2 (when the Abbey House was no longer used by the Wake family). Nineteenth century rubbish in F145 to the south of bays 4 and 5 confirms the evidence of the 1826 map that it was the E. end which was finally demolished *c.* 1840.

## BUILDING X, DISCUSSION

Building X is another member of the group of medieval aisled timber-framed barns concentrated in SE. England.<sup>54</sup> Most of this group have the principal posts standing on post-plates, themselves set on ground walls; such plates tie the posts to the sole plates and wall posts. If the ground walls of the wall framing are moderately high the post-plate becomes a low-set aisle tie,<sup>55</sup> it serves the

<sup>54</sup> For over 30 examples see Hewett, 1969, and Rigold, 1966.

<sup>55</sup> A few examples shown by Rigold, 1966, illustrate this category. At Harmondsworth (R.C.H.M., Middlesex, 61–2), the ties are about 1.2 m. above floor level.

same purpose, but is unsupported except by a separate base or stylobate at the principal post end and by the ground wall at the side of the barn. The principal posts may, however, be supported directly<sup>56</sup> by the stylobates without being tied to the walls at their base. The archaeological evidence from stylobates supporting free-standing principal posts and from stylobates supporting posts on low-set aisle ties is likely to be indistinguishable.

At Waltham both the original 5-bay barn and the extended 12-bay form had separate bases or stylobates, and post-plate ground walls were clearly added features; such ground walls were not added to the westernmost aisle frame.

Building X, in its extended form at 64 m. (210 ft.) long, appears to be the third longest<sup>57</sup> medieval aisled barn known in England. If the entrance bays are assumed to have been kept clear it is estimated that the storage capacity was about 2,500 cubic metres (90,000 cu. ft.); this calculation is based on the assumption that corn could be stacked right up to the ridge of the building in the central bays and to the wall plates in the aisles. An Essex record of the storage of oats and summer wheat to the ridge, with barley and winter wheat in the aisles,<sup>58</sup> is relevant to the identification of the barn with the *garner* and *Otebarne* mentioned in the Dissolution Inventory.

#### SUMMARY OF BUILDING X

<i>Phase 1</i>	5-bay barn built	<i>c.</i> 1200
<i>Phase 2</i>	extension to 12 bays	possibly 13th century
<i>Phase 3</i>	repairs to roof supports	partly 15th century
<i>Phase 4</i>	shortening to 9 bays	2nd half of 17th century
<i>Phase 5</i>	further shortening to 5 bays	<i>c.</i> 1740
—	final demolition	<i>c.</i> 1840

#### BUILDING XI (PLAN, FIG. 11)

This rectangular timber-framed building in the middle of Grange Yard, measured 30.5 by 8.2 m. It was discovered when most of the area was machine stripped with consequent destruction of the ground wall in places. The SW. corner, with the extension, and the eastern third of the building, within the area of the Crooked Mile roundabout, were not disturbed by stripping but part of the latter was covered by soil and was not investigated. The excavation took place in September 1970 and in February 1971.

<sup>56</sup> For example, Cheshill barn which has 3 aisled frames; Rigold, 1968. The 13th-century aisled barns at the Templar site at S. Witham had separate stylobates, *op. cit.*, note 51.

<sup>57</sup> The longest aisled barn, but with stone posts, was at Cholsey, Berks., 92 m. (303 ft.), and the second longest is at Beaulieu-St. Leonards, Hants., 68 m. (224 ft.); Horn, 1963, 13-23.

<sup>58</sup> Holdings of St. Pauls, London in the 12th century, discussed by Horn, 1958, 11. A barn at Walton on the Naze was so filled.

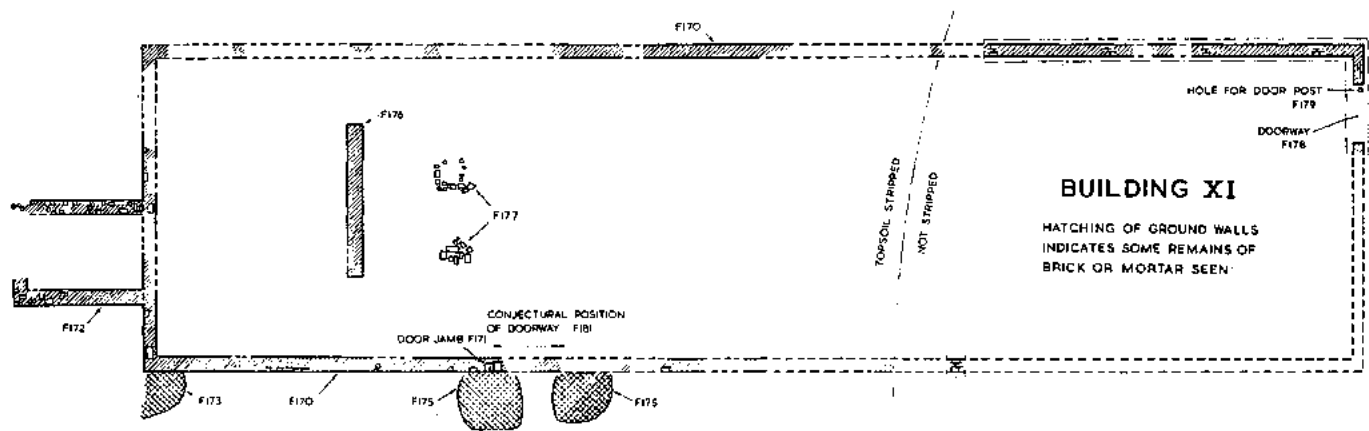


FIG. 11  
GRANGE YARD, WALTHAM ABBEY  
Building XI: plan of excavation (p. 62).

## BUILDING XI, FEATURE LIST (F170-F181)

FEATURE NUMBER	DESCRIPTION OF FEATURE	SIGNIFICANT FINDS
F170	Groundwall for timber sill. Mainly brick fragments, up to two courses remained on flints set in clay. In places completely destroyed or displaced by machine.	<i>Stone</i> : no. 8
F171	Reigate stone door jamb taken to be in position although ground wall not interrupted.	
F172	Ground wall of fragmentary bricks, stone and flint to extension at W. end.	<i>Brick</i> : SB9
F173	Brick and tile deposit at SW. of building. May be upper material of a filled-in ditch. See F174.	
F174	Probably filled-in ditch to SW. of F173. Sectioned to show material as F173 over gravel, brick, flints and grey silt, probably served as soak-away. Presumed filled when building erected.	<i>Pottery</i> : 1J
F175	Two patches of brick rubble to S. of presumed doorway. Interpreted as soak-aways.	
F176	Interior dividing ground wall taken to be original. Only whole bricks in building.	<i>Bricks</i> : f95
F177	Two foundations to E. of F176. Fragments of medieval brick, roof tile and Abbey stone set in clay.	
F178	Doorway established at E. end, represented by 1.2 m. gap in ground wall.	
F179	Post hole, 13 cm. square by 13 cm. deep, for door post to F178.	
F180	Clay floor to building, partially stripped. Sherds found by side of walls late 15th/16th century.	<i>Pottery</i> : 9J
F181	Conjectural position of doorway in S. side. 3m. wide track leading to this position, seen in road ditch.	
F182	Topsoil and debris remaining in limited areas.	<i>Clay pipe</i> : A and O 11, 1640-70 <i>Iron</i> (Fig. 32/4, 20)

## BUILDING XI, DISCUSSION

The ground wall F170 was mostly of brick fragments and the lack of foundations showed that it was the support for the sill of a timber-framed building. A doorway F178 was detected in the E. end as a gap in the ground wall with a post-hole F179. On the S. side a jambstone F171 is taken to represent a doorway F181, where, however, the ground wall continued uninterrupted. A track leads to this position from the farm entrance (FIG. 2) although it was only seen some 30 m. away; the patches of brick rubble F175 were probably laid to improve drainage thereabouts. A third door may have led into the W. end through the extension.

The W. end was divided off from the rest of the building by the interior ground wall F176; bricks in this wall, taken to be original, compare with those in building XII which is dated to the last quarter of the 15th century. The purpose of the division and the bases F177 is uncertain. There was a patch of charcoal and a horseshoe in the W. extension but this is hardly evidence to suggest a use for the building.

Sherds in the clay floor F180 are late 15th to early 16th century and support the late 15th century date. A destruction date of c. 1540 is suggested. A short life is consistent with the lack of evidence of repair or alteration other than possibly the addition of the W. extension.

The building, the roof of which was spanned without recourse to aisle posts, would be suitable for the storage of farm equipment and is possibly the *plowhouse* mentioned in the 1540 Inventory. Such an identification may be logical as the *plowhouse* is listed after the cereal barns and the haybarn which are identified as the adjacent buildings X and XVIII.

#### BUILDING XII (PLAN, FIG. 12; SECTIONS, FIG. 13; OVEN, FIG. 14; PL. 3, A-B)

This buttressed brick building measured 72 m. (237 ft.) long by 9.4 m. (31 ft.) wide. It was discovered when the Crooked Mile boundary bank was sectioned prior to road works; some 55 m. of the W. wall was then traced by machine. Later the excavation took place after topsoil removal with consequent damage to internal features, but the oven at the N. end, within the roundabout, was not so damaged. The work began with a 2-week period in August 1970 and continued from November 1970 to February 1971.

#### BUILDING XII, FEATURE LIST (F190-F244)

The buttresses F193 are identified from the S. end, 1 to 15, both east and west. For convenience of discussion the building has been divided into bays 1 to 9, a hall (incorporating the great fireplace) and a solar end at the south.

#### BUILDING XII, FEATURE LIST (F190-F244)

FEATURE NUMBER	DESCRIPTION OF FEATURE	SIGNIFICANT FINDS
F190	Wall foundation, 61 cm. wide, 2½ brick English bond, completely robbed in places. Twelve courses remained by buttress F193/3E to floor level; on W. side 6 courses remained by buttress 3W but 30 courses necessary to attain same level as on east. A transverse step, half a brick wide, occurred between buttresses 3E and 4E. Pl. 3A.	Bricks: f100
F191	Wall, 38 cm. (15 in.) wide, brick, set on F190. Fragment of 1 course only remained by buttress 3E. Pl. 3A.	Bricks: f100



FEATURE NUMBER	DESCRIPTION OF FEATURE	SIGNIFICANT FINDS
F192	Robber trench along line of wall F191 foundations, rubble fill. Finds mostly late 16th century.	<p><i>Pottery:</i> 1D, 3G, 173M (nos. 125-9, 131, 133, 134), 11K (nos. 124, 132), 4 green glazed buff (no. 130), 4 black glazed redware, 4 stoneware; 1 Blue 'Malling' delft</p> <p><i>Bronze</i> (Fig. 29/3-4)</p> <p><i>Lead</i> (Fig. 30/9)</p> <p><i>Glass:</i> 2 fragments window</p> <p><i>Floor tiles:</i> 27 pieces black, yellow, brown and green glazed squares and triangles, Groups 2 and 3; crosses and fleur de lys, Group 2; Cloister types 7, 10, 13, 14, Group 3; stag, Group 3A</p> <p><i>Iron</i> (Fig. 32/2, 8)</p> <p><i>Stone:</i> no. 1</p>
F192A	Ditto but at S. end where bricks completely robbed in second half of 17th century. Pl. 3A.	<p><i>Pottery:</i> 6M, 6N, 3 black glazed, 3 stoneware</p> <p><i>Clay pipes:</i> A and O 12, 1640-70; stems mainly 1650-80</p> <p><i>Counter:</i> no. 3</p>
F193	Buttresses, brick, designated 1E to 15E on E. side, 1W to 15W on W. side; remains of robber trenches of 22 were seen. Nos. 2 to 15 were set at a pitch of 5 m. and nos. 1 and 2 at 6.4 m. No. 3E remained to wall level, 35 cm. wide x 53 cm. deep. Lowest course 90 cm. square at 2W, intermediate size shown on plan.	<p><i>Pottery:</i> 1H (no. 123)</p>
F194	Two brick bases, E and W, added to walls, between buttresses 3 and 4. E. base 84 cm. x 1.9 m., W. base 79 cm. x 2.5 m. E. base had rubble filling. Purpose not clear.	<i>Bricks:</i> f95
F195	Brick foundation to fireplace and chimney by buttresses 5. Only seen when almost destroyed, 1 to 3 courses remained. No evidence of burning left. Possibly original.	<i>Bricks:</i> f95
F196	Brick base 69 cm. square near buttress 3E. See F197.	<i>Bricks:</i> f95
F197	Brick base 38 cm. square near buttress 3W. With F196 may have supported a screen across the building.	
F198	Ground wall, 46 cm. wide, two courses brick remaining. Seen by buttress 2E, probably stretched right across building to define solar end at south.	

FEATURE NUMBER	DESCRIPTION OF FEATURE	SIGNIFICANT FINDS
F199	Brick foundations, dividing the N. end into 8 bays, labelled 1 to 8, E. and W. Bays 2 to 8 were 4.7 m./5.0 m. (15 ft. 6 in./16 ft. 6 in.) wide. Remains of 10 of possible 16 foundations were seen; 8 courses remained at 5E, top 4 were 48 cm. wide, 2-brick English bond; bottom 4 were 61 cm. wide 2½-brick English bond; rise of 4 courses 25 cm. (10 in.).	<i>Bricks: f95</i>
F200	Entrance at N. end of building 2.7 m. wide. Represented by square brickwork to W. and robber trench to east.	
F201	Wall foundation, brick, partially blocking entrance F200 and forming end to oven.	
F202	Two brick plinths in NE. corner, 60 cm. long × 23 cm. wide. Probably supported tank or bench.	<i>Bricks: f77</i>
F203	Brick foundation, separating bay 1 from bay 2, 48 cm. wide, 2-brick English bond, up to 5 courses remained.	<i>Bricks: f95</i>
F204	Plinth of 10 courses of mortared roof tile, possibly connected with passage from bay 1 to 2, 1.2 m. long × 30 cm. wide.	
F205	Insubstantial brick ground wall dividing bays 5 and 6, 30 cm. wide.	
F206	Insubstantial brick ground wall between bays 7 and 8, 45 cm. wide.	
F207	Fragmentary brick remains of enclosure around the W. half of bay 8.	
F208	Abbey stone foundation to porch between buttresses 8W and 9W. A late feature, as a doorway here necessitated destruction of division F199/6W.	
F209	Spread of loose rubble metalling seen stretching for some 9 m. west of porch F208.	
F210	Position by buttress 5W where large Reigate stones were found by machine. May indicate position of doorway.	
F211	One fragmentary course of bricks by buttress 2E curving down into ditch, probably drain.	
F212	Foundation of flint, chalk and tile fragments at SE. corner of building. Bottom set 5 cm. lower than brick of foundation to building. Presumably a feature of the farm entrance, it may have extended a further 3 m. eastwards to mate up with a similar feature on the S. side of the track F213.	
F213	Farm track from Crooked Mile. Not excavated archaeologically but seen to be a succession of gravel and rubble layers some 40 cm. thick.	
F214	Mottled brown clay under Building XII, probably natural.	
F215	Clay, grey and brown mottled, probably re-deposited from digging of Crooked Mile ditch, formed bank along which XII was built. Pottery suggests date between 1150-1250. See also F261 under Building XIII.	<i>Pottery: 3D (no. 3) 6G (no. 5)</i>

FEATURE NUMBER	DESCRIPTION OF FEATURE	SIGNIFICANT FINDS
F216	Grey silt in ditch on east of building. Pottery after 1450 but before 1500.	<i>Pottery:</i> 25H (no. 120, 122), 5J (no. 121), 4K, 1L <i>Plough</i> (Fig. 27)
F217	Clay with building rubbish over F216. Presumably ditch moved to east during building with this representing filling.	
F218	Layer of roof tile fragments over F217. Presumably building rubbish. Pottery after c. 1475.	<i>Pottery:</i> 8M, 1J, 1 stoneware.
F219	Clay deposited over F218. Presumably levelling up deposit at time of building.	
F220	Clay with rubble. Probably same purpose as F219.	
F221	Clay with rubble inside building. Pottery shows it was part of bank F215 with rubble worked in later.	<i>Pottery:</i> 2D, 2G (no. 6), 2H
F222	Mortary layer with chalk or lime. Possibly laid as floor deposit.	<i>Glass:</i> 10 fragments window
F223	Line of chalk blocks at W. extent of F222. Possibly base to internal structural feature.	
F224	Debris under topsoil. Represents destruction of building.	<i>Pottery:</i> 1G, 4H <i>Iron</i> (Fig. 32/19)
F225	Topsoil over building XII	
F226	Structure of Phase 1 oven.	<i>Bricks:</i> f95
F227	Floor of oven, roof tiles set on clay. Phase 1.	
F228	Line of bricks, four courses, forming front of oven chamber. Phase 1 or 2.	
F229	Walls of rectangular stoking pit, single brick English bond, up to 12 courses remained, four courses rise 27 cm. (10½ in.).	<i>Bricks:</i> f77
F230	Lower floor of rectangular stoking pit. Phase 2.	<i>Bricks:</i> f77
F231	Clay on which Phase 1 and 2 ovens were constructed.	
F232	Clay over F230, as base to floor F234. Phase 2 or 3.	
F233	Mortar base to floor F234. Phase 2 or 3.	
F234	Upper floor of rectangular stoking pit. Phase 2 or 3.	<i>Bricks:</i> G136, G194, SB6
F235	Bricks laid flat as blocking to Phase 1 oven. Phase 3.	<i>Bricks:</i> f95
F236	Bricks laid on edge above F235 for similar purpose. Phase 3.	<i>Bricks:</i> f77
F237	Brick and tile blocking across front of Phase 1 oven. Phase 3.	<i>Bricks:</i> G162
F238	Floor of upper round oven which covered F226 and F236 and was cut through in Phase 4. Phase 3.	<i>Bricks:</i> not whole, possibly G194
F239	Walls and structure of upper round oven, roof tile and assorted bricks. Phase 3.	<i>Bricks:</i> G162, f77
F240	Rubble fill in round oven. Pottery 1st half of 16th century consistent with filling in c. 1540.	<i>Pottery:</i> 7H, 1K, 2L, 1M

FEATURE NUMBER	DESCRIPTION OF FEATURE	SIGNIFICANT FINDS
F241	Rubble fill in original rectangular stoking pit, remains of ash and burning showed it was firing chamber in Phase 4. Pottery suggests it was filled in 2nd half of 16th century.	<i>Pottery</i> : 1 burnt tyg rim probably black glazed <i>Iron</i> (Fig. 32/5) <i>Stone</i> : no. 7
F242	Purbeck marble slabs on top of F241.	
F243	Bricks over F242 to fill stoking pit to level of wall F229.	
F244	Ditch, dividing grange yard into Barnfield and 'field in front of the house'. Dug 1820-1826.	

## BUILDING XII, DISCUSSION

The slight bank on which building XII was aligned was probably formed from the digging of the Crooked Mile ditch. Sherds in the clay F215 (FIG. 13) suggest a late 12th or early 13th century date for the bank. Because of the slope of the bank the brick foundations F190 were about a metre deeper on the W. side than on the east.

The brick buttresses were integral with the wall foundations (PL. 3A), numbers 2 to 15 were equally spaced (FIG. 12) at a pitch of 5 m. (16 ft. 6 in.)<sup>59</sup> whereas the pitch of the southernmost pair was 6.4 m. (21 ft.). This larger width suggests a solar end<sup>60</sup> with roof ridged east-west. A domestic use is thus implied for the south of the building. The ground wall F198, by buttress 2E, presumably existed right across the building to provide a northern wall to the solar which would have measured 6.1 by 8.2 m. internally. A domestic use of the southern part is supported by the existence of the brick fireplace F195, between buttresses 4 and 5, positioned to form a hall 11.9 by 8.2 m.

The section (FIG. 13) is thus across the domestic end of the building. The large brick bases F194W and F194E could have been built in response to a structural weakness, evident as poor bonding in the foundations on the E. side. However, as four heavy Reigate stone voussoirs (Appendix 4) were found in the robber trench F192 on the W. side, it is possible the bases were the foundations to shallow porches or steps. Two small bases F196 and F197, and pieces of plaster with lath impressions in F224, may indicate the position of a screen across the building. The mortary deposit F222 may represent a local tiled area by the postulated eastern doorway. On the inside of the eastern wall foundation, a 2.4 m. length of recessed brickwork (PL. 3A), a square post-hole and a pivot recess lend further support to the likelihood of opposed doors with a transverse screen and tiled area. It is not clear why an eastern door would be needed; even if the ditch were filled on the eastern side, between buttresses 3 and 4 as the section suggests (later to be re-cut), a boundary fence would surely have been erected so a door would only have provided access to a narrow strip of land which could have been reached round the N. end of the building.

<sup>59</sup> This dimension is taken to be the medieval perch.

<sup>60</sup> Solar ends to a long brick range exist at the Bishop's Palace, Hatfield House, some 11 miles W-N-W. of Waltham. The range is dated to c. 1480 and measures 52 m. long by 7.3 m. wide; R.C.H.M., Hertfordshire, 58-60.



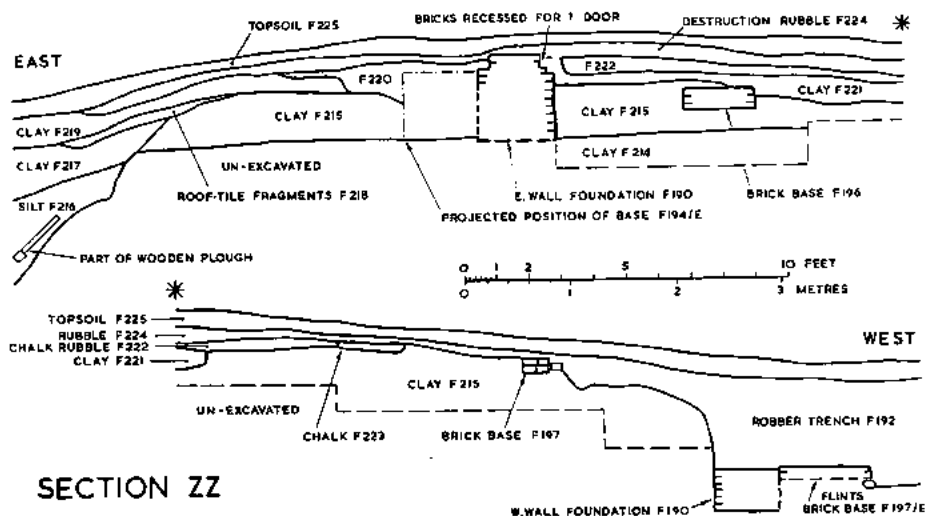


FIG. 13

## GRANGE YARD, WALTHAM ABBEY

Building XII: section ZZ across domestic end, for location see FIG. 12 (p. 69).

The central length of the building was divided by the brick foundations F199 into bays 2 to 8 of 4·8 m. (15 ft. 6 in.) internal width. Enough of the foundations were seen to assume there were eight pairs covering a length of 37 m. These foundations were out of phase with the buttresses, and also therefore with the roof trusses, so they are unlikely to be part of the original design. The only foundation definitely missing was the eastern counterpart of that numbered 1W. Bay 1 was further cut off by a foundation F203 and the central width was further split by the ground walls F205 and F206. Abbey stone foundations F208 between buttresses 8W and 9W for a porch imply that the foundation F199/6W went out of use; a track F209 led into the porch. Floor tiles (Appendix 2), 27 in all, were retrieved from the machine-dug robber trench F192 along the W. wall from bays 4 to 6; of these 16 were found opposite bay 6 and may suggest a tiled floor nearby.

The only evidence of an original entrance to the building was at the N. end. The W. side of this entrance F200 was defined by an end to the brick foundations but the E. side was estimated from the extent of a robber trench.

## BUILDING XII, THE OVEN (FIG. 14; PL. 3B)

Bay 1 was cut off by the well-made brick foundations F203 of a wall which butted up to the earlier wall carried on foundation F199/1W. No evidence of F199/1E was found but it could have been removed to allow access from bay 1 to bay 2; the tile foundation F204 may be a feature of such an access passage. The centre of bay 1 was not investigated but two brick plinths F202 at the north-east could have supported a tank or bench. The main feature found in bay 1 was an oven built against the W. wall, which itself was robbed in this position so that

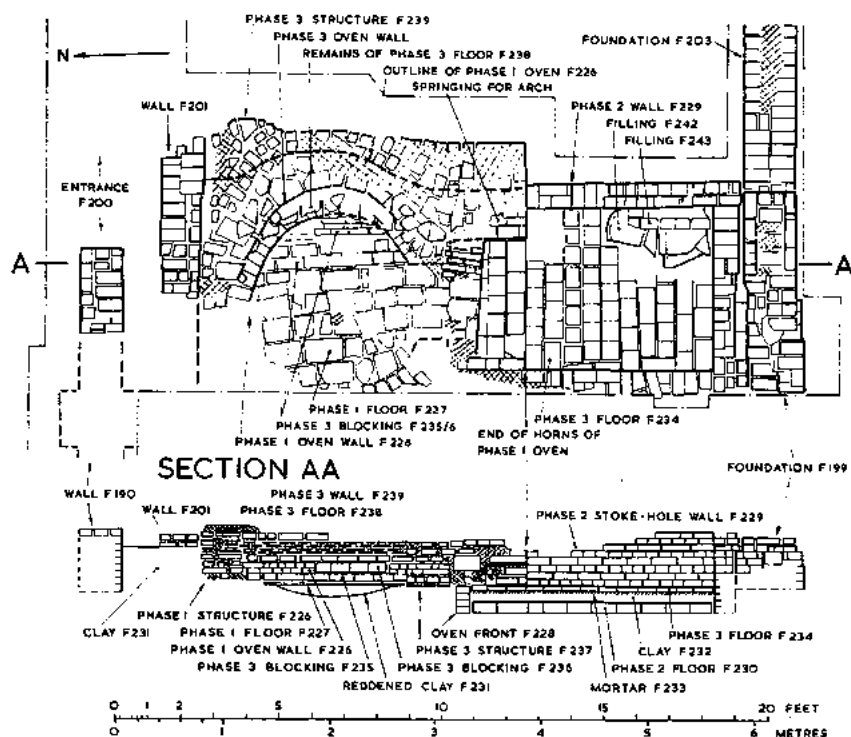


FIG. 14

## GRANGE YARD, WALTHAM ABBEY

Building XII: plan and section of the oven (p. 70).

details of the relationship were not recovered. The oven was positioned so as to block, partially, the doorway F200. It was excavated to destruction without undue haste and four main phases of development are seen. The sequence of development is characterized by the use of the round end in the first three phases with the rectangular end added as the stoking pit, whereas in the final phase the roles became reversed.

The Phase 1 oven was a simple structure with circular chamber 1.6 m. diameter, and with an entrance 0.8 m. wide between horns to the south; inner bricks of the E. horn were suggestive of springing for an arch over the entrance. The structure F226, including the oven wall, was of bricks f95 (Appendix 3) of which three courses remained; this and the roof-tile floor F227 was laid on clay F231, the central area of which was reddened by heat. There was no evidence of corbelling or of a flue.

By Phase 2 the foundations F199/1W and F203, both of bricks f95, divided off bay 1 from the rest of the building. Phase 2 is the addition of the rectangular stoking pit, the walls F229 of which butted up to the Phase 1 structure and the bay dividing walls; up to 12 courses remained of bricks f77; this is the first use of the smaller brick which also formed the lower floor F230 of the stoking pit.

The next alteration was the raising of the level of the stoking pit floor by 15 cm., this made it flush with the tile floor of the Phase 1 oven, so both could have been in use together. However, this, and the subsequent raising of the oven floor by 25 cm. show the state of affairs in Phase 3. The new stoking pit floor F234 was set on mortar F233 and clay F232, it incorporated great bricks G136 and G194 and square bricks SB6 (Appendix 3). The raising of the oven floor required the filling in of the Phase 1 oven to the chosen height, this was accomplished with one course of bricks F235 of type f95 laid flat and one course F236 of type f77 laid on edge; as these bricks are of different types it is likely that F235 could be an earlier alteration, even possibly a Phase 1 floor. Across the partly demolished and filled Phase 1 structure, the remains of a carefully laid course F238 of part bricks, possibly type G194, were found; this levelling course was the base of the Phase 3 oven, it increased the width of the structure on the east (FIG. 14). The front of the blocking F237 with one G162 brick was set slightly skew and covered the edge of the floor F234. The walls of the larger Phase 3 oven remained to a height of about 15 cm., five courses of roof tile in one position; the walls incorporated fragments of great bricks and the smaller f77 size.

In Phase 4 the oven structure must have been demolished because the carefully laid Phase 3 base F238 was hacked through to a line approximating to the Phase 1 circular shape, and most of the blocking F235, F236 and F237 of the Phase 1 oven was removed. The levels in the old oven and stoking pit were now the same but some of F237 remained to form an 8 cm. high bar between the two; raking of ash from one floor to the other would have been hindered by this bar. However, the old rectangular stoking pit now seems to have become the oven, there was evidence of burning on the floor and walls and a layer of ash remained therein, whereas there was no such evidence in the circular structure.

Finally, the whole complex was filled with rubble F240 and F241, and it was levelled off, as evidenced by slabs of Purbeck marble F242 and a few bricks F243, laid to the level of the surviving bricks of the old stoking pit walls F229. The period of use of the oven complex was thus shorter than that of the building. Sherds in the rubble F240 were indistinguishable from those in 1540 destruction levels.

#### BUILDING XII, DATING

The original section (FIG. 13) into the ditch helps with the date of construction. Sherds in the silt F126 are dated after 1450 and a similar date is given to those in the clay layer F217 which is taken to be a building level. A higher layer F218, of building rubbish, contains sherds which should be dated after c. 1475. Hence, if these layers are correctly interpreted, the date of construction is in the last quarter of the 15th century. The bricks are, in general terms, of Tudor style.

Robbing of the wall foundations is taken to have occurred in two phases. Material from the robber trench F192, from the line of the section ZZ to the north, suggests destruction and partial recovery of foundation bricks into the late 16th century. But towards the south where the foundations were completely robbed, later material suggests 17th-century quarrying for bricks.



Within the short life of maybe only 60 years it is not possible to date the alterations to the building or the phases of construction of the oven. However, it was found that f100 bricks were used for the original walls F190 and f95 type for the added foundations F199 and for the extra closing feature F203 at bay 1. The same f95 type were used in the Phase 1 oven, where the smaller f77 type were used in Phase 2.

### THE FARM ENTRANCE AND BUILDINGS XIII, XIV AND XVI (PLAN, FIG. 15)

The three small buildings lay south of the farm track at the Crooked Mile entrance. The investigation of XIII took place in August 1970 prior to roadworks, the remains of XIV and XVI were investigated, after partial destruction, in May 1971. All three were probably lodges.

#### BUILDINGS XIII, XIV, XVI FEATURE LIST (F250-F276)

FEATURE NUMBER	DESCRIPTION OF FEATURE	BUILDING	SIGNIFICANT FINDS
F250	Foundation of mortared flint and chalk forming S. side of farm entrance.	—	
F251	Fragmentary chalk patches suggesting Crooked Mile wall originally ran straight, only seen after bulldozing.	—	
F252	Crooked Mile wall standing before road works began, brick foundations.	—	
F253	Brick foundations, N. wall, 8 courses remained, 4 courses rise 25 cm. (10 in.).	XIII	<i>Bricks: f95</i>
F254	Brick foundations, S. wall, 7 courses remained, 4 courses rise 25 cm. (10 in.). Possible position of door 86 cm. wide.	XIII	<i>Bricks: f95</i>
F255	Brick foundations, W. wall, deeper than S. This deeper foundation had subsided from F254 perhaps because of weight of chimney. No bonding with F253.	XIII	<i>Bricks: f95</i>
F256	Confused modern brickwork on line of E. wall butting up to F252.	XIII	
F257	Robber trench of E. wall.	XIII	
F258	Topsoil, 20 cm. deep.	XIII	<i>Iron (Fig. 31/6) Coin: no. 10</i>
F259	Mixed rubble, 30 cm. deep, under F258. Includes destruction and later rubbish.	XIII	<i>Pottery: mixed 16th-19th century (no. 135) Counter: no. 4</i>
F260	Loam with roof tiles and pottery, 35 cm. deep under F259. Formed ground surface before building XIII erected. Pottery 15th century, latest 1450-1480	XIII	<i>Pottery: 203H (nos. 109-12), 26J (nos. 114-18), 30K (nos. 113, 119), 71L (nos. 107, 108)</i>
F261	Clay under F260. Pottery 13th century with some 15th century as in F260.	XIII	<i>Pottery: 11D (nos. 2 and 4), 2G, 2M</i>

FEATURE NUMBER	DESCRIPTION OF FEATURE	BUILDING	SIGNIFICANT FINDS
F262	Square cornered plastered recess in end of F255, probably to accommodate post.	XIII	
F263	Ground walls of brick. Seen as one course 43 cm. wide to north, very fragmentary to south.	XIII	<i>Bricks: f100</i>
F264	Hearth, 10 cm. deep, rectangular, 1.06 m. × 1.42 m., carefully made of roof tile fragments laid on edge in clay F267.	XIV	
F265	Loam layer, 30 cm. thick, overlying hearth F264.	XIV	<i>Pottery: 2G, 6H (no. 136), 9J, 1K Plaster fragments</i>
F266	Ash, round and over hearth F264. Raked out from centre of hearth. Pottery late 14th/15th century.	XIV	<i>Pottery: 5J, 2H, 2L, 1 buff</i>
F267	Clay on which F264 was built, partially filled earlier fire pit.	XIV	<i>Pottery: 2H</i>
F268	Fire pit, some ash remaining, some raked from it, under F267 and F266. Pottery 13th/early 14th century.	XIV	<i>Pottery: 1G, 1J, 2H</i>
F269	Ground wall of mortared brick, roof tile and Abbey stone.	XVI	
F270	Floor of brick and tiles.	XVI	<i>Bricks: G178, SB6, SB10 Bricks: f84</i>
F271	Brick-built drain, 14 cm. wide × 13 cm. deep (2 courses), fall 38 cm. in 3 m. Filled with loam F276. No evidence of capping. End not traced.	XVI	
F272	Mortar base to F270.	XVI	
F273	Clay + loam, ground level at time of building. Pottery early to mid-16th.	XVI	<i>Pottery: 1J, 18M (no. 137), 1 unglazed stoneware.</i>
F274	Loam and debris to N. of drain, outside building. Pottery c. 1575-1640.	XVI	<i>Pottery: 108M (nos. 138, 140, 142-4, 146-9, 156), 6 black glazed (no. 151), 3 redware green glazed (no. 150), 3 Merida red slipped ware (no. 153), 3 buffware green glaze (no. 157), Import (no. 152) Bricks: SB6, SB10 Floor tiles: Cloister type 12, Group 3; 2 black glazed triangles, Group 5; 1 brown glazed, Group 6 Iron (Fig. 32/9)</i>
F275	Loam under F274. Sherds fit those in F274, same date.	XVI	<i>Pottery: 1J (no. 145), 39M (nos. 139, 155)</i>
F276	Loam in drain.	XVI	<i>Pottery: 1J, 1H, 7M (no. 141)</i>

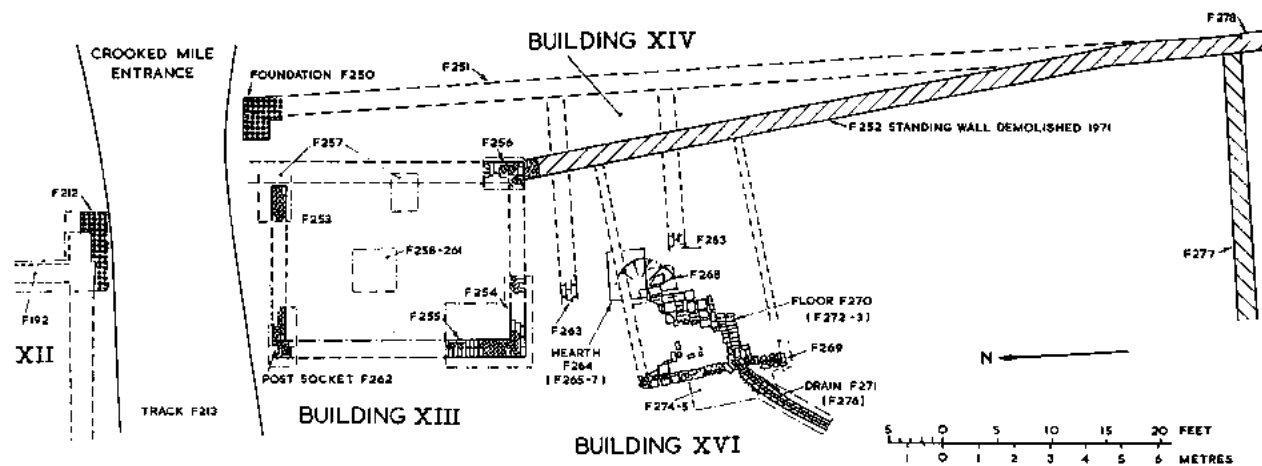


FIG. 15  
GRANGE YARD, WALTHAM ABBEY  
Farm entrance and buildings XIII, XIV and XVI: plan (p. 73).

## THE FARM ENTRANCE, DISCUSSION

Prior to demolition in 1971 the Crooked Mile wall bent to the west from a point 25 m. (80 ft.) south of the farm entrance, this wall F252 butted up to the SE. corner of building XIII. During bulldozing a few fragmentary patches of chalk F251 suggested that the wall originally continued north without the slight bend. Such a wall would have aligned on the flint foundation F250 at the south of the entrance (FIG. 15). This foundation is comparable with a similar feature F212 adjoining the SE. corner of building XII across the track; unfortunately F212 was not traced to the east but it seems probable that it extended to line up with F250 and that both were foundations to a gated entrance, possibly arched, about 3.6 m. (12 ft.) wide.

## BUILDING XIII, DISCUSSION

This brick building measured 5.5 m. (18 ft.) by 7.0 m. (23 ft.). The foundations were not completely understood; the E. wall was robbed, the W. wall was hardly bonded with the N. wall and, on the west, the foundations had cracked due to poor bonding and possibly the weight of a chimney. The underlying loam F260 contained much 15th-century pottery with the latest material dated to 1450-1480. This pottery probably just pre-dates the building which may be contemporary with building XII to the north, however, if the distinction between bricks f100 and f95 (Appendix 3) is valid, then XIII could be a little later than XII in the last quarter of the 15th century. There was no evidence to suggest the building survived the Dissolution.

## BUILDING XIV, DISCUSSION

The hearth and ash layers of this timber-framed building were seen in the side of the road excavation 0.8 m. below the modern surface, after the eastern part had been destroyed. The width of 3.7 m. (12 ft.) is taken from patches of brick F263 which could be interpreted as ground walls. The hearth and ground walls were aligned with respect to the original Crooked Mile wall, and if the building butted up to this wall it would have been more than 6.1 m. long. The hearth was set up in clay F267 which partially filled a fire pit itself filled with ash F268; this pit represented an earlier and wider phase of the building since ash from it passed under the northern ground wall. There was no evidence, however, of earlier walls.

The few sherds in F268 suggest a 13th- or early 14th-century date for the fire pit of the first phase. Pottery in the ash F266 associated with the hearth, indicates a late 14th- to 15th-century date for the second phase. The f95 bricks of the ground walls may indicate a date in the last quarter of the 15th century. The remains of the building were covered by a 30 cm. depth of loam F265 with 15th-century pottery and this is probably the same deposit as F260 which occurred at the same depth under building XIII where the latest pottery (FIG. 23/107-119) was dated 1450-1480. In fact building XIV is likely to have been replaced by building XIII at this time.

## BUILDING XVI, DISCUSSION

This timber-framed building on a ground wall F269 is the latest of the three small farm entrance lodges. It was only a few centimetres below ground and was much destroyed when discovered.

Building XVI was characterized by a floor F270 of mixed bricks laid in mortar F272. The bricks dipped towards a drain F271 in the W. wall. The building was at least 4.2 m. wide and if it butted up to the wall F252 would have been 6.4 m. long.

Before building, the ground level over XIV had risen by the deposition of clay and loam F273 with pottery of the early to mid-16th century. Levelled occupation debris F274 and F275 outside the W. wall contained much pottery *c.* 1575-1640. The most likely dates for a post-Dissolution building would be *c.* 1590-1600 when Sir Edward Denny came to live on the Abbey site or 1637 when his grandson James Hay, 2nd Earl of Carisle, inherited the property. The lack of later pottery and pipes suggests a short life for the building with destruction well before 1643 when James Hay's lands were sequestered. The ground wall was probably strong enough for a first floor, above what can be interpreted as a paved kitchen with drain.

## SUMMARY OF FARM ENTRANCE BUILDINGS

Building XIV (aligned on wall of F251):

13th or early 14th century. Succeeded by XIII

Building XIII (related to wall F252):

Last quarter of 15th century. Demolished *c.* 1540

Building XVI (aligned on wall F252):

Probably *c.* 1590/1600 or early 17th century with a short life.

All the buildings were small and are considered likely to be premises, possibly domestic, for the gate keeper. Buildings XIV and XIII covered 200/250 years of the monastic period and XVI a short while during the Denny occupation.

## BUILDING XV (LOCATION, FIG. 2)

This rectangular timber-framed building in Grange Yard near the Crooked Mile entrance, was over 19 m. long by *c.* 4.3 m. wide. It was discovered when the ground wall was cut by the ditch to the south of the Crooked Mile roundabout. Excavation followed at Easter 1971.

## BUILDING XV, DISCUSSION

The west ground wall F280 was traced to the SW. corner for a length of 19 m. The N. extent of the building is not known, it must have been stripped completely away. A section across the building showed it to be open to the east with a clay floor F281 establishing the width at *c.* 4.3 m. No bases for posts were seen along the open side but the excavation was very limited in extent. A layer of pebbles F283 to the east of the building is interpreted as a lightly metallated exterior ground surface. Pottery in the loam F284 under the pebble layer is dated

## BUILDING XV, FEATURE LIST (F280-F285)

FEATURE NUMBER	DESCRIPTION OF FEATURE	SIGNIFICANT FINDS
F280	Ground wall. Toppled bricks suggest at least 3 courses originally, very fragmentary in places.	<i>Bricks</i> : f77
F281	Clay layer probably laid as a floor, defines width of building. Sherds 16th century.	<i>Pottery</i> : 6H <i>Floor tile</i> : diagonally quartered, Group 3
F282	Tile debris in lower topsoil over F281, represents destruction. Sherds c. 1700.	<i>Pottery</i> : 13M, 1 delft
F283	Layer of pebbles, very thin, outside building to east. Formed ground surface at time of use of building. Overlay F281 for few centimetres.	
F284	Loam 55 cm. deep, under F283 and F281. Pottery 1540-1600.	<i>Pottery</i> : 8H, 1J, 2M, 2 black glazed, 1 yellow glazed, 1 green glazed
F285	Topsoil over F282 and F283.	

within the range 1540-1600 and could have accumulated before the building was erected. Pottery in the destruction debris F282 is dated to c. 1700 or later and suggests that the building was standing long after the Dissolution. A few sherds in the clay layers F281, probably laid as a floor to the building are of 16th century date, possibly late; material in the loam F284 supports this date.

This open-sided shed or shelter does not appear to be represented on the c. 1600 map but was probably built soon after and lasted to c. 1700.

## BUILDINGS XVII AND XIX (PL. 1A)

These buildings are shown on the c. 1600 map; they have not been excavated. Building XIX lies east-west, has a tiled roof and can be seen on the ground as a slight rise in Abbey Mead (inside the precinct wall) where it is indicated on fig. 2. Building XVII is taken to be just outside the precinct wall on the W. side of Grange Yard. It is shown as a NS. tiled building with a S. solar end. One of the buildings standing when the map was painted has to be the Royal stables with forge, stated to be in the Grange Yard and specifically excluded from the grant to Denny (Documentary). It is possible that Building XVII may be identified as these stables. The building was replaced in the 18th century by a stable block, of which the W. wall remains.

## BUILDING XVIII (LOCATION, FIG. 2)

This timber-framed building, represented by a ground wall and with a central row of five posts, measured 31.5 by 7.6 m. externally; it is situated in the north of Grange Yard. The E. end was discovered during drain trenching; later two stylobate foundations were disclosed in the ditch to the north of the Crooked Mile roundabout. The investigation, limited to determining the dimensions and type of building, took place in February and September 1971.

## BUILDING XVIII, FEATURE LIST (F290-F296)

FEATURE NUMBER	DESCRIPTION OF FEATURE	SIGNIFICANT FINDS
F290	Topsoil, c. 15 cm. deep.	
F291	Destruction level, roof tiles in loam, up to 20 cm. thick outside building, thin inside. Pottery late 16th/early 17th century.	<i>Pottery:</i> 2H; 4M; 1N; 4 sherds Bellarmine neck <i>Floor tile:</i> $\frac{1}{4}$ tile Group 3, black glaze <i>Coin:</i> no. 5 <i>Iron</i> (Fig. 32/17, 21)
F292	Building level, roof tile fragments in clay.	
F293	Mortar layer in S. half of 3 W bays seen in ditch side. Taken to be remains of 15th/16th century floor.	<i>Floor tiles:</i> 11 worn brown, black and yellow glazed, Group 3
F294	Rubble in shallow gulley to north of N. wall, seen only in ditch side.	<i>Pottery:</i> 1K
F295	Ground wall, coursed and mortared brick and roof tile on foundation of flint and stone set in underlying clay.	<i>Bricks:</i> f95 or f100
F296	Stylobate foundations, four rough mortared courses of Kentish rag with some Reigate stone to depth of 45 cm., some brick fragments in upper level.	

## BUILDING XVIII, DISCUSSION

The ground wall F295 was seen at each end, at two adjacent corners and in the ditch side; the position of doorways is not known. Remains of three of the five stylobate foundations F296 set in a central row, were uncovered. The pitch of the central four bays was 5.4 m. and that of the end bays was estimated at 4.7 m. This was the only building found with foundations for a central row of posts, presumably to support a loft, so the building is here identified as the *heybarn* of the 1540 Inventory.

From its position the building is thought to be one of those indicated on the c. 1600 map (PL. 1A) and the pottery in the destruction debris F291, together with the coin of 1613-25, confirms that it was then standing. An early 17th-century date is thus suggested for its destruction. Bricks of the 15th century were found in the ground wall and stylobates, and only this broad date can be given for the construction; however, if the bricks represent repair work the building date could be earlier.

## BUILDING XX (LOCATION, FIG. 2)

This three-bay aisled building with flint and stone walls measures 15.5 m. (51 ft.) by 10 m. (33 ft.). It is situated in the SW. corner of the Grange Yard, south of the track from the Crooked Mile entrance on which it is aligned. It was discovered when cut by a ditch of an access road.

The building shows evidence of iron, bronze and lead working and is clearly a workshop, possibly the *Smythes Forge* mentioned in the 1540 Inventory. As this forge was listed separately before the buildings of *The Grange* it was apparently

not considered to be part of the Grange. Like buildings XIII, XV, XVI and XXI, all on the S. side of the Grange Yard, it was constructed over a well-formed loam layer representing an old ground surface; elsewhere this was not present. Under building XX cutting into this loam, and the natural clay below, were pits, gulleys and post-holes with much pottery, mostly shell-gritted, of the Saxo-Norman period. Evidence of two palisade fences shows this settlement to extend to the west rather than the east. The excavation of this building began in April 1972 and is to continue; it will be reported in full at a later date. It is now planned that the building will not be covered by the car park as originally intended, but will be conserved for exhibition.

#### BUILDING XXI (LOCATION, FIG. 2)

This rectangular timber-framed building on a ground wall F302 measured 14.5 by 7.6 m. (48 by 25 ft.). It lies to the south of the track from the Crooked Mile entrance to the Grange Yard, and is aligned on the track. It was discovered when two parallel exploratory machine trenches were cut along the area of the proposed car park for the Abbey Gardens. Three of the corners were established in April 1972 and a section was cut across it. The position of doorways was not established.

#### BUILDING XXI, FEATURE LIST (F300-F307)

FEATURE NUMBER	DESCRIPTION OF FEATURE	SIGNIFICANT FINDS
F300	Topsoil, mixed finds in machine trench.	<i>Pottery</i> : 40H, 14J (no. 160), 6 sgraffito, (no. 159) 4 Victorian
F301	Destruction debris, loam with tiles.	
F302	Ground wall, mortared flint, chalk roof tile and Abbey stone. Remained to depth of 30 cm. in places, completely robbed elsewhere.	<i>Stone</i> : no. 9
F303	Yellow-brown clay foundation to F302, up to 20 cm. thick.	<i>Pottery</i> : 8J (no. 158)
F304	Loam, buried soil into which F303 was set, about 25 cm. deep.	
F305	Mortared stones to west of W. ground wall, possibly a path.	
F306	Tiles and stones and loam under F305.	
F307	Loam filled pit under E. wall, not completely dug.	<i>Pottery</i> : 3D, 2H

#### BUILDING XXI, DISCUSSION

The ground wall of this building was set on a well-defined clay foundation F303. Pottery found in this foundation dates the construction to c. 1400. There was no evidence to suggest the building survived the Dissolution. The section across it showed no evidence of a laid floor and it can only be classed as a storage building or animal byre. It was some 22 m. (70 ft.) distant from the forge XX, but there is no evidence to suggest any connexion with that building.



FEATURES SEEN IN DRAIN TRENCH AND SUBWAY CUTTING  
(FIG. 2)

A trench, 2.4 to 3.0 m. wide by 1.8 to 3.0 m. deep was machine dug for a 460 m. long surface water drain just to the north of the relief road. The section showed that Redholm and most of Veresmead was a medieval and later build up of silt and peat over sands and gravels, the deposits being capped by marsh clay and cut by innumerable gulleys and streams. A sherd at a depth of 1.5 m. in silt under peat in Redholm is dated to 1250-1350. There was some evidence of attempts to control the land; this included a possible track of brushwood bordered by a log, stabilized laterally by vertical stakes; a silt-filled channel bordered by posts; lengths of wattle retaining fences and a number of isolated posts. In the west of Veresmead, peat at 1.2 m. was covered by successive layers of silt, hazel nut fragments, silt, peat with hazel nuts, silt, clay and humus; sherds therein ranged from 13th/14th and 14th/15th century date. Somewhere to the north of Building I a timber which could be interpreted as a door post (note 46) was dug out by machine.

The river terrace forming the SE. corner of Veresmead and the fields to the east, and on which the monastery and much of the medieval town was built, was seen as layers of sand, gravel and clay. Silt found under stylobate 8N of the barn X and under the N. wall of bay 4 suggests a ditch there preceding the barn. Just to the east of the square dovecote VII a ditch ran north-south in the terrace gravels to a depth of 2.6 m. and sherds therein suggest a 15th-century date for the filling; slate in the bottom of the ditch may be from the roof of this dovecote.

Silt from 1.7 to 2.6 m. deep in the gravels just to the west of the dovecote suggests a watercourse there running north-east to south-west. Silt and peat seen in the subway cutting, just to the north of building VIII, line up with this feature Building VIII, of 15th-century date, is strangely aligned, presumably on the bank of this watercourse, it had, in fact, subsided down the bank (FIG. 7). This watercourse could be the stream of the lower mill flowing south-west under the bridge on the W. side of Veresmead (FIG. 2), but, if so, its junction to the north-east with the higher Cornmill stream might present a problem of levels.

DOCK AND WHARF (PLAN, FIG. 16; SECTIONS, FIG. 17; RECONSTRUCTION,  
FIG. 18; PL. 3C)

The dock complex was built into the E. bank of the Cornmill stream to the north of Stony bridge (FIG. 2). It was some 30 m. distant from the supposed N. door of the great barn X. It was discovered during mechanical excavation for the abutment of the road bridge. The N. and E. faces of this excavation were cleaned up and a short trench A (FIG. 16) was dug to the east. A narrow trench B was dug to the north of the abutment to find the depth of the dock but this was not, in fact, established. The investigation took place over two weekends in December 1970 and one in May 1971. Significant timbers were recovered and samples are being conserved before dating by dendrochronology.

## DOCK AND WHARF, LIST OF TIMBERS (T1-T49)

- T1 Main sole plate supporting bearers T4 of opposed slipway, 23 cm. wide  $\times$  18 cm. deep, tenonned and dowelled into T2. Phase 1. Pl. 3C.
- T2 Sole plate forming S. side of dock, fixed to T1, 3 mortises for vertical posts seen. Phase 1.
- T3 Plank cut to fill slot in T2, 5 cm. thick. Phase 1.
- T4 Bearer, tenonned and dowelled into slot in T1, 18 cm. wide  $\times$  10 cm. deep  $\times$  1 m. long overall. Phase 1.
- T5 Ditto, 18 cm. wide  $\times$  13 cm. deep. Phase 1.
- T6 Plank of slipway, 34 cm. wide  $\times$  3 cm. thick, nailed to T4. Phase 1.
- T7 Plank of slipway, 30 cm. wide  $\times$  4 cm. thick, nailed to T5. Phase 1.
- T8 Bearer, tenonned into mortise in T1, 16 cm. wide  $\times$  14 cm. deep, no dowel fitted. Phase 1.
- T9 Bearer, tenonned into mortise in T1, 14 cm. wide  $\times$  13 cm. deep  $\times$  1.1 m. long overall. Phase 1.
- T10 Plank, 34 cm. wide  $\times$  3.5 cm. thick, possibly same as T7, nailed to T9. Phase 1.
- T11 Side beam of wharf, 23 cm. wide  $\times$  20 cm. deep, rebated to take planks T17, mortised to take beam T14. Phase 2. Pl. 3C.
- T12 Two packing pieces at S. end to position T11 over T2, both 6 cm. thick. Phase 2.
- T13 Two packing pieces to support T11 in centre, both 8 cm. thick. Phase 2.
- T14 S. side beam of wharf, tenonned into T11, 18 cm. wide  $\times$  13 cm. deep. Phase 2.
- T15 Vertical post of wharf, 10 cm.  $\times$  11 cm. remaining 53 cm. high, tenonned into T14. Phase 2.
- T16 Planking of S. side fence to wharf, nailed to T15, two planks remained 3 cm. thick to height of 53 cm. Phase 2.
- T17 Planks forming walk-way to wharf, nailed in rebate of T11 and to bearer T18, two planks remaining 29 cm. and 33 cm. wide  $\times$  3 cm. thick. Phase 2.
- T18 Joist 16 cm. wide  $\times$  6 cm. thick, tenonned into T14, supported floor T17 of wharf. See T19. Phase 2.
- T19 Timber, 12 cm. wide  $\times$  10 cm. thick, possibly same purpose as T18, in which case it had sunk 9 cm. Phase 2.
- T20 Tenonned member 15 cm. wide  $\times$  7.5 cm. thick, not *in situ*. Phase 2.
- T21 Post of fence at back of wharf, 1.9 m. long, driven 60 cm. into gravel, up to 10 cm.  $\times$  20 cm. in section, top had been pushed back 30 cm. Phase 2.
- T22 Post similar to T21, length indeterminate. Phase 2.
- T23 Lowest plank across posts T21 and T22, at right level to have supported floor of wharf, 30 cm. wide  $\times$  2.5 cm. thick. Phase 2.
- T24 Planks of fence at back of wharf, nailed to posts T21 and T22, each 19 cm. wide  $\times$  2 cm. thick. Phase 2.
- T25 Small secondary post by T21, purpose unclear.
- T26 Post set at 65° to horizontal, nailed to T27, up to 12 cm.  $\times$  7.5 cm. in section, pointed end, remained to 1.2 m. long. Phase 4.
- T27 Post set at 57° to horizontal, up to 10 cm.  $\times$  7 cm. in section, pointed end, remained to 1.2 m. long. With T26 formed frame of triangular section drain at back of wharf. Phase 4.
- T28 Plank, nailed to T27, end cut at angle to suit slant of T27, 30 cm. wide  $\times$  2.5 cm. thick, 1.5 m. long, square end nailed to post T29. Formed end to triangular drain. Phase 4.

- T29 Post supporting T28, 7.5 cm.  $\times$  6 cm., 1.1 m. long, pointed at each end, inserted before posts T21 and T22 with fence planks T24 pushed over. Phase 4.
- T30 Round post, 6 cm. diameter, branch with twigs lopped off, secondary member holding plank T28 in position. Phase 4.
- T31 Rough baulk, wany surface timber, 7.5 cm. thick  $\times$  38 cm. wide., possibly displaced from forming cover to triangular drain. Phase 4.
- T32 Post, 10 cm.  $\times$  7.5 cm., with empty 23 cm.  $\times$  2.5 cm. mortise on S. side, inserted into natural gravel. Purpose not clear.
- T33 Beam, 15 cm. square, at back of T32, laying on natural gravel. Purpose not clear.
- T34 Displaced triangular timber 2 cm. thick. Phase 4.
- T35 Timber baulk, 11 cm.  $\times$  10 cm., probably not *in situ*.
- T36 Displaced plank, 2 cm. thick.
- T37 Fragment of thin scantling with 3.5 cm. diameter hole, one of five pieces found with holes. Possibly formed cover to triangular drain. Phase 4.
- T38 Displaced piece of scantling.
- T39 Wavy edge plank, 7.5 cm. thick, probably not *in situ*.
- T40 Displaced planking, probably similar to T7. Phase 1.
- T41 Beam, 18 cm. wide  $\times$  13 cm. deep, 2.4 m. length ripped out by machine; evidence of 5 mortise holes, bored and fitted with dowels. Purpose not clear. Phase 3.
- T42 Quartered tree trunk, 15 cm.  $\times$  15 cm. sides. Possibly to stabilize re-formed river bank. Phase 3.
- T43 Rough post, up to 23 cm.  $\times$  10 cm. section, 1.6 m. long, pointed. Part of scheme to re-form bank. Phase 3.
- T44 Post, just behind T43, 10 cm.  $\times$  10 cm. section, at least 1.4 m. long. Presumably extra support to T43. Phase 3.
- T45 Beam, 10 cm.  $\times$  11 cm., seen in section only. Late date, unknown purpose.
- T46 Void, 20 cm. wide, left by post pulled out by machine. A recent feature, stabilized by stones.
- T47 Fence board, 13 cm.  $\times$  2 cm. thick, nailed to post T43. Probably bank-revetting fence. Phase 3.
- T48 Short length of tenonned post dug out by machine. Could have been fitted in T41, one of a line of at least 5 posts.
- T49 Pointed stake with tenon, dug out by machine. Could have stabilized a beam like T41 in the gravel.

## DOCK AND WHARF, LIST OF NON-TIMBER FEATURES (F310-F324)

FEATURE NUMBER	DESCRIPTION OF FEATURE	SIGNIFICANT FINDS
F310	Topsoil with modern rubbish.	
F311	Clay and silt + roof tile + stone, dumped over F312 and F313. Sherd c. 1700. Phase 3.	Pottery: 1 combed slipware
F312	Silt + clay dumped over wharf and dock slipway to re-make bank of stream. Pipe probably dates from dismantling of wharf. ? Phase 3.	Clay pipe: A and O 20, 1680-1710
F313	Grey/black silt, water laid, to W. of fence T43/T47.	
F314	Silt on which slipway was supported. Phase 1.	Shells
F315	Grey silt deposited after dock ramp set in F314. Phase 1.	

FEATURE NUMBER	DESCRIPTION OF FEATURE	SIGNIFICANT FINDS
F316	Natural layered sands and gravels, blackened surface formed bed of dock.	Pottery: 1 small medi- eval sherd
F317	Black silt+ sand layers, E. side of Cornmill stream.	
F318	Grey silt to E. of wharf fence, presumably after dock went out of use.	Pottery: 1 17th/18th century sherd
F319	Grey silt to W. of wharf fence.	
F320	Clay with stones and tile to E. of wharf fence, re-make of ground after drain built. Phase 4.	
F321	Water laid silt in triangular channel of drain, 10 cm. thick. Phase 4.	
F322	Silt/clay, dumped, later than construction of drain.	
F323	Clay+stones, probably a natural deposit, dug out to form dock bed F316.	
F324	Gravel+silt to stabilize T42 and side of re-formed stream bank. Phase 3.	

## DOCK AND WHARF, DISCUSSION

Four main phases of activity were detected:

*Phase 1* Construction of a dock (enclosure for boats)

*Phase 2* Building of a wharf to supersede the dock

*Phase 3* Re-formation of the stream bank

*Phase 4* Construction of a drain behind the wharf

The Phase 1 structure incorporated an opposed slipway arrangement (FIGS. 16, 17, 18) to enable boats to be drawn up from the Cornmill stream, over a supporting sole plate T1 and down into the dock and *vice versa*. Sloping bearers T4, T5, T8 and T9 were tenoned and dowelled into T1; T4 and T5 were set in a slot, whereas T8 and T9 were set in mortises. Planks T6, T7 and T10 of the slipways remained, they were nailed to the bearers. The whole arrangement was set on a silt deposit F314.

The bed of the dock was a well-defined blackened stony layer F316 formed out of the natural gravel strata. If symmetrical to the north, the enclosure would have been 6.4 m. wide north-south and more than 3.6 m. broad east-west. The sole plate T1, with mortises (PL. 3C) for vertical posts, bounded the enclosure on the west and the beam T2 formed the southern bound. This latter beam projected to the west with mortises for further posts, presumably to retain the bank on this side. One small piece of medieval pottery was found in the stony bed of the dock but it was not closely dateable. The reconstruction, FIG. 18(a), indicates water retained in the dock when the level of the Cornmill stream had fallen to expose silt around the slipway. The six vertical posts are conjectural, being based on mortises in the sole plates.

In Phase 2, possibly in response to a general rise in the water level in the Cornmill stream, the Phase 1 arrangement was abandoned and a timber wharf was built. The waterside support for the wharf was the joist T11 set on stout

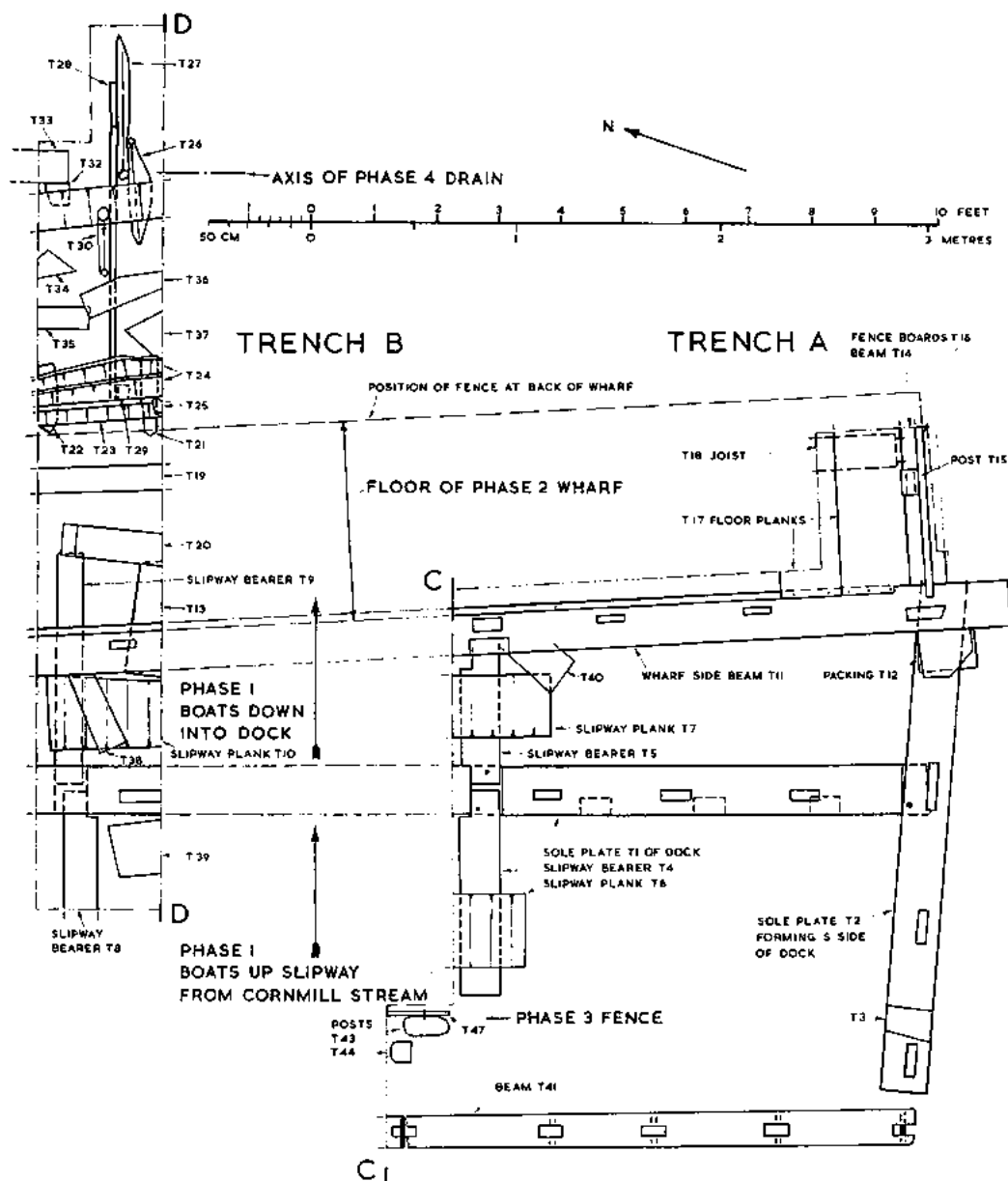


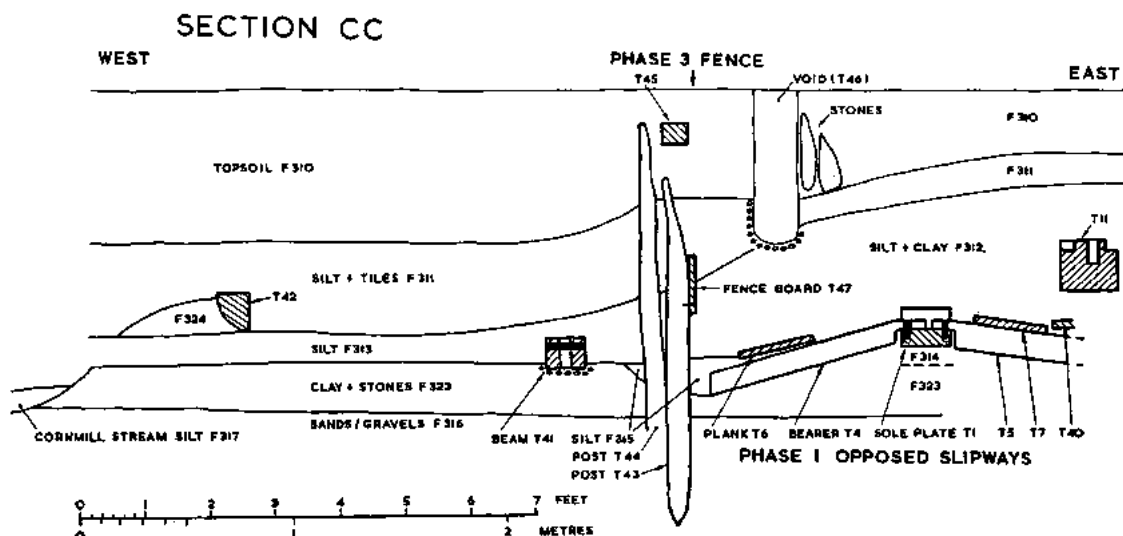
FIG. 16  
GRANGE YARD, WALTHAM ABBEY  
Dock and wharf: plan of excavation (p. 81).

packing pieces T12 and T13, it was rebated on the E. side to accommodate walk-way planks, two of which, T17, remained nailed into the rebate (PL. 3C). The planks were also nailed to the supporting beam T18; T19 may represent a similar member which had subsided. The S. end of the wharf was defined by a fence on a beam T14 with post T15 and planking T16 remaining. The large mortise at the S. end of the joist T11 would have held the tenon of a stout corner post fixed by a dowel. The other mortises in T11 were not bored for dowels, they may have held posts to which boats could tie up, but the existence of a fence there would seem to preclude the use of the structure as a wharf; the timber could, of course, be re-used, but, in that case, one might have expected the mortises to be filled as in T1.

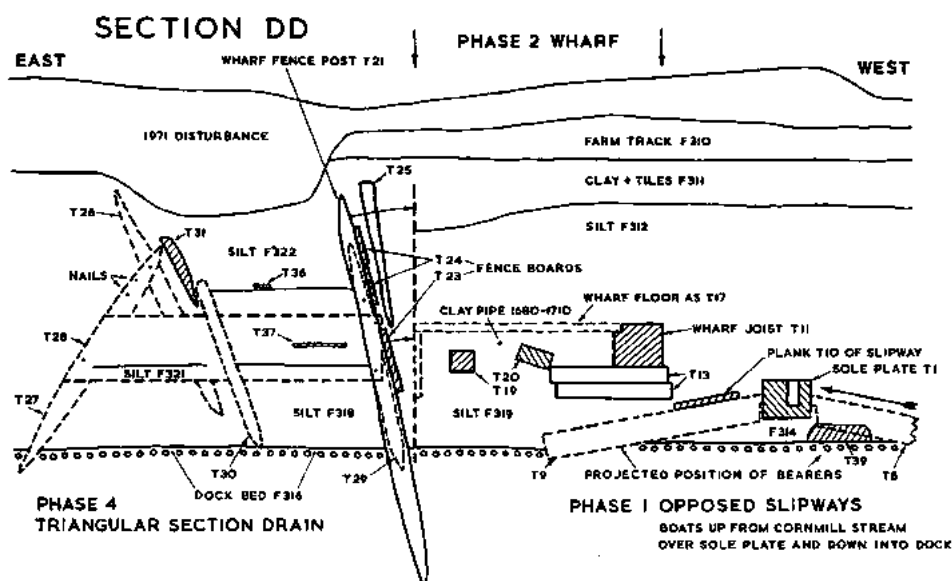
The wharf was about 1.2 m. wide with a fence at the back. Two posts T21 and T22 (trench B) of this fence were seen, they were fixed deeply into the natural gravels. The stout plank T23 connected the posts and acted as a backing to the walk-way. Two less stout fence planks T24 remained at a higher level. It seems that the area behind the fence was still open, at least where seen in trench B, as it had been in Phase 1.

When the wharf went out of use most of the walk-way planks were removed. A clay pipe bowl (position, FIG. 17) of 1680-1710 was probably dropped during the dismantling of the Phase 2 wharf. A fence, represented by the post T43 and a plank T47, was erected to the west of both the Phase 1 and Phase 2 works and the space between it and the wharf fence seems to have been filled in with clay/silt F312, resulting in the wharf fence being pushed to the east (FIG. 17/DD). This partial re-formation of the original bank is designated Phase 3. A sole plate T41 with five vertical mortise holes, was found further to the west (FIG. 16, 17/CC); posts T48 and fixing stakes T49 would have fitted it. T41 was covered by silt F4 above which another sole plate T42 was set in a bed of stones before being covered by the dumped silt F2. These activities, also designated Phase 3, may all have been concerned with the re-formation and stabilization of the bank of the stream. A sherd in F3, dated to c. 1700, together with the evidence of the clay pipe in F312, suggests that even if all the Phase 3 activity was not contemporary it did not cover a long time span.

The area at the back of the wharf fence was left open in Phase 3 and, after the fence had been pushed over by the force of the fill to the west, a timber drain was constructed behind it. This drain was only seen at the back of trench B; it is designated Phase 4. It consisted of two posts leaning together, T26 at 65° and T27 at 57° to the horizontal, to form a triangular section channel running north-south. The N. end of the channel was closed by a plank T28 which was cut to follow the angle of post T27 and was nailed to it. The other end of the plank projected to rest against the plank T23 of the pushed-over wharf fence. Nails in post T27 showed that a higher plank than T28 closed off the top of the triangular channel. One sapwood plank T31 lay at an angle to suggest that it had formed a covering to the W. side of the channel. A distinctive layer of silt F321, between the posts T26 and T27, showed that water had flowed through this structure. In and around this drain were fragments of scantling with 3.8 cm. diameter holes; these



A



B

FIG. 17

## GRANGE YARD, WALTHAM ABBEY

A and B. Dock and wharf: sections CC and DD, for location see FIG. 16 (p. 85).

pieces could be the remains of thin planking totally enclosing the drain. The ditch between the Grange Yard and Cockfield lines up with the end of the timber drain and, if the ditch water was channelled through the drain it would have travelled in a north-south direction before turning west again to discharge into the Cornmill stream. A small 17th/18th-century sherd in the surrounding silt gives a broad date to the drain. In the machine excavation, remains of a planked and, above it, a piped 19th-century drain were noted; these may indicate the water was channelled north-south for some 2.4 m. before running east-west into the Cornmill stream.

The existence of facilities for boats near to the great barn X is established. Produce is likely to have come down stream from the demesne lands and the northern estates to the barn, and corn may have passed from the barn downstream under Stony bridge to the mill. It has been shown elsewhere<sup>61</sup> that the Cornmill stream was likely to be the through route for navigation of the Lea from c. 1581 to c. 1590, and dock/wharf facilities could have been altered in response to this, particularly if the water level in the Cornmill stream was raised. Until the results of dendrochronology are available the construction of the Phase 1 and 2 structures cannot be accurately dated. It is possible that the dock may be as early as the adjacent barn X, c. 1200, and the wharf may have lasted to c. 1700 on the evidence of the clay pipe bowl.

A modern parallel to the Phase 1 dock exists in the tidal basin at Woodbridge, Suffolk, where the basin fills at high tide and retains water, so that boats do not ground when the tide ebbs. At Waltham it is possible that the requirements of milling downstream would have caused fluctuations in the water level. The beam T1 could only have maintained some 28 cm. of water in the dock, any supply from the Grange Yard/Cockfield ditch would have helped the maintenance of this level; the slot cut in T1 for the tenons of bearers T4 and T5 would have reduced this level to 23 cm. In the reconstruction of the wharf, fig. 18(b), the joist T11 has been raised 8 cm. to bring it level with the S. end, and, with the water as shown, there would be some 25 cm. clearance for boats above the Phase 1 remains. This dimension together with the estimation of 23 cm. water in the dock, indicates that the boats were flat bottomed, such a boat 3.7 m. long by 1.2 m. beam could carry a cargo weighing about 500 kg. in this depth.

#### SUMMARY OF DOCK AND WHARF

<i>Phase 1</i>	dock	possibly as early as 1200
<i>Phase 2</i>	wharf	?—c. 1700
<i>Phase 3</i>	bank re-formation	c. 1700
<i>Phase 4</i>	drain	18th century

#### GENERAL DISCUSSION

##### WALTHAM GRANGE

The name Waltham Grange was used in 1541 (Documentary). It is taken to refer at that time to an area of 18 acres north of the Abbey and town including

<sup>61</sup> Huggins, 1970, 128.



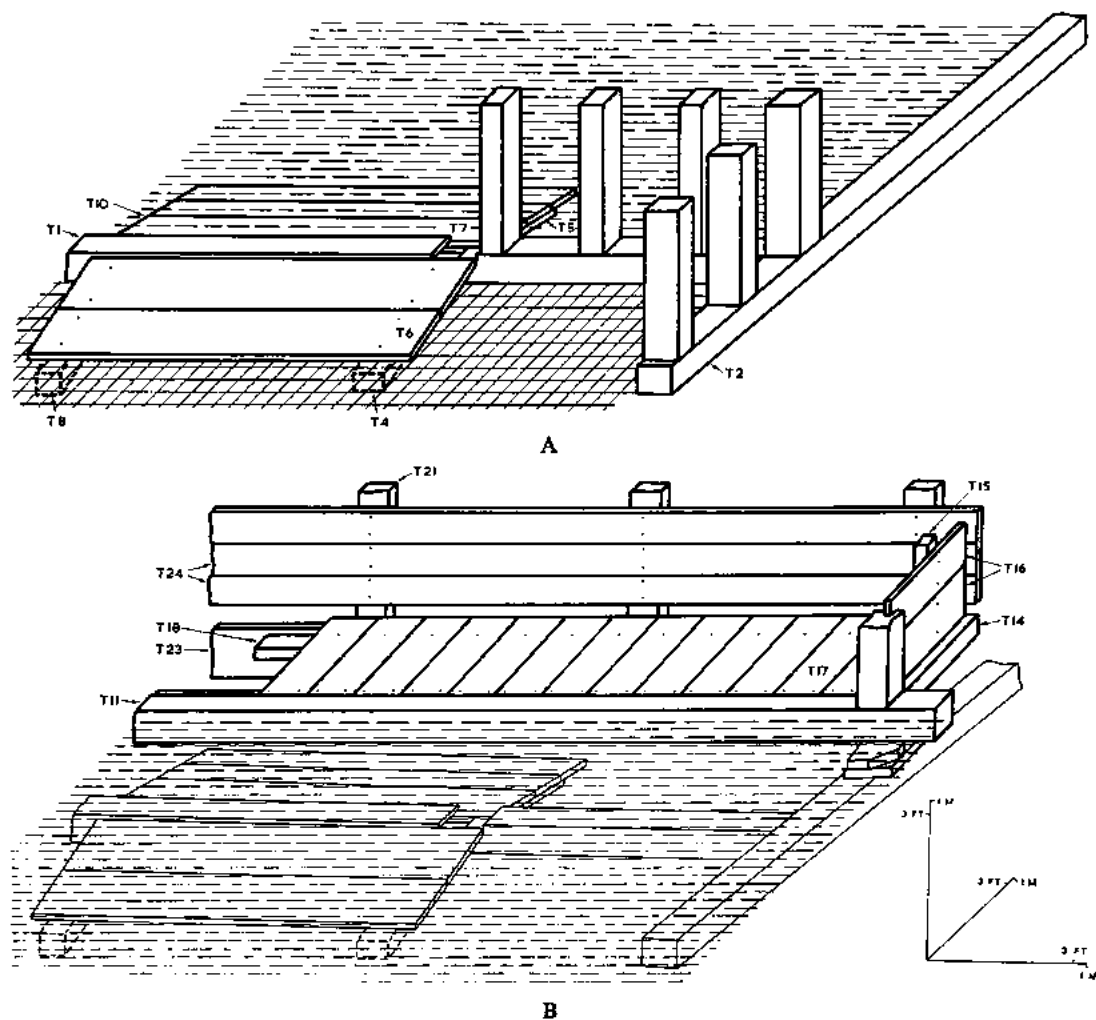


FIG. 18

## GRANGE YARD, WALTHAM ABBEY

A and B. Dock and wharf: reconstructions of the dock (above) and the wharf (p. 84).

Grange Yard, Cockfield, Orchard and Baker's Close. This group of fields lying between the Cornmill stream and Crooked Mile is bounded on the north and east by a bank and ditch presumably designed to contain stock and improve drainage.

The Grange would be the administrative centre of the home farm of the Abbey, food for the workers might be prepared there and possibly it might house a limited number of staff. It would be the store for equipment and provide accommodation for stock and work animals. It would provide storage for the produce from the demesne lands and as received in the form of tithes. The Grange Yard also accommodated the Royal stables with forge, which survived the Dissolution, and a monastic forge which did not.

## VERESMEAD

The only mention of Veresmead by this name is in 1220-22 when it was considered necessary to re-turf the trench cut across the SW. corner. At a date well after the Dissolution it seems to have been called Dovehouse Close (Documentary).

Veresmead, bounded on the east and south by the Cornmill stream and on the west by the stream of the lower mill, is not part of the well-defined group of fields here taken to be the Grange and is outside the main Abbey precinct. It must therefore be considered as an outer monastic close seemingly connected with day-to-day requirements of the community. An entrance directly into the precinct via the narrow N.-S. track from the main E.-W. causeway across Veresmead (FIG. 2) may have enabled produce, including fish and doves, to be delivered straight to the cellarer's gates.

## IDENTIFICATION OF THE BUILDINGS (FIG. 2 and PL. 1A)

Four buildings are shown in the Grange Yard on the c. 1600 map.<sup>62</sup> Two of these can be identified as the barn X and building XVIII. The latter with its row of central pillars, presumably to support a loft, is in all probability the hay barn. Identification of the building shown on the eastern boundary of the Grange is uncertain. It appears to be too small to be the whole of building XII, but it may represent the central stable block with ruinous ends. The fourth building, on the west side of Grange Yard, is shown roofed north-south with a southern solar end. The Abbey House stables are known to have occupied this position in the 18th century and were possibly successors to earlier stables. Thus both this building XVII and building XII may have been stables and one was probably the King's stables, which are known to have been in the Grange Yard in 1541. Excavation of building XVII may elucidate this point.

Under the heading *The Graunge* in the Dissolution Inventory are given the contents of the *garner*, the *Otebarne*, the *hey barne*, the *plowhouse* and the *deyhouse*, after which are listed cattle and the corn in the fields. A stable was implied, since 12 oxen were counted *in the stall*, but was not mentioned specifically; only building XIIb showed evidence of being divided into stalls.

It is well known that several products could be stored in the same barn, and it is possible that one building, if it was used to store two crops could have two names. Thus the barn X might have been both the *garner* with the wheat and the *Otebarne*. Building XVIII is then the *hey barne*. Either building XI, with its track leading towards the Crooked Mile entrance, or XXI, directly to the south of the entrance track, would have been suitable for the storage of the equipment listed in the *plowhouse* which would have needed road access to the demesne lands. Such a sequence, X, XVIII, to XI (or possibly XXI) would be a reasonable one for the Inventory clerk to have followed on the ground. After the *plowhouse*, but before the cattle, is listed the *deyhouse*. A deyhouse is usually interpreted as a dairy,

<sup>62</sup> *Op. cit.* note 23, a fifth building (see Fig. 2/XIX) is shown but it is within the precinct wall and has not been investigated.

but, in this case, the saleable items listed are more consistent with equipment for a kitchen or cookhouse. It is suggested that it was a 'dayhouse' providing shelter and cooking facilities for farmworkers. Then XIIa, with its great fireplace, is a possible identification.

After buildings clearly within the monastic precinct, but before those under the heading of *The Graunge*, the Inventory lists the *bakehouse* and the *brewhouse* with its *graner*. The Waltham brewhouse may be difficult to identify because the vats are listed in the Inventory as saleable items which would have been removed.<sup>63</sup> The bakehouse would be expected to contain several ovens and ought to be more easily identified. It is possible that the brewhouse and bakehouse are across the Cornmill stream within the precinct.

Four of the excavated buildings lay in Veresmead; two were successive dovecotes (IX and VII), so that buildings I and VIII remain to be identified. Building I with hearths and oven and the large quantity of pottery might be identified as a kitchen or more generally a building for some culinary process. Building VIII was probably a store for whatever process was, in fact, carried on in building I. As none of the buildings known to lie in Veresmead are shown on the c. 1600 map, and those which were excavated were judged to have been pulled down c. 1540, it seems likely that these were 'monastic' rather than farm buildings.

One or two other buildings could exist in the undisturbed area of the Grange Yard. Knowledge of such buildings together with excavation of those known from cropmarks in Veresmead could alter the opinions expressed above.

#### LAYOUT OF THE GRANGE

The area to the north of the town and church was owned from before 1060 and until 1177 by the secular canons of Holy Cross. The only evidence of occupation, in the area excavated, of this period is stratified under building XX and the dovecote IX in Veresmead may be of this time also. It seems likely that the Grange was laid out with a boundary bank and ditch c. 1177 when the enlarged Augustinian foundation for regular canons was established. The earliest excavated building in the Grange Yard was Phase 1 of the barn X built in the late 12th/early 13th century, and this may have stood on its own for a while. In the early 13th century the forge XX, possibly a monastic rather than Grange building, was erected. In the 13th/early 14th century the lodge XIV was built and probably served a gated entrance from Crooked Mile. By this time the barn X had probably been extended to 12 bays.

The greatest expansion occurred in the 15th century when the layout was established which survived to the Dissolution. By this time the buildings X, XVIII, XII, XIII, XXI, XX, and XVII were situated loosely around the sides of the Grange Yard with only XI set centrally. Such an arrangement, which would have localized fire damage, a particular risk with timber-framed buildings, contrasts with the setting of stone buildings round a closed courtyard which was

<sup>63</sup> At Fountains Abbey, Yorks. (M.P.B.W. guidebook, H.M.S.O., 1970), there remained a great circular vat of cemented brick for steeping and draining the barley, a raised drying platform and a kiln for final drying of the malt.

common in the colder north. There is not even the close juxtaposition of buildings, connected by boundary walls, as evidenced at the mainly 13th-century farm of the Knights Templar at South Witham, Lincs. The only boundary wall seen, in a very fragmentary form as Abbey stone debris after topsoil stripping, stretched presumably from buildings XVIII to XI (FIG. 2). To the west the ground was cobbled with loose pebbles right along to the south of the barn X, whereas to the east of the wall there was no such surface and the topsoil there gave way to the natural clay.

The buildings standing in the early 17th century: X, XVIII, XVI and XVII would have presented a similar appearance, with XV set in from the Crooked Mile entrance.

The position of the barn X, adjacent to the dock, suggests that the Cornmill stream was an important artery of communication; it would give access to the whole length of the demesne lands up to Fishers Green and to the Abbey lands upstream to Hertford.

#### DOMESTIC ACCOMMODATION

As the whole town of Waltham lay within the manor of Waltham Holy Cross, which belonged to the Abbey throughout the monastic period, grange staff and workers could be housed there. Also the town would act as a source of seasonal labour with further help supplied by tenants of the large manor. Accommodation needed on the grange, therefore, is likely to be limited.

Two crofts and a tenement are described as 'lying in the Grange next to the Stone bridge', Mathew Peke was tenant soon after 1541 and he probably lived there before 1540 as he was granted a pension and reward for his services to the Abbey. Another croft 'beside the barn' (presumably X) was also granted to Peke. The whereabouts of these crofts and the tenement is not clear. Cockfield is at present divided by slight depressions into areas which might represent crofts, and the one described as beside the barn could be in this field. Domestic accommodation is, of course, possible in Veresmead; the cropmarks suggest that IIb and IV might be tenements.

In the Grange Yard, domestic accommodation is likely in XIIa where there was a great fireplace near the solar end. If, as is suggested, XIIb is stabling, then these quarters could be for grooms. A porter or gatekeeper might have lived in the lodge XIII and the earlier XIV; the amount of pottery found in this region makes domestic occupation likely.

#### STAFF

The official directly responsible to the cellarer of the Abbey for the organization of the Grange at Waltham was probably called bailiff as a bailiff's wife is mentioned in 1541 (Documentary). A subordinate, whose duty was to keep tally of incomings and outgoings at the barn(s) may be called granger, barnward or barnkeeper, but at Waltham the word *grangeator* is used in 1527 and may describe such a clerk. There is no mention of other Grange posts at Waltham; the reference to Hugh of the Grange gives no clue as to his job.

The need for such workers as ploughmen, carters, shepherds, shearers, ox-drivers, horse-drivers, oxherds, cowherds, swineherds, bakers, brewers, cheese makers, harvestmen and hay cutters is implied by the contents of the Dissolution Inventory. A gatekeeper or porter, cooks and maids, general farm boys and girls, and labourers would also have been needed. A tithe collector must have been required. Some workers would have performed more than one task and a staff of between 10 and 20 would agree with those known to be employed by moderately large granges of any order.<sup>64</sup> As an example, at the Cistercian Grange of Great Coxwell, Berkshire, in the 14th century, there were employed 8 ploughmen, 2 carters, a hayward, a forester, a baker, a cheese-maker, a porter and a swineherd, augmented in the summer by a cook and his boy, a tithe-collector, a cowherd and 3 shepherds; thus a staff of 16 was increased to 23 because of seasonal needs.

#### THE FARM ANIMALS

The 1540 Inventory list of *cattell* includes 100 sheep and lambs, 6 cows, 2 bulls, 2 bullocks, 5 yearlings, 19 oxen (of which 12 were *in the stall*), 21 pigs and 6 cart horses. There were also 7 malt horses for use in the horsemill of the malt garner of the brewhouse, this was not sited in the Grange. The stalls of building XIIb were approximately one perch wide, each suitable for a 4-oxen team. Although some stalls were put out of use by alterations, at least eight could have remained in use. These eight stalls could have accommodated 32 beasts, this is just the total of 19 oxen and 13 workhorses listed.

Sties would be needed for the pigs and winter shelter for the cattle and sheep. Such accommodation might be found in Cockfield and Baker's close, but cattle and sheep are sometimes recorded in barns in Essex inventories.<sup>65</sup> If, as suggested, building XVIII is the hay barn with loft storage, the ground floor could have been used for animal shelter. Either XI or XXI, whichever is not the *plowhouse*, might also be so used.

#### THE FARM LANDS AND ECONOMY

The lands farmed from the Grange probably varied over the years. In 1541 the demesne included 1,033 acres of arable land and 198 acres of meadow or pasture (Documentary). Suggested identifications are given (FIG. 1) for Cobfield, Sheepcotefield and Eastfield, and for Northfield which was probably part of the original grant of Northland. The above fields, and probably others not identified, were situated to the north, south and east of the town rather than as one continuous estate; most of this land was tithe free in 1776.

At the time of the inspection for the Dissolution Inventory, probably made in March 1540, only Cobfield was mentioned by name, being sown with 140 acres of wheat and 100 acres of oats. A further 81 acres of wheat *upon measure / made by the tenants and the king's officers* and 63 acres of oats *after measures* were listed but are not at present understood. Thus 384 acres were winter sown and perhaps a few hundred acres were to be spring sown and the remainder fallow.

<sup>64</sup> Platt, 1969, Chapter 4.

<sup>65</sup> Steer, 1969.

The storage capacity of the barn X is estimated as 2,500 cubic metres (90,000 cubic feet). The barn would be required to store the crops from about 700 demesne acres (allowing  $\frac{1}{3}$  fallow) and the tithes of 2,400 arable acres<sup>66</sup> amounting to another 240 acres. There is thus the produce of 940 arable acres to be stored. In a good year at a yield of 10 bushels per acre<sup>67</sup> there would result 9,400 bushels requiring a storage capacity of 340 cubic metres (12,000 cubic feet).<sup>68</sup> This is only about one-seventh of the estimated total capacity of the barn, but if the grain needs to be stored before it is threshed its volume would be many times greater. It is reasonable therefore that a barn of this size would be needed for such an estate. The outlying estates, for example Netteswell (Harlow), possessed their own barns.

At the Dissolution, wages and rewards were given to 74 men, women and children and there were 18 clerics, the total of 92 represents a minimum number needing to be fed. If their individual average requirements were 2lb (0.9 kg.) of bread and 1 gallon (4.5 litres) of beer per day, it can be estimated<sup>69</sup> that in a good year about 150 acres would be needed to supply grain for the bread and about 250 acres for the beer. Also about 35 acres would be needed to supply oats to the 32 work animals. Thus a total of about 450 acres would be needed in a good year and perhaps 900 in a bad year. These figures do not include the requirements of farm workers, visitors, the aged and infirm, or of riding horses. Also some arable land would be needed for peas, beans, vetches and possibly root crops. Nevertheless, whether fallow land was 30 per cent or 50 per cent, the 1,033 demesne arable acres would seem to be sufficient to meet the needs in a good year, but not in a bad year. Any deficiency could, of course, be made good from the neighbouring estates as required; any excess could have been sold in the markets of Waltham or nearby Epping which the Abbey owned.

Estimates of summer grazing required by work animals vary, for 32 animals between 30 and 80 acres would be needed.<sup>70</sup> Cattle listed numbered 15. Hence the 183 acres of pasture or meadow would meet the above needs and those of riding and carriage horses too. The 165 acres listed as *pratium* would have been mown for hay and could have produced some 225 loads, sufficient for about 55 animals.<sup>71</sup> There would thus appear to be sufficient land for hay to meet the needs of the community.

<sup>66</sup> This figure is estimated from the total Domesday extent of the manor of 40 hides or 4,800 acres. Less c. 1,200 demesne acres gives 3,600 acres which, at one third fallow, leaves 2,400 acres.

<sup>67</sup> The acre's yield is discussed by Maitland, 1897. The calculations herein are based on yields of 10 and 6 bushels per acre in good and bad years; with 2 bushels per acre for seed, the overall surplus for consumption lies between 8 and 4 bushels per acre.

<sup>68</sup> The equalities of capacity in these calculations are: 1 quarter = 8 bushels = 291 litres = 0.291 cubic metres = 10.3 cubic feet.

<sup>69</sup> Calculations based on data in Maitland, 1897. One bushel of corn weighs 60 lb. (27 kg.); weight of flour = 72 per cent weight of grain; bread contains 83 per cent flour; for the Canons of St. Pauls' beer 1 quarter of wheat, barley, oats made 64 gallons; in the calculations here a weaker brew of 16 gallons per bushel is assumed.

<sup>70</sup> The variation is between 1 acre and 1 hectare (2.47 acres) per animal; Fussell, 1965, 77.

<sup>71</sup> This calculation is based on data relating to the Queen's horses at Waltham in 1587, *op. cit.* note 21; 30 horses needed 120 loads of hay per year and 44 acres produced 60 loads, thus 1 horse needed the produce of 3 acres; this figure has been used for all the animals considered here.

The sheep numbered 100; in the 13th/14th century 20 sacks of wool per year<sup>72</sup> were produced for sale. The sheep presumably grazed in the higher lands and in the forest pastures. Sheepcote field, 144 acres, is believed to be south-east of the town. Pigs numbered 21. The soil of the Royal Forest belonged to the Abbot and Convent and the swine would have fed there on acorns and beech mast at pannage time. Domesday Book records forest for 2,200 swine at Waltham; tithes of pannage may have been obtained for excess capacity of the forest.

The produce remaining in March 1540 included 10 quarters of wheat, sufficient to supply bread for 24 days only. There were 20 quarters of oats in store, more than half the annual requirements for the 32 work animals, or enough to produce about 4 weeks supply of beer. The 7 quarters of malt would have lasted a few days only. Twenty-five loads of hay remained, a year's supply for several animals and surely sufficient to last work and riding animals until spring grazing was available.

### CONCLUDING REMARKS

The investigations were carried out, often in difficult conditions, over a period of two years. Effort was concentrated on obtaining plans and understanding main phases of construction of buildings. Much of the work was undertaken at great speed and in the smallest trenches likely to yield the basic information needed for this report.

Doubt remains concerning the identification of some of the buildings, but this problem may be elucidated by further archaeological and/or documentary discovery. The calculations on the farm economy are likewise tentative but they seemed a worthwhile attempt at assessing the ability of the demesne lands to support the monastic community.

The finds are at present in the custody of the Waltham Abbey Historical Society, but they, and the excavation records, will eventually be lodged with the museum soon to be built at Waltham by the Lee Valley Regional Park Authority. The finds are available for study and anyone who can contribute towards their better description or identification, is welcome to contact the Society.

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<sup>72</sup> This information occurs in both Flemish and Italian lists; Cunningham, 1910, 640.

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## APPENDIX 1: POTTERY (FIGS. 19-24), by Rhona M. Huggins

*Prehistoric*

In the clay under building X were a few rough pieces of heavily flint-tempered pottery without shape and in most cases with the surfaces eroded. This is taken to be prehistoric. The Neolithic axehead (App. 18) from Redholm is further evidence of prehistoric occupation at Waltham.

*Saxon*

The only Saxon pottery, except for a large group under building XX which will be reported later, was a small plain rim of grass-tempered ware from F103 of Building VII and a similar sherd from F155 of Building X.

*Medieval*

The earliest group of stratified pottery (nos. 1-8) came from the foundation of building IX, the clay bank under building XII, and clay under buildings X and XIII. This is similar in type to that found in the Cloister excavations,<sup>73</sup> i.e. large diameter pots tempered with shell or coarse sand; as the Grange is likely to have been built soon after the 1177 re-foundation, the date of 1150-1250 previously given is maintained.

Pottery from the earliest occupation levels of building I contained only one rim and several sagging bases (nos. 9-12), the predominance of sand tempering suggests a slightly later date than the first group discussed above; some sherds with green glaze on a reduced fabric were included.

Only a small group, including nos. 13 and 14, came from the ash deposit F23 of Phase 2 of building I. Nos. 15-17 were from a similar deposit F97 which may have accumulated over a considerable period of time. Nos. 19-21 from F43 were stratified in a later ash deposit, while the jug no. 18 was in the foundation clay F44 of the Phase III ground wall F74. Nos. 43-46 from the ash deposit under building VIII are considered to be derived from the early ash deposits of building I. Nos. 36 and 37 from F29 were stratified above no. 35 from F38 which was later than nos. 22 and 23 from F33. Pottery from F94 and F93 is similar to that from F43 and below building VIII. The cooking pots and bowls in all these levels were often badly burnt but the jugs were unburnt and usually lay on the trodden surface of the ash layer.

Pottery from the last phase of building I (nos. 38-42) contained sherds of Group K dated 1450-1600. Group K pottery (nos. 113 and 119) also occurred under building XIII.

The destruction layers of building I contained large quantities of pottery in mainly unworn condition, which had apparently been broken during the demolition of the building. Nos. 47-55 may be derived from the last period of occupation of the building. The large bowls and pans (nos. 56-69), the pipkins (nos. 77, 78, 81-83), and jugs of fine, unglazed, undecorated redware (such as nos. 72, 74, and 76) are typical of 16th-century forms and the group of imported wares (nos. 90-106) includes Raeren mugs and Cistercian ware commonly found on early and mid-16th-century sites; the small finely glazed cups and jugs are typical of Tudor wares. As the buildings in Veresmead had all been demolished by c. 1600 when the map (PL. 1A) shows a meadow, and the area remained undisturbed until the road was built in 1970, there was only a handful of later pottery and pipe stems from the turf layers above the building.

The pottery from the loam F260 under building XIII (nos. 107-119) is taken to be rubbish from building XIV deposited with organic material. It may have accumulated over a long period but contains no shelly ware or coarse sandy ware. A date for the earliest pottery in the 14th century is suggested and, as there is no stoneware, the group is taken to be before 1475/1500. Typologically, however, most of the pottery in

<sup>73</sup> R. M. Huggins in Huggins, 1970, 244-56.

the group is probably 15th century. The pricking of handles with a pin is generally considered to be a late medieval technique, the evidence from this group (nos. 115 and 117) and from building I (nos. 41 and 51) suggests that it is of 15th-century date.

Nos. 120-123 are associated with the construction of building XII and a late 15th-century date has been suggested which is borne out by the brick size and style of the building itself.

Pottery from the destruction levels and robber trenches of building XII (nos. 124-134) does not include the wide-rimmed pipkins typical of mid-16th century groups such as were found in building I destruction levels. It is suggested therefore that the foundations of building XII were not robbed of brick until late in the 16th century when documentary evidence shows Sir Edward Denny to be carrying out work on the monastic site. Fill from the robber trench F192A contained pottery of 16th and late 17th-century date<sup>74</sup> with a pipe of 1640-70 and presumably represents further robbing at this late date. The base no. 135 is paralleled by no. 102 from building I and may indicate building XIII was demolished in 1540.

No. 136 lay above the hearth of building XIV and is probably 15th century while no. 137 was under the floor of building XVI and could be late 16th or early 17th century. The larger group (nos. 138-157) from the debris outside building XVI is characteristic of the first half of the 17th century,<sup>74</sup> and, as no clay pipes or decorated slipware was found in the group, a date well before 1640, is suggested. The bowl rim no. 153 of red-slipped ware imported from Merida in S. Spain (identified by J. G. Hurst) is little better than the local product and was perhaps imported with other Spanish goods. The base no. 154 is from another vessel of the same ware.

Pottery from building XXI includes the jug no. 158 which was stratified in wall-foundation clay, and a late 14th/early 15th century date is suggested for this. The machine dug levels, which cut into the same foundation clay, produced the 6 sherds of a sgraffito decorated jug no. 155 (identified by J. G. Hurst) of the type found in Cambridgeshire<sup>75</sup> and at Writtle in Essex<sup>76</sup> and dated to the 15th century. The jug rim no. 160 occurred with the group of unglazed redware sherds from the destruction levels and indicates a 16th-century date probably soon after 1540.

Building XX is still being excavated and the pottery will be reported at a later date.

#### LIST OF LOCAL POTTERY TYPES

##### A, B, C. Saxon wares

- |   |           |   |
|---|-----------|---|
| D | 850-1300  | Shell tempered ware, red or grey. Pots increase in size.  |
| E | 1100-1150 | Fine sand temper, wheel made, grey/black.   |
| F | 1150-1350 | Coarse sand tempered, wheel made grey/black.  |
| G | 1150-1350 | Coarse sand tempered, wheel made, grey/black but with red surfaces under black, sometimes red core.                                     |
| H | 1250-1540 | Red, sandy undecorated cooking pots, glazed inside base occasionally, especially in 15th century.                                       |
| J | 1250-1540 | Red, sandy ware jugs, decorated with painted white lines or by white slip overall under green glaze. Glaze may be used as a 'bib' only. |
| K | 1450-1600 | Pinkish ware, well fired with smooth surface, often with mottled or clear green glaze either inside pots or outside jugs.               |
| L | 1450-1540 | Sandy unglazed ware, grey, sometimes with 'sandwich' red/grey core. Probably reduced version of H and J.                                |
| M | 1500-1640 | Fine red ware sometimes with thin brown glaze sparingly used.   |

<sup>74</sup> R. M. Huggins in Huggins, 1969, 68-85.

<sup>75</sup> Dunning, 1950, 48-9, also Bushell and Hurst, 1952, 21-6.

<sup>76</sup> Rahtz, 1969, Fig. 54, nos. 42-8.

N 1640-1700+ Fine redware with increasing use of thick brown glaze, blackware tygs and 'Metropolitan' slipware are 'best' pieces made with the undecorated brown glazed ware.

X Rough, heavily flint-tempered prehistoric ware.

In the following descriptions, the word 'import' means that the ware was not made locally.

#### FIG. 19

##### *Pottery from building IX foundation*

1. Rim of cooking pot, grey ware with black surfaces and reddish patches, shell and sand tempered. Part of sagging base of this or similar pot found with it. F106 (D).

##### *Pottery from clay under building XIII and clay bank under XII*

2. Rim of greyish brown fabric, wheel made, leached shell tempered. F261 (D).
3. Rim of black fabric with light red surfaces, shell tempered, leached on surface only, wheel made. F215 (D).
4. Rim, fabric like no. 2 but with red surfaces. F261 (D).
5. Rim, grey core and surfaces with coarse sand temper. F215 (G).
6. Rim, thin grey core, red margins, grey surfaces, coarse sand temper. F221 (G).

##### *Pottery from building X foundations*

7. Rim, grey core, brownish grey surfaces, shell tempered. F145A (D).
8. Rim, fabric like no. 7. F153 (D).

##### *Pottery from building I*

9. Rim, red fabric with brown surfaces, coarse sand temper. F8 (G).
10. Base of cooking pot, grey core, red surfaces, coarse sand temper. F17 (G).
11. Base of cooking pot, like 10 but blackened. Cavity in junction of base and side caused by impressed wood burnt out in firing. F17 (G).
12. Base of cooking pot, grey ware, blackened, fine sand temper. F11 (E).
13. Rim, grey core, red surfaces, fine sand temper. F23 (H).
14. Base of jug handle, white slip painted decoration under greenish brown glaze applied evenly all over but pitted, grey core, buff inside surface. A cross has been cut with a sharp instrument after firing. (A cross on a similar handle base was found in 1969 in Waltham Abbey Close excavations.) F23 (J).
15. Jug handle, grey sandy ware, thumb impressions each with stab made by lozenge shaped tool. (Fabric like no. 41.) F97 (J).
16. Skillet with funnel shaped handle and pushed out spout opposite. Handle could also serve as funnel but probably held a wooden handle. Red sandy ware, patchy brown glaze inside below rim and thickest on base. Blackened underneath and up sides outside, particularly on spout side. F97 (H).
17. Flanged rim, red sandy ware. F97 (H).
18. Top half of jug, red sandy ware, white stripes painted on shoulder and below rim and three spots of paint dabbed on bib of jug, greenish brown glaze outside. Strap handle thumbed and with two slight grooves down back. F44 (J).
19. Rim, grey ware, coarse sand temper. F43 (G).
20. Rim of bowl, burnt fabric, sand temper. F43 (H).
21. Rim of bowl, red surfaces, fine sand temper. F43 (H).



FIG. 20

*Pottery from building I*

22. Rim, red sandy ware, thickly encrusted inside with burnt matter, sherds and pieces of flint, burning occurred after breakage. F33 (H).
23. Base of squat jug, grey core, red margins, brownish surfaces with a white band painted round the pot. F33 (J).
24. Rim, red sandy ware, roughly made. F94 (H).
25. Rim, burnt sandy ware. F94 (H).
26. Rim, burnt sandy ware. F94 (H).
27. Bowl rim, red sandy ware, rather burnt. F94 (H).
28. Rim, red sandy ware, rather burnt. F94 (H).
29. Bowl, fine sandy ware burnt, traces of discoloured glaze inside. F94 (H).
30. Rim of shallow bowl, or possibly lid. Light red fabric, fine sand temper. Very worn. F93 (H).
31. Sherd of buff fabric with embossed pattern under dull olive green glaze. F93 (import).
32. Rim of small bowl or jar, red fabric with white slip covering both surfaces, brown band revealed under white slip yellowish glaze outside. F93 (import).
33. Rim of small pot, buff fabric with fine yellow crackled glaze both sides. F93 (import).
34. Base of jug handle, red sandy ware, rough inside, outside covered with white slip under speckled green glaze. F93 (J).
35. Rim, red inside surface, sand tempered, burnt outside and over rim with hard matter encrusted, few spots of glaze. F38 (H).
36. Bowl rim with horizontal handle, red sandy ware, burnt, possibly glazed inside. F29 (H).
37. Jug rim, buff sandy ware, smooth olive green glaze on part of outside surface. F29 (import).
38. Large sherd of redware jug, black core, white painted stripes, greenish glaze over upper part, probably a 'bib'. F88 (J).
39. Upper part of thick grey vessel, outside encrusted possibly by burnt glaze, inside burnt. F95.
40. Rim, grey sandy ware. F96 (L).
41. Jug rim with strap handle pierced by pin, grey sandy ware. F96 (J).
42. Jug rim, sandy ware burnt, slip over rim and outside, blackened glaze below rim outside. F96 (J).

*Pottery from building VIII*

43. Rim, grey core, red surfaces, shell temper, thumbled band applied vertically to shoulder. F115 (D).
44. Rim, grey sandy ware. F115 (F).
45. Rim of bowl, brownish grey, fine sand temper. (Like no. 21.) F116 (H).
46. Rim, grey core, brown surfaces, fine sand temper, splashes of glaze on rim running down inside pot. F116 (H).

FIG. 21

*Pottery from destruction layers of building I*

47. Jug rim, red sandy ware with trace of white slip on lower part, rough finish. F65 (J).
48. Jug rim, unglazed redware, smooth surfaces. F65 (M).
49. Jug rim, red sandy ware with white band painted round neck, rough finish. F65 (J).

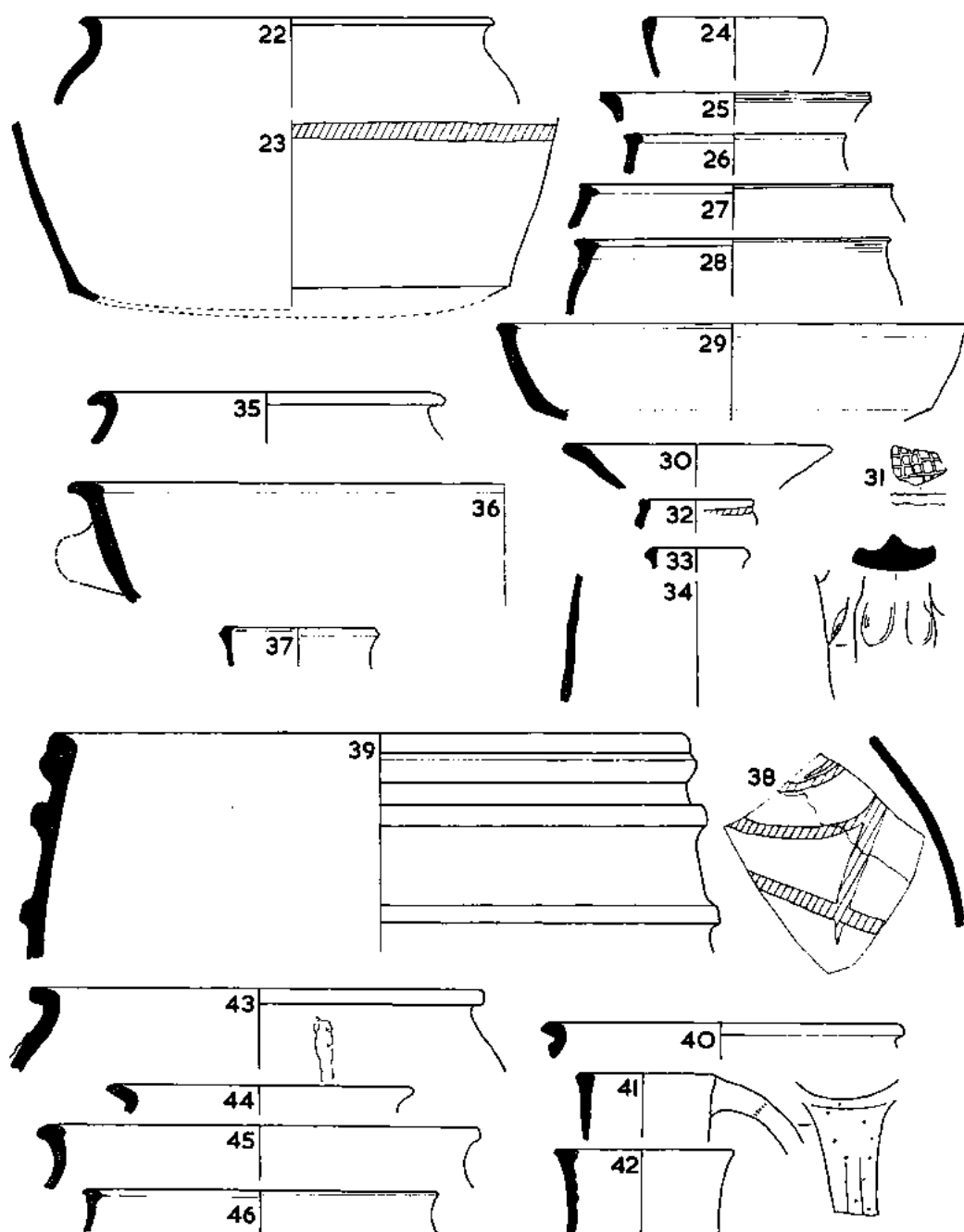


FIG. 20

## VERESMEAD, WALTHAM ABBEY

Pottery from Building I, 13th to 15th century (p. 101). Sc.  $\frac{1}{2}$

50. Jug base, red sandy ware, traces of slip coating and yellowish glaze outside. Possibly base of no. 49. F65 (J).
51. Jug rim and handle, grey sandy ware with splashes of glaze outside. Handle slightly thumbled and pierced. See no. 41. F63 (L).
52. Rim, grey sandy ware. F65 (L).
53. Flanged rim, hard grey ware, rather burnt. F63 (L).
54. Rim of bowl, red coarse sandy ware. Lead globules impressed in overlapping fold of rim. F63 (H).
55. Rim of bowl, red sandy ware, thin brown glaze on rim and inside. Lead globule impressed like no. 54. F63 (H).
56. Bowl. Light red fabric, well fired, light brown glaze roughly applied to inside of base and up sides. Turning marks on outside of base and sides. F63 and F56 (M).
57. Bowl, redware with flanged rim, roughly finished. F88 (M).
58. Redware bowl with flanged rim, roughly finished, brown glaze inside base. F117 (M). *Building VIII*.
59. Shallow vessel of brownish fine ware, darker outside with light brown glaze on bottom half inside only. Probably open at bottom as edge tapers and is covered by glaze at two points. F92 (similar rim in F63) (M).
60. Flanged bowl rim, red unglazed ware, well fired. F65 (M).
61. Flanged bowl rim, redware with dark surfaces, brown glaze at bottom inside. F65 (M).
- 62-66. Rims of dripping pans, red or brownish fabric with greenish/yellow glaze inside base, burning under base. F63 and F65 (M).
67. Handle of pan, redware unglazed, the handle roughly handmade with the rim thumbled. It could also serve as a spout, but probably held a wooden handle. (Compare FIG. 19/16.) F114 (H). *Building VIII*.
68. Handle of pan, unglazed redware, burnt. F65 (M).
69. Shallow bowl or dish with horizontal rod handle. Redware with white slip in middle of base covered by yellowish glaze which extends to below the rim. Probably Dutch. F63 and F117, *building VIII*.

## FIG. 22

*Pottery from destruction layers of building I (cont.)*

70. Redware vessel, dark surfaces on both sides, streaks of glaze outside. F65 (M).
71. Redware vessel, well fired, light brown patch outside. F63 (M).
72. Redware jug, well fired, light red inside, dark outside surface, traces of brownish glaze and on opposite side trace of handle. Incised bands on shoulder. F65 (M).
73. Redware rim, unglazed with patches of white paint. F63 (M).
74. Black unglazed jug rim with handle, red margins. F63 (M).
75. Jug rim, red sandy ware, grey core, dark surfaces, unglazed. Trace of handle. F65 (M).
76. Jug rim, redware, dark surface outside, unglazed. F63 (M).
77. Pipkin rim, redware, greenish brown glaze inside rim. Bases with glaze of similar type on the inside are common in this group. F65 and F53 (M).
78. Pipkin rim, dark grey surfaces, thin red margins, black glaze inside rim. F65, F63, and F53 (M).
79. Rim of red sandy ware, grey core, unglazed. F63 (H).
80. Jug rim, redware, splashes of greenish brown glaze outside. F65 (M).
81. Pipkin rim, redware, brown glaze inside rim. F65 (M).
82. Pipkin rim, redware, unglazed. F56 (M).
83. Pipkin rim, redware, traces of yellow glaze inside the rim. The whole large sherd subjected to intense heat after breakage and coated with hard ashy substance. F53 (M).

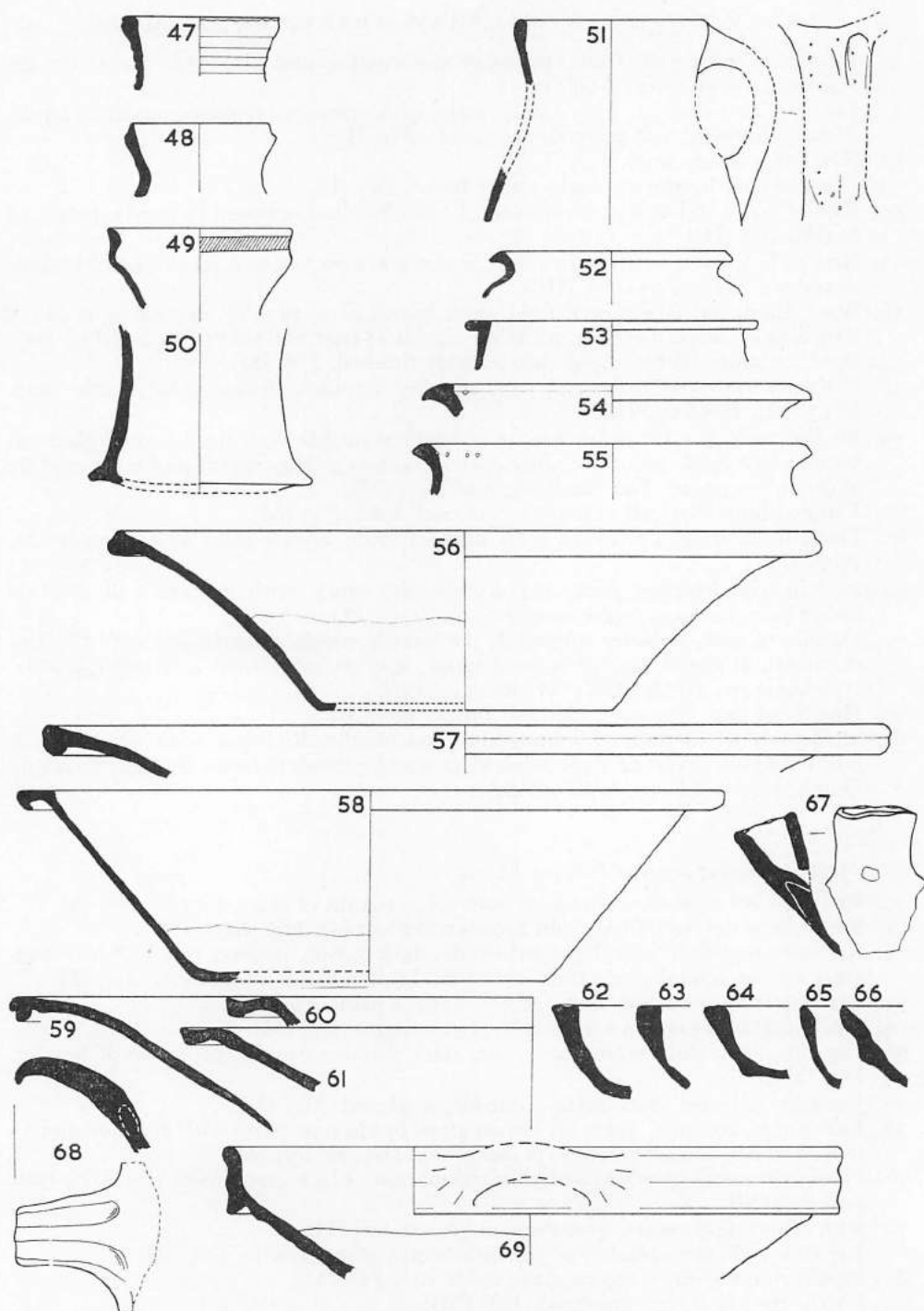


FIG. 21

VERESMEAD, WALTHAM ABBEY

Pottery from destruction levels of Buildings I and VIII, c. 1540 (p. 101). Sc.  $\frac{1}{4}$



84. Rim of vessel, similar fabric to no. 83, burnt and ash coated, trace of yellow glaze inside at bottom of sherd. F65 (M).
85. Jug rim, pinkish fabric, rather worn with green glaze on lower part outside, pushed out lip. F63 (K).
86. Jug rim, pinkish ware like no. 85, patchy green glaze outside and rilling decoration. F63 (K).
87. Jug rim, pink fabric with smooth olive green glaze outside, mottled thin, green glaze inside. F65 (K).
88. Jug rim, pinkish fabric, mottled green glaze inside. F63 (K).
89. Jug rim, buff, with fine sand temper, smooth olive green glaze over lower part of outside. F63 (import).
90. Jug rim, buff sandy fabric with pale green patchy glaze outside below rim. F65 (import).
91. Rim, buff sandy ware, green glaze inside rim. F65 (import).
92. Cup rim, redware, greenish orange glaze both sides. F65 (import).
93. Rim of mug or cup, Netherlands maiolica with blue linear decoration. Two small sherds of plain blue 'Malling' maiolica were also found in this level, the blue being very similar but the internal glaze being whiter. (Blue = stippled.) F64 (import).
94. Rim of cup or mug, greenish black glaze on both sides on red fabric. Coarser than 96 with many broken air bubbles in the glaze outside. F65 (import).
95. Neck of mug, redware with dark brown glaze, incised band at base of neck filled with glaze. Piece of handle of similar glaze and fabric. F63 and F65 (import).
96. Handle of black glazed Cistercian ware cup, purplish fabric, glaze both sides. Sherd found nearby of similar fabric with pad of light clay and central spot of dark clay applied, showing yellowish and black under glaze. F63 (import).
97. Small rim sherd of redware with thin patchy brown glaze inside and over rim. F65 (M).
98. Upper part of Raeren stoneware mug, dark grey fabric, matt brown inside, brown and grey glaze outside. F65 (import).
99. Upper part and piece of base of Raeren stoneware mug. Similar fabric and glaze. to no. 98. F65 (import).
100. Jug rim, redware, light brown glaze both sides. F65 (import).
101. Handle, similar ware to no. 100. F65 (import).
102. Base lightly thumbled, like nos. 100 and 101. F64 (import).
103. Handle of hard buff ware, finely made, dark olive green glaze. F63 (import).
104. Handle of small cup, light brown glaze on redware. F65 (import).
105. Handle of small cup, fabric like no. 92. F65 (import).
106. Knob of money box, pinkish buff fabric with light green mottled glaze over outside. F65 (import).

## FIG. 23

*Pottery from loam under building XIII*

107. Cooking pot rim, hard grey sandy ware. F260 (L).
108. Cooking pot rim, grey sandy ware. F260 (L).
109. Cooking pot rim, reddish but blackened by fire. F260 (H).
110. Cooking pot rim, red sandy ware. F260 (H).
111. Cooking pot rim, red ware with black/red sandwich core. F260 (H).
112. Cooking pot rim, red sandy ware. F260 (H).
113. Rim of large dish, buff/pink fabric, green glazed inside. F260 (K).
114. Jug rim, unglazed sandy redware with greyish core. White slip band painted below rim and peeling off in places. F260 (J).

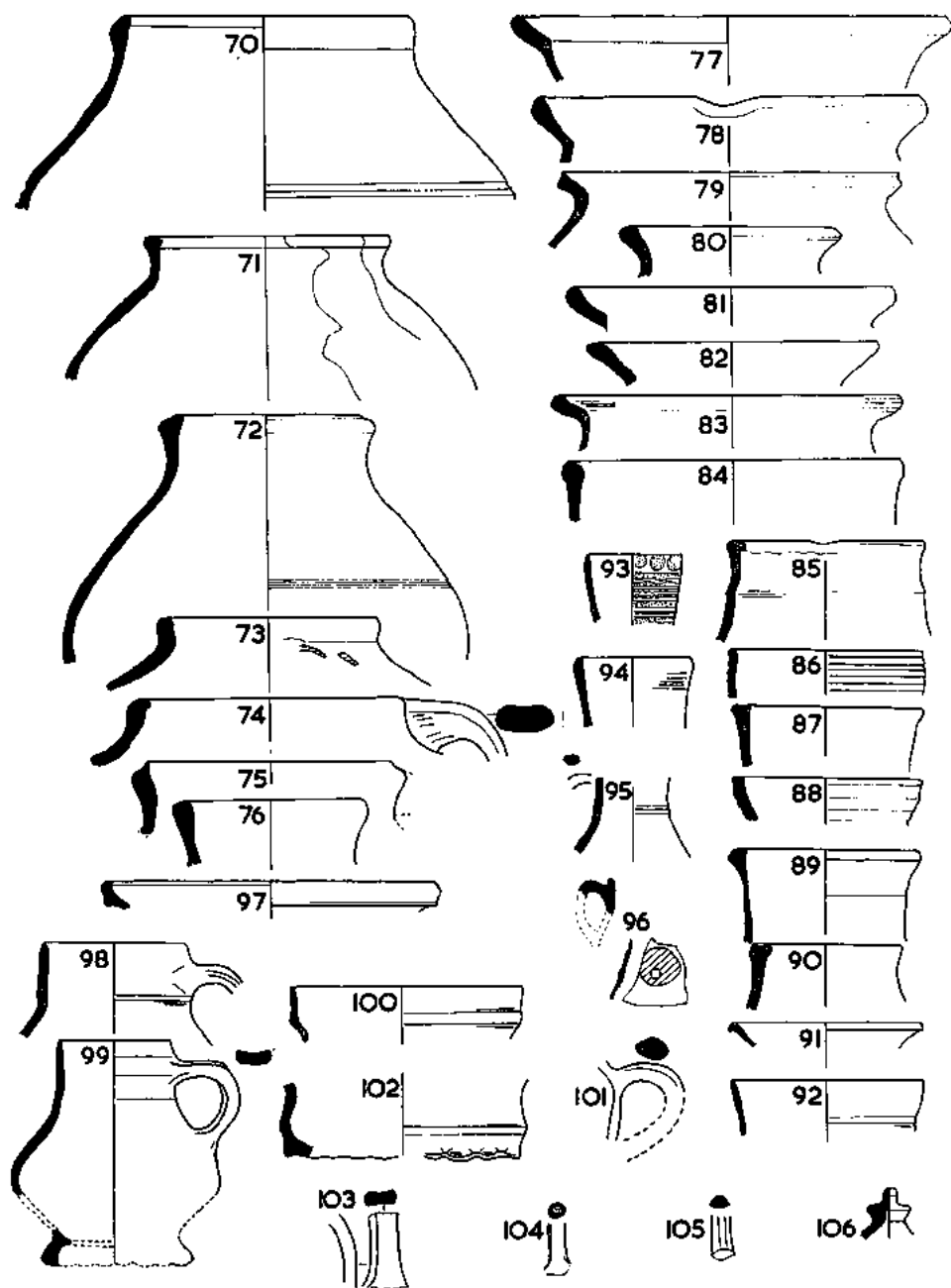


FIG. 22

## VERESMEAD, WALTHAM ABBEY

Pottery from destruction levels of Buildings I and VIII, c. 1540 (p. 103). Sc.  $\frac{1}{2}$

- 115. Jug base, red sandy ware, slightly thumbled and pierced through the thickest part of the 'frill' with a pin. Tiny globules of lead adhered to base of jug. F260 (J).
- 116. Jug base with dark unglazed surfaces, dark core and red margins. Trace of glaze splashed on base, tooling marks and thumb marks. F260 (J).
- 117. Jug handle, red sandy ware, trace of double thumb marks at junction with rim, handle pierced by pin. F260 (J).
- 118. Jug rim, redware with grey core, white slip covers outside and over rim, yellow-green glaze. F260 (J).
- 119. Rim of large jug, pink fabric with patchy green glaze both sides, thumb impression at junction with handle. F260 (K).

*Pottery from ditch silt east of building XII*

- 120. Rim of cooking pot, red unglazed, blackened outside. F216 (H).
- 121. Jug rim, sandy ware, orange surface inside, brown outside, grey core, patch of greenish glaze outside. F216 (J).
- 122. Base of similar pot to 120. Large part of base has straw marks impressed underneath. Brown glaze inside base only. F216 (H).

*Pottery from foundation trench of unrobbed brick buttress of building XII*

- 123. Cooking pot rim of unglazed red sandy ware. F193/4E (H).

*Pottery from robber trenches and destruction levels of building XII*

- 124. Rim of large dish, pink fabric, dark green glaze inside. F192 (K).
- 125. Rim of cooking pot, red sandy ware, grey core. F192 (M).
- 126. Rim of jug, redware, dark outside. F192 (M).
- 127. Rim of cooking pot, redware, dark surfaces, thin grey core. F192 (M).
- 128. Rim of pipkin, fine red ware, dark surfaces. F192 (M).
- 129. Rim of pipkin, fine red ware, grey core. F192 (M).
- 130. Rim of buffware vessel, green glaze inside and under rim outside. F192 (import).
- 131. Rim of pipkin, sandy redware, fine grey core, unglazed. F192 (M).
- 132. Rim of bowl, pink fine ware, unglazed. F192 (K).
- 133. Rim of large bowl, redware, unglazed. F192 (M).
- 134. Rim of jug, red sandy ware, greyish surfaces, streaky inside. F192 (M).
- 135. Base of jug or mug, light brown glaze both sides, fine red ware. F259 (import).

FIG. 24

*Pottery from under building XVI*

- 136. Rim, redware, unglazed. F265 (H).
- 137. Bowl rim, red unglazed ware. F273 (M).

*Debris outside building XVI*

- 138. Rim of storage jar with trace of handle, red fine ware, dark outer surfaces, some glaze inside and glaze spots both sides. F274/5 (M).
- 139. Rim of redware pipkin, thin brown glaze inside. F275 (M).
- 140. Rim of redware pipkin, thin brown glaze partially inside. F274 (M).
- 141. Rim of small redware pipkin, dark brown glaze inside rim only. F276 (M).
- 142. Rim of pipkin, red, unglazed. F274 (M).
- 143. Rim of large pipkin, redware, unglazed. F274 (M).
- 144. Rim of small pipkin, redware unglazed, dark surfaces. F274 (M).
- 145. Rim of sandy redware jug, possibly derived. F275 (J).
- 146. Rim of redware jug, thin dark brown glaze both sides. F274 (M).
- 147. Rim of large bowl, redware with dark brown glaze inside only. F274 (M).

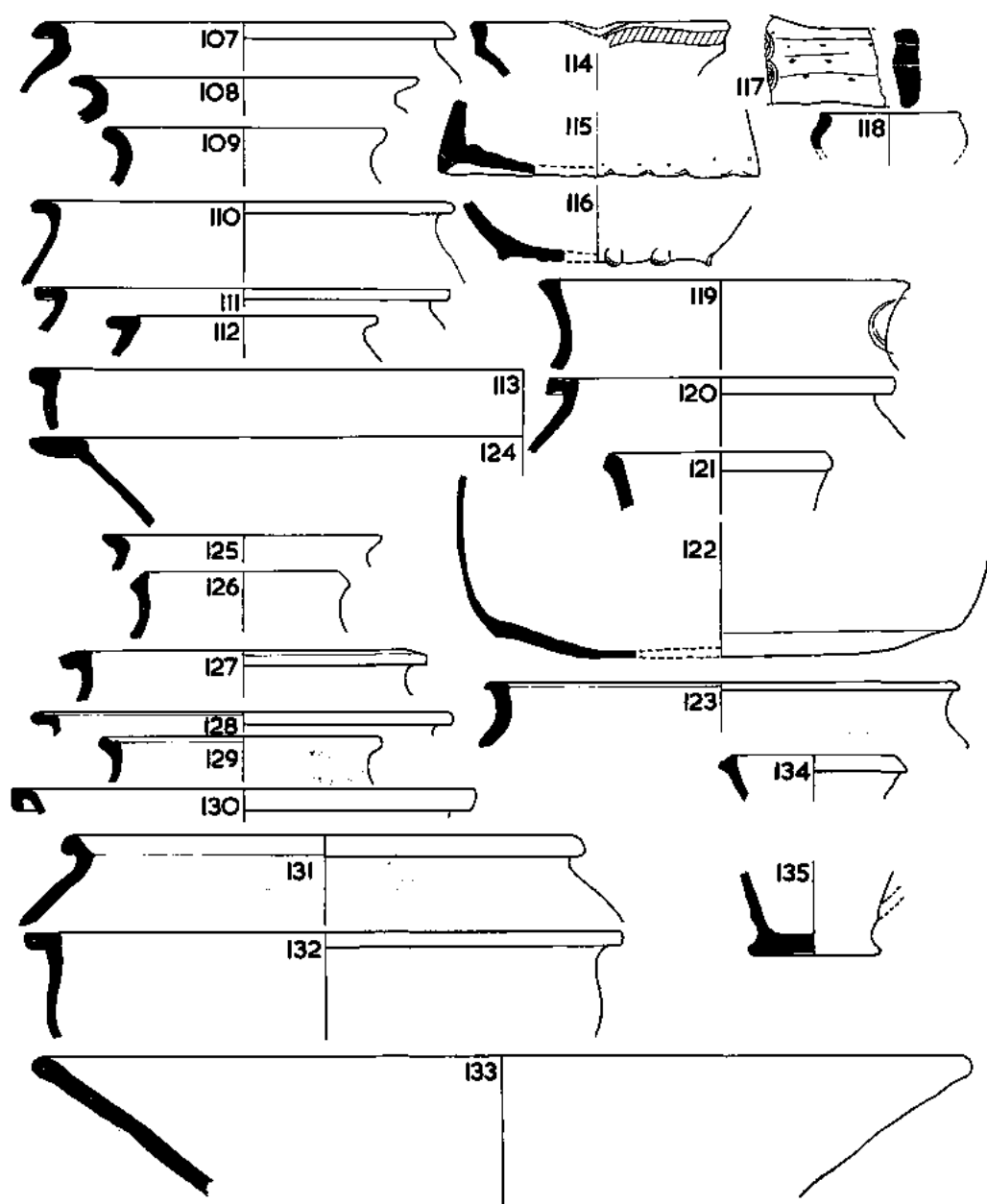


FIG. 23

## GRANGE YARD, WALTHAM ABBEY

Pottery from Buildings XII and XIII, 15th and 16th century (p. 105). Sc.  $\frac{1}{4}$

148. Rim of large bowl, red, unglazed. F274 (M).
149. Rim of large bowl, red, unglazed. F274 (M).
150. Rim and tripod base of pipkin (handle missing), redware dark outer surface, green glaze over white slip inside below rim, glaze extends above line of slip giving darker colour. Thumbled band below rim. F274 (import).
151. Base and rim of small tyg with trace of one handle (another could have existed). Redware with greenish black glaze both sides and slightly overlapping base. F274 (import).
152. Rim of large vessel, dark red fabric, hard and well fired, tiny white inclusions in fabric, dark surfaces with very thin glaze outside and partly over rim. Probably imported. F274.
153. Rim of large bowl or dish, soft pinkish buff fabric with grog temper, covered with micaceous red slip over all. Thumbled collar under rim. Diameter 50-60 cm. Probably from Merida, S. Spain. F274.
154. Base of vessel, fabric like no. 153 with red slip outside only. (From building XII in rubble outside N. end.)
155. Base of chafing dish. Redware glazed outside above the frill with patchy dark brown glaze some of which has fallen inside the base. F275 (M).
156. Rim of jug, redware unglazed. F274 (M).
157. Handle of cup or small jug, buffware, mottled green glaze overall. F274 (import).

*Pottery from building XXI*

158. Rim and handle of red, sandy ware jug, unglazed but a sherd nearby had white painted strip under thin glaze probably from body of pot. F303 (J).
159. Sherds of sgraffito decorated jug, red fabric, dark inside surface, outside covered by white slip with pattern cut through to reveal red body, yellow glaze overall outside, no trace of green in glaze. F300.
160. Rim of jug, unglazed redware, inside darker, grey core. F300 (M).

## APPENDIX 2: FLOOR TILES

There were 52 examples of plain and decorated floor tiles; none was found *in situ*. Waltham tiles have been classified into groups, a group may contain both decorated and plain tiles and triangles cut from the plain squares.

- Group 1: Medieval, 19-23 mm. thick.
- Group 2: Medieval, 25-30 mm. thick  $\times$  c. 114 mm.
- Group 3: Medieval, 25-30 mm. thick  $\times$  122-130 mm.
- 3A: Crude copies, 17 mm. thick.
- Group 4: Post-medieval, 25-33 mm. thick  $\times$  190 mm.
- Group 5: Post-medieval, 32 mm. thick  $\times$  215 mm.
- Group 6: Post-medieval, 25 mm. thick  $\times$  280 mm.

The tiles were found in features F192, F274, F281 and F293; details are given in the feature lists. Nine types of decorated tile were found of which five have been illustrated in the report on the Cloister excavations.<sup>77</sup> Four other types have since been paralleled in Chapter House excavations<sup>78</sup> and will be illustrated in the report thereon. These new types are: two crosses side by side; fleur-de-lys, probably two side by side; diagonally quartered; stag, crudely represented with arrow approaching head. The decorated tiles were no doubt all derived from the conventual buildings.

<sup>77</sup> R. M. Huggins, in Huggins, 1970, Fig. 16, nos. 7, 10, 12, 13 and 14.

<sup>78</sup> Excavated by A. B. Havercroft for the Dept. of the Environment, 1972.

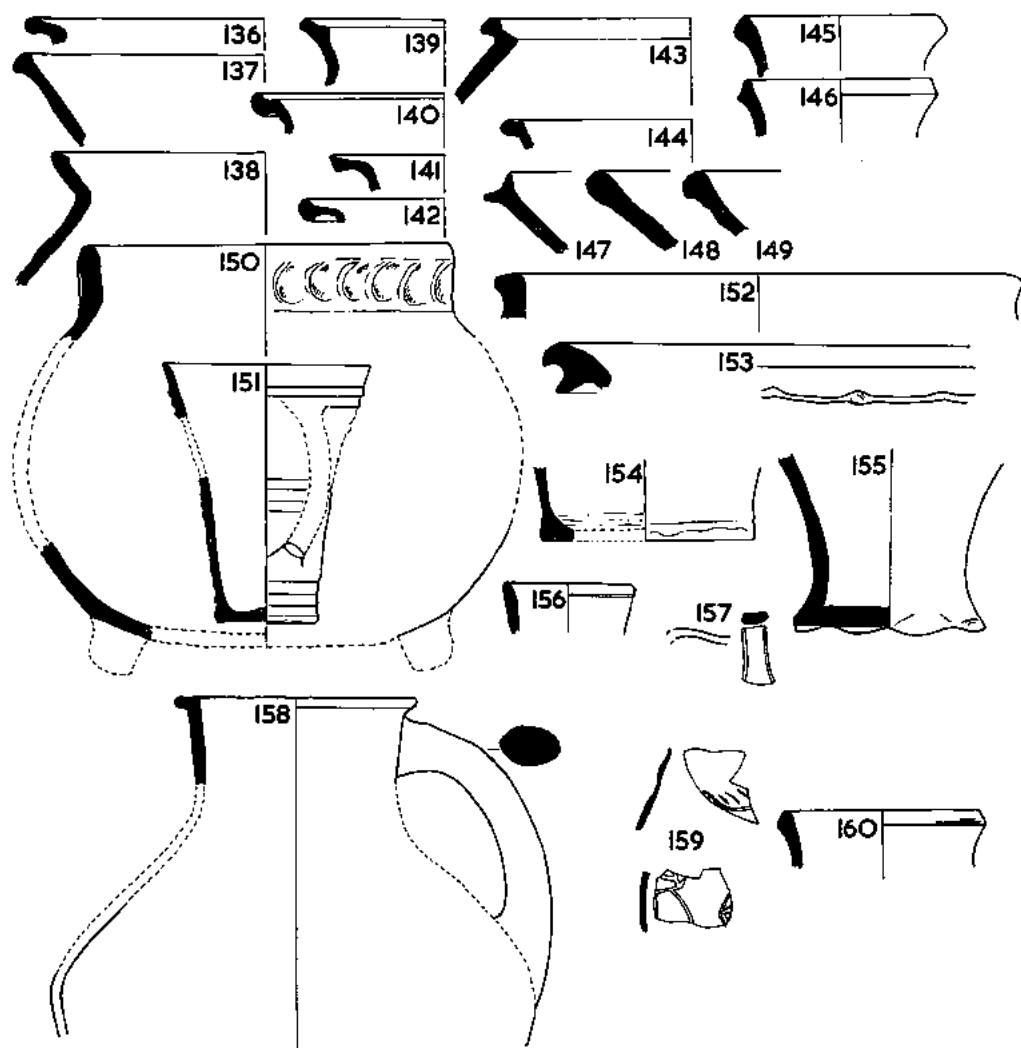


FIG. 24

## GRANGE YARD, WALTHAM ABBEY

Pottery from Building XVI, early 17th century, 136-157 Pottery from Building XXI, 14th to 16th century, 158-160 (p. 107). Sc.  $\frac{1}{4}$

## APPENDIX 3: BRICKS

Bricks, both plain and moulded, were being made in Essex, at Coggeshall,<sup>79</sup> by the middle of the 12th century. In the excavations at Waltham, bricks have been found which are considered to be only slightly later.

## PLAIN BRICKS

The Great brick (large in plan area but often quite thin) is distinguished here from the flemish-size or Statute brick. As an aid to referencing, the code letters G and f, for Great and flemish-size bricks, has been adopted and the volumes of the bricks have been calculated in cubic inches.<sup>80</sup> Thus G108 (see Table 1) is a Great brick and the mean volume, in this case, of 13 bricks is 108 cubic inches; these 13 bricks have dimensions within the size ranges listed and the individual volumes range from 103 to 116 cubic inches. A brick with mortar of two distinctive colours may show that it was re-used, while odd bricks may have been lying around for a long time. Even bricks used in quantity may not be made for the structure in which they are found, for instance, a quarter million bricks would have been available for re-use after building XII was demolished. Hence the information in the tables on the likelihood of the bricks being re-used, rather than made for the job, is subjective. Three sizes of Coggeshall brick and other Waltham Abbey bricks have been included for comparison. The Great bricks have been listed in ascending order of thickness whereas the flemish-size bricks have been listed in descending order of volume.

## SPECIAL BRICKS (FIG. 25)

The special bricks found in the excavations have been divided into types SB1 to SB10; the first five are illustrated in FIG. 25. The impressions would assist the adhesion of mortar or plaster, whereas the pierced holes were to assist firing as shown by the fact that oxidization improved locally at the holes.

- SB1 Impressions on one face, firing holes from back. Length  $13\frac{1}{2}$  in., width tapered 8 in. to  $6\frac{1}{2}$  in., thickness tapered  $2\frac{1}{2}$  in. to 2 in. Two almost complete bricks and two half bricks; oven floor F30, building I, second half of 15th century, probably re-used.
- SB2 Similar to SB1 but sides chamfered  $12^\circ$ . One part brick; same provenance.
- SB3 Impressions on each face. Uniform thickness 2 in. One part brick; same provenance.
- SB4 Impressions on one face, firing holes from back. Length  $7\frac{1}{2}$  in., width tapered  $11\frac{1}{2}$  in. to 10 in., thickness tapered  $2\frac{3}{8}$  in. to 2 in. One brick in ground wall F80, building I, c. 1500-1540, probably re-used.
- SB5 Flat brick, no impressions, moulded shape. Dimensions  $10\frac{1}{2}$  in. by  $6\frac{1}{2}$  in. by  $1\frac{1}{2}$  in. thick. Eight bricks as kerb to hearth F26, building I, first half 15th century, not intended for such use. Two fragments in oven F30.
- SB6 (not illustrated) Floor bricks, could be called tiles,  $6\frac{1}{2}$  to 7 in. square,  $1\frac{3}{4}$  to 2 in. thick. Forty in F234, building XII, probably c. 1500. Four in F270, 3 in F274, building XVI, slight remains of colourless glaze. One triangle in F274.
- SB7 (not illustrated) Plain brick except for firing holes pierced from one face. Dimensions  $12\frac{3}{8}$  by  $6\frac{3}{4}$  by  $1\frac{7}{8}$  in. One brick; oven floor F30, building I, second half of 15th century, probably re-used.
- SB8 (not illustrated) Part of segmental brick,  $5\frac{3}{4}$  in. wide,  $2\frac{3}{8}$  in. thick. Forms outside curve of radius 2 ft. Ground wall F77, building I, first half of 15th century, re-used.

<sup>79</sup> Coggeshall is 32 miles N-E. of Waltham; Gardner, 1955, 19-32.

<sup>80</sup> The bricks were measured to the nearest eighth of an inch and it is considered illogical to convert such measurements into metric units. 1 inch = 25.4 mm.

TABLE 1. GREAT BRICKS

CODE	VOLUME RANGE (CU. IN.)	SIZE RANGE (IN.)			NUMBER OF BRICKS MEASURED	LIKELY TO BE RE-USED	BUILDING NUMBER	PROVENANCE
		LENGTH	WIDTH	THICK- NESS				
G108	103-116	14	5 $\frac{1}{2}$ -5 $\frac{7}{8}$	1 $\frac{1}{2}$ -1 $\frac{3}{4}$	13	No	I	F1-5
G135	—	13	6 $\frac{1}{4}$	1 $\frac{1}{2}$	—	—	—	Coggeshall, c. 1167
G136	120-148	12 $\frac{1}{2}$ -12 $\frac{3}{4}$	6 $\frac{1}{4}$ -6 $\frac{3}{4}$	1 $\frac{1}{2}$ -1 $\frac{3}{4}$	2	Yes?	I	F75
					2	?	XII	F234
G146	—	13	6	1 $\frac{3}{4}$ -2	—	—	—	Coggeshall, c. 1190
G152	—	13 $\frac{1}{2}$	6	1 $\frac{3}{4}$ -2	—	—	—	Coggeshall, c. 1220
G160	160	13 $\frac{1}{2}$	6 $\frac{1}{4}$	1 $\frac{7}{8}$	1	Yes?	X	F138
G168	157-186	13-13 $\frac{1}{2}$	6 $\frac{1}{2}$ -6 $\frac{3}{4}$	1 $\frac{1}{2}$ -2	25	No	X	F121
G163	154-179	12 $\frac{1}{2}$ -13 $\frac{1}{4}$	6 $\frac{1}{2}$ -7	1 $\frac{1}{2}$ -2	4	?	—	Abbey Close, 1970, 14th cent. hearth
G162	156-167	11 $\frac{1}{2}$ -11 $\frac{3}{4}$	6 $\frac{1}{2}$ -7 $\frac{1}{4}$	2	1	Yes?	XII	F239
					1	Yes?	XII	F237
G178	171-190	12 $\frac{1}{2}$ -13 $\frac{1}{4}$	6 $\frac{1}{2}$ -6 $\frac{3}{4}$	2-2 $\frac{1}{4}$	7	No	—	Vicarage garden, 1970, drain
					1	No?	XX	Brick base
					1	Yes	XVI	F270
G197	188-203	14 $\frac{1}{2}$	6-6 $\frac{1}{2}$	2 $\frac{1}{2}$ -2 $\frac{3}{4}$	7	Yes?	X	F138
					1	Yes?	I	Outside N. wall
G194	182-205	13-13 $\frac{1}{4}$	6 $\frac{1}{4}$ -6 $\frac{1}{2}$	2 $\frac{1}{2}$ -2 $\frac{3}{4}$	2	Yes?	XII	F234
					1	Yes?	I	F90
G259	233-285	14 $\frac{1}{2}$ -14 $\frac{3}{4}$	7 $\frac{1}{4}$ -7 $\frac{1}{2}$	2 $\frac{1}{2}$ -2 $\frac{3}{4}$	30	No?	—	Abbey gateway, c. 1370
G338	338	14 $\frac{1}{2}$	7 $\frac{1}{2}$	3	1	Yes?	X	F124
G350	318-381	14 $\frac{1}{2}$ -15	6 $\frac{1}{4}$ -7 $\frac{1}{4}$	3 $\frac{1}{4}$ -3 $\frac{1}{2}$	28	No?	—	Abbey gateway, c. 1370

TABLE 2. FLEMISH-SIZE BRICKS

CODE	VOLUME RANGE (CU. IN.)	SIZE RANGE (IN.)			NUMBER OF BRICKS MEASURED	LIKELY TO BE RE-USED	BUILDING NUMBER	PROVENANCE
		LENGTH	WIDTH	THICK- NESS				
f100	94-107	9 $\frac{1}{2}$ -9 $\frac{3}{4}$	4 $\frac{1}{2}$ -4 $\frac{3}{4}$	2 $\frac{1}{2}$ -2 $\frac{3}{4}$	33	No	XII	F190
					4	?	XIV	F263
f95	84-108	9 $\frac{1}{2}$ -9 $\frac{3}{4}$	4 $\frac{1}{2}$ -4 $\frac{3}{4}$	2-2 $\frac{1}{4}$	1	Yes	I	F80
					5	?	VII	F101
					1	No?	VIII	F110
					17	No?	X	F136
					3	No?	XI	F176
					16	No?	XII	F226
					5	No?	XII	F199
					3	?	XII	F196
					3	No?	XII	F194
					4	No?	XII	F235
					4	No?	XII	F203
					5	No?	XII	F199
					16	No?	XIII	F253-5
f84	77-92	9-9 $\frac{1}{2}$	4 $\frac{1}{2}$ -4 $\frac{3}{4}$	2-2 $\frac{1}{4}$	8	Yes?	XVI	F271
f86	77-96	9 $\frac{1}{2}$ -9 $\frac{3}{4}$	4 $\frac{1}{2}$ -4 $\frac{3}{4}$	2-2 $\frac{1}{4}$	25	No	—	Crooked Mile wall
					10	No	—	Glazed bricks in above
f77	72-86	8 $\frac{1}{2}$ -9	4-4 $\frac{1}{2}$	2-2 $\frac{1}{4}$	18	No?	XII	F230
					12	No?	XII	F229
					7	?	XII	F239
					3	?	XII	F236
					3	?	XII	F202
					14	?	XV	F280



- SB9 (not illustrated) Part of segmental brick, 4-4½ in. wide. Forms outside curve of radius 7 ft. 6 in. Ground wall F172, building XI, 15th or early 16th century, re-used.
- SB10 (not illustrated) Floor bricks, could be called tiles, 10½ to 11 in. by 12 to 13 in. by 2 to 2½ in. thick. Fourteen in F270, one in F274, of building XVI. Also four examples in hearth of 14th-century kitchen, Abbey Close 1970 excavation.

## BRICKS, DISCUSSION

At Writtle,<sup>81</sup> Essex, some 18 miles (29 km.) WNW. of Waltham, keying impressions were used in special bricks found in 14th to early 16th-century contexts. The Writtle bricks were of uniform thickness and were seen as forming the skin to a 7-sided column.

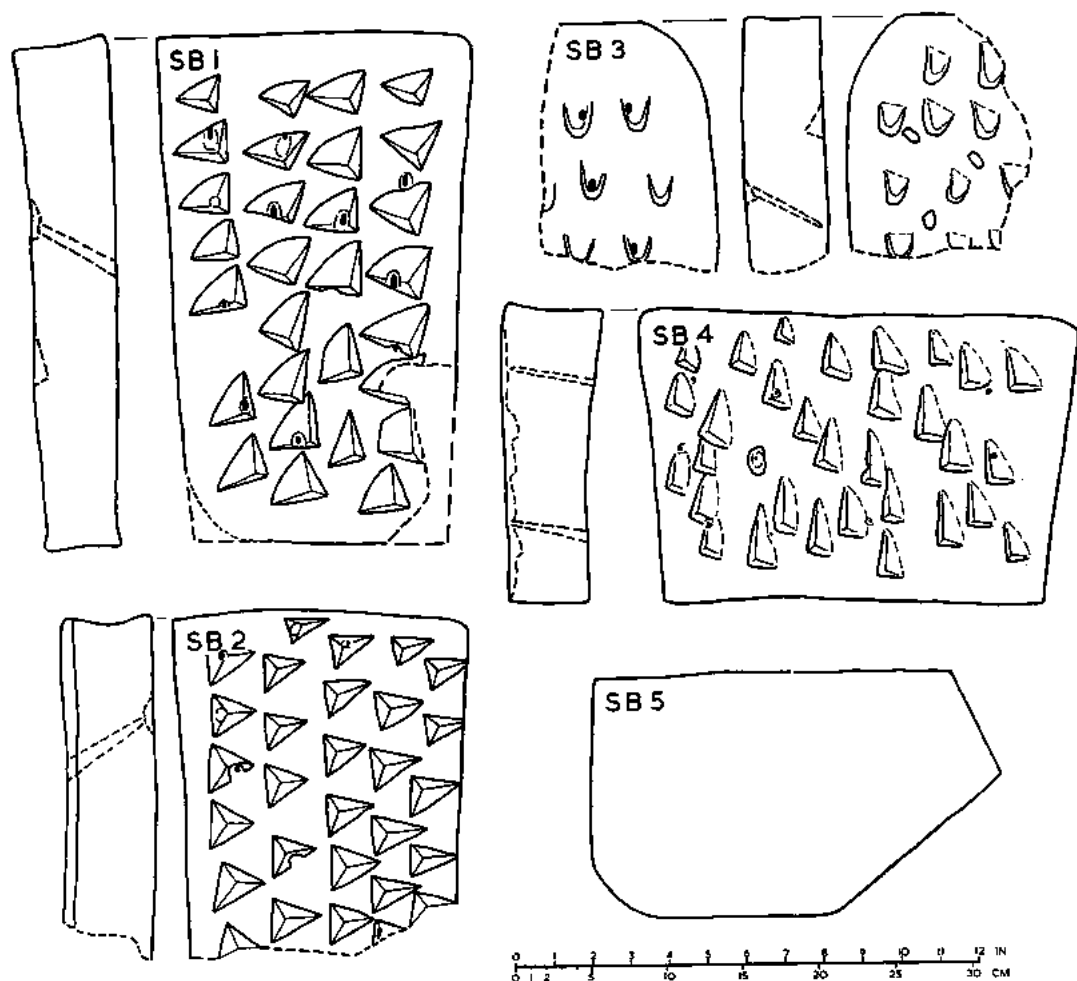


FIG. 25  
VERESMEAD, WALTHAM ABBEY  
Bricks from Building I (p. 111). Sc. ½

<sup>81</sup> Rahtz, 1969, Fig. 60.

The Waltham forms SB1, 2 and 4 are tapered in thickness and are unlikely to have had a similar use, they are seen as arch voussoirs; when plastered both SB1 and 4 would have formed a radius (internal) of just over 1.2 m. (4 ft. or c.  $\frac{1}{4}$  perch). No parallels are known for the Waltham shapes which occur re-used in second half of the 15th to 16th-century contexts.

The bricks SB5 are the only moulded forms known at Waltham, the Coggeshall forms are not comparable. They could perhaps have formed the jamb of a door or window.

Medieval Great bricks are often met in Essex churches<sup>82</sup> (in local guide books they are sometimes reported to be re-used Roman material). The Waltham evidence supports the notion that Great bricks are thin early and thick late, the thickness in fact ranges from 1  $\frac{1}{4}$  in. (32 mm.) to 3  $\frac{1}{2}$  in. (89 mm.).

The flemish-size bricks may have been in use at Waltham for as little as 60 years before the Dissolution in 1540. The evidence from building XII is that the size decreased over the period involved since the largest size f100 was used for the main walls whereas f95 and f77 sizes appeared in additions or alterations.

#### APPENDIX 4: STONE

Six types of stone common at Waltham have been identified.<sup>84</sup> These are (A) Mersham, Reigate or Gatton stone, here called *Reigate stone*, (B) Lincolnshire limestone, possibly *Barnack stone*, (C) *Caen stone*, (D) *Purbeck marble*, (E) *Kentish ragstone*, (F) *Purbeck limestone*.

Other types of stone have now been described by Mr. Dimes:

- (G) *Chalk*. 'It could have come from almost any area where the Upper Chalk crops out', such as 'north of Waltham Abbey where chalk is seen at the surface'. Chalk was found in the stylobate foundations of buildings I and X.
- (H) *Slate*. 'Glossy, grey and grey-green, finely laminated slates'. The specimens submitted were from F3 and F77 of building I dated c. 1200 and c. 1500. Mr. Dimes feels the slates are Devonian in age from SW. England.
- (J) *Quartz Mica Schist*. The specimen submitted was a hone from F260 of building XIII. Mr. Dimes states that the schist could come from Scotland or Scandinavia.
- (K) *Sandstone*. 'A fine to medium grained sandstone with a fair amount of interstitial decomposed feldspar and with occasional flakes of mica.' The specimen submitted was part of a hone from topsoil F149 over building I.

1. Three Reigate stone voussoirs and a door jamb with plain 45° chamfer. In robber trench F192 to the south of building XII. Fourteenth-century material possibly re-used as a doorway into the late 15th-century building.
2. Purbeck marble floor slab, 25 cm. square. Stray find near building XVIII.
3. Reigate stone half head for an unglazed opening. Probably 15th century. F81.
4. Purbeck marble columns, 14 cm. diameter. In track F143.
5. Moulded Purbeck marble base of first half of 13th century. In track F143.
6. Kentish ragstone stop in form of crouched rabbit for hood mould of doorway, 14th century. F130.
7. Quarter of moulded Purbeck marble quatrefoil capital, also portion of flat Purbeck marble slab with moulded edge. F242.
8. Reigate stone jamb with pivot? hole and part of octagonal Purbeck marble capital. F170.

<sup>82</sup> For example, at Latton Priory (6 miles NE. of Waltham) and at Great Braxted church (5 miles S. of Coggeshall) where Great bricks are found in 12th- and 13th-century contexts.

<sup>83</sup> Bricks fitting the f100 and f95 ranges are known from the 14th and 15th centuries elsewhere. Bricks fitting the f77 range are known at the Bishop's Palace, Hatfield House, c. 1480 and at Rye House gateway (6 miles to the north of Waltham) in the late 15th/16th century; Lloyd, 1925, 95-7.

<sup>84</sup> Identified by F. G. Dimes (Huggins, 1970, 263), who has also identified stones G to K.

9. Two pieces of Reigate stone frame, probably 15th century. F302.
10. Two pieces of Reigate stone window tracery. F131.
11. Hones have been found as follows: mica schist in F43, F149, F258, F260 and F273; sandstone in F113 and F149.

#### APPENDIX 5: ROOFING MATERIALS (FIG. 26)

Destruction debris, where it remained, showed that most of the buildings were roofed with tiles. Only the square dovecote VII was possibly covered with slate (below and Appendix 4). The tiles either had two round or square fixing holes or projecting nibs for hanging over battens, they cannot be separated in date on the evidence here available. Single fragments of ridge tile were found in F18 and F100 of building I, in F112 of building VIII, and in F182 of building XI and two pieces were found in F192 of building XII. One piece of hip tile with two round holes and a nail still in place was found in F19 of building I. Another piece of hip tile, again with two round fixing holes, was found in bay 11 of the barn X suggesting that the return bay at the west was hipped.

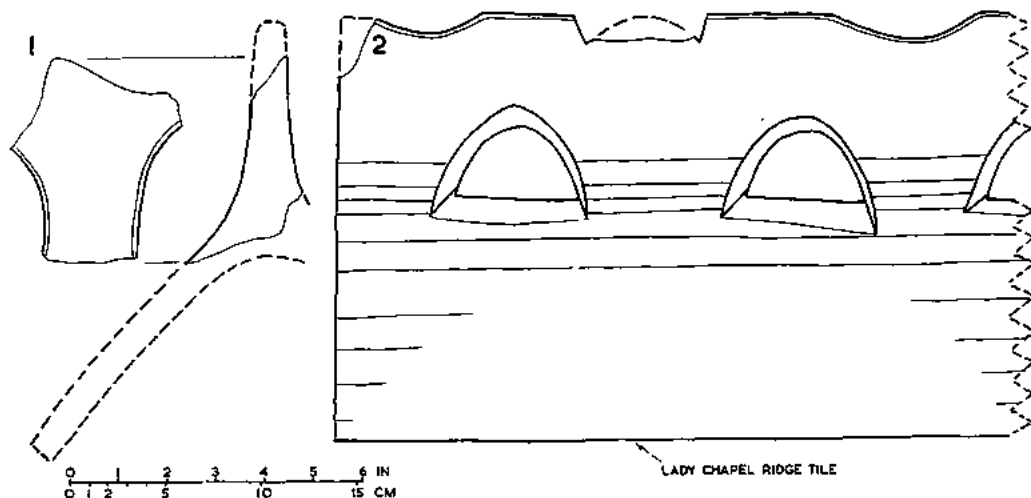


FIG. 26

#### VERESMEAD, WALTHAM ABBEY

Roofing materials: 1, excavated fragment; 2, Lady Chapel ridge tile (p. 115).

The most interesting piece of roof furniture (FIG. 26/1), found in the destruction level F64 of building I, is to be compared with a ridge tile (FIG. 26/2) reputed to come from the roof of the Lady Chapel, itself dated 1300-1320. Building I, built *c.* 1200, was reconstructed *c.* 1300 and *c.* 1500 and the tile could have been employed at any time during its life *c.* 1200-1540. The fragment and the Lady Chapel tile are both of incompletely fired sandy clay with patchy green to yellow glaze and have knife-cut edges. The complete tile is 58 cm. (22½ in.) long and has 4 apertures. If the comparison is not valid the fragment could be reconstructed as a fleur-de-lys.<sup>85</sup>

Several pieces of slate were found in the debris F107 of the square dovecote VII. Pieces were also found in the ditch to the north-east of VII, but the largest piece, 14 cm. wide, 9 mm. thick and more than 16 cm. long with a 12 mm. square hole was

<sup>85</sup> The terminology is due to K. N. Bascombe.

<sup>86</sup> Fragments interpreted as a fleur-de-lys finial are known in a 13th-century context; Musty, 1969, Fig. 25, no. 203.

recovered from machine-dug spoil just to the north of VII. It is therefore possible that the square dovecote was roofed with slate.

#### APPENDIX 6: PLASTER AND MORTAR

Many samples of mortar have been retained but they have not been analysed. Plaster was found in F63, F65 and F88 of building I, one piece showed lath impressions to indicate lath and plaster infilling in the last phase of that building. Four pieces of plaster in F103 of the square dovecote VII indicate that this too was infilled between timber members; the nesting boxes also could have been plaster made. Plaster found in F192 and F192A at the domestic end of building XII probably derive from lateral partitions there. It was also found in filling F241 of the stoking pit of the oven in bay 1 of building XII. One piece of plaster was found in F260, a pre-building level under building XIII, and may have derived from the nearby timber-framed building XIV.

The absence of plaster from buildings X, XI, XVIII and XXI may suggest they were boarded over timber frames. All evidence had been stripped from building VIII.

#### APPENDIX 7: GLASS

Only a small amount of glass was found:

1. Two small pieces in Pit F17 with lead frame and lead trimmings suggest that windows were made in, and possibly for, building I, c. 1200-1250.
2. Twelve pieces of window glass were recovered from the trench across the hall of building XII; 10 were in the floor F222 and two were in the robber trench F192. Three pieces were purple painted-grisaille work and perhaps support the contention that the S. end of XII was a domestic area.

#### APPENDIX 8: THE PLOUGH (FIG. 27; PL. 3D)

The share beam and stilt of the oak plough were made from a knee-jointed timber. The beam is 1.84 m. long, at the tail it is 8.1 cm. square and at the fore end, where an iron share may have been fitted, it is 4.5 cm. square. From the beam to the flat area on the stilt there is a step of 3.0 cm. where a mould board of this thickness could have been fitted by the two dowels. The stilt remains to a height of 97 cm. but the handle had rotted away.

Three mortise holes in the share beam and the slot and dowels in the stilt suggest how the plough may have appeared when complete with plough beam, sheath and fore and rear stays. It is not clear if there was a second handle or whether the plough was of swing, foot or wheel type (these terms indicate how the plough beam was supported at the traction end). The mould board could have been doweled to the sheath and fore stay as well as to the stilt.

The Waltham plough differs from those shown in early medieval representations. The stilt is usually shown as a vertical or near vertical member, ending as a handle, but rising from the tail end of the share beam which is shown as a relatively short member. A late 13th-century illustration,<sup>87</sup> giving the names of the component parts includes these characteristics. A 15th-century mural in Gerrild church,<sup>88</sup> Jutland, is a close parallel to the Waltham plough. This Danish ard (there is no mould board) has only one handle, the man shown controls it with his right hand and holds a whip in the left. The stilt (curved) is joined to the share beam *just behind* a vertical sheath, the share beam has a *long tail* with a *vertical stay*, at the tail end, to the handle; these characteristics are all seen on the Waltham plough. There is a second tail-end stay but it is not

<sup>87</sup> From the Cistercian nunnery of Coton, Lincs. Discussed by Colvin, 1955, 165-7. The coulter to cut the sod, the plough share to lift it and an ear, rather than a mould board, to turn it over, are shown; land and furrow handles are represented.

<sup>88</sup> Illustrated and described by Steensberg, 1936, 73.

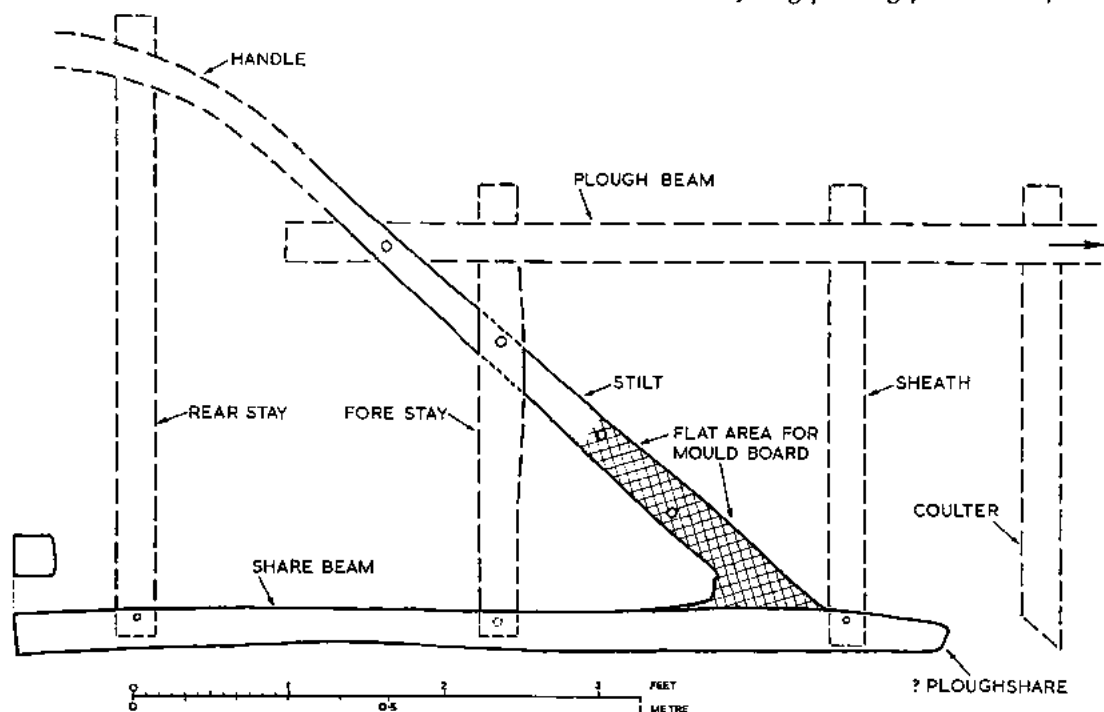


FIG. 27  
CROOKED MILE DITCH, WALTHAM ABBEY  
Oak plough (p. 116).

vertical as at Waltham. The Gerrild representation is of a wheel ard and it is drawn by two oxen and two horses. A late 15th-century French illustration,<sup>89</sup> showing in the background a wheel plough drawn by two oxen, possibly portrays a knee-jointed share beam and stilt with a vertical member rising from the beam and, in these respects, it resembles the Waltham plough.

The plough was found in the Crooked Mile ditch silt F216 (position, FIG. 13) with sherds dated after 1450 but before 1500. It was stratified under debris F218 with pottery after c. 1475 and was covered when building XII was erected in the last quarter of the 15th century. The deposition of the plough could thus lie in the range c. 1450-1500. The Gerrild representation is dated, less precisely, to the 15th century.

The remains are in good condition except where rotten at the stilt end, the beam was fractured during excavation as it was decided not to recover the whole member. However, when the remains were recognized, the end of the share beam was pulled out from under water. It is at present (July 1972) being conserved with a view to dating by dendrochronology and to reconstruction for exhibition.

#### APPENDIX 9: BONE OBJECTS (FIG. 28)

1. Cannon bone of ox with 13 cm. long flat surface. Found in pit F17 of building I with fragments of window glass (Appendix 7) and lead came (Appendix 11). Possibly used in flattening or supporting the lead came during window making. Dated to c. 1200-1250 by associated pottery.
2. Bone-handled iron awl, 12 cm. long overall. Lower topsoil F65, building I.

<sup>89</sup> B.M. Addl. MS. 19720, f. 305. I am indebted to K. N. Bascombe for this reference.

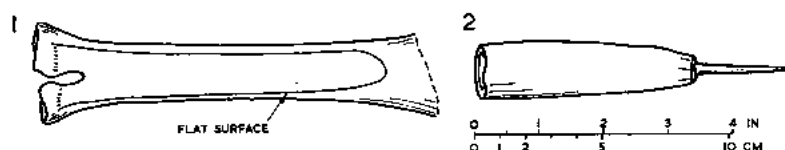


FIG. 28

VERESMEAD, WALTHAM ABBEY  
Bone objects from Building I (p. 117).

#### APPENDIX 10: BRONZE OBJECTS (FIG. 29)

1. Part of a bell or rattle, 0.41 mm. sheet. F64, building I.
2. Simple chape of 0.43 mm. sheet. F63, building I.
3. Undecorated circular brooch of the type worn at the neck to fasten undergarments. Diameter 34 mm., made from sheet, scraped or filed to 2.8 mm. diameter. F192, building XII.
4. Rectangular double buckle. F192, building XII.
5. Wire ring with twisted ends. F65, building I.
6. Ring of circular brooch. Join round circumference shows it to be bent up from a washer-like annulus. F65, building I.
- 7 and 8. Forged rings, flattened oval section. F65, building I.
9. Tube, 3 mm. diameter. Thin sheet bent to make an S-joint along the length. F65, building I.

Not illustrated. Sheared strip, 0.8 mm. thick, in F53. Pins, 28 mm. long in F64, 45 mm. long in F63, 40 mm. long in F270, all with twisted wire heads. Tag ends in F63 and F65. Two pieces plate, 2 mm. thick, in F65.

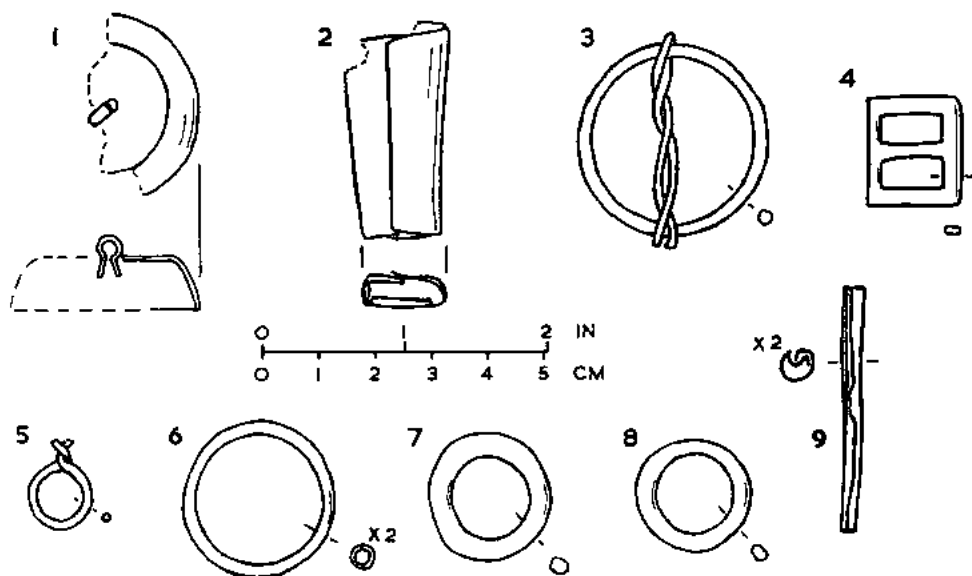


FIG. 29

VERESMEAD AND GRANGE YARD, WALTHAM ABBEY  
Bronze objects (p. 118).

## APPENDIX 11: LEAD OBJECTS (FIG. 30)

1. Drain cover or other filter, 3 to 4 mm. thick, 48 × 9 mm. diameter punched holes at intersections of scribed lines, two fixing-nail holes. Subsequently used as base for cutting or as raw material. In F65, above ground wall F80, in building I at Dissolution.
2. Part of shallow trough, bent up from sheet 3 to 5 mm. thick. F65, in building I at Dissolution.
3. Strap or part of lining to vessel, 3 mm. thick. F63, in building I at Dissolution.
4. Strap or piece of lining to vessel, 2 nails remaining, flap bent over to obscure nail heads. F96, building I.
5. Weight of 1.2 kg., hole through. Unstratified near section ZZ of building XII.
6. Fragment of window came. F17, building I, first half of 13th century.
7. Length of window came; this piece would fit no. 6 above, which could be pinched to grip it. F65, in building I at Dissolution.

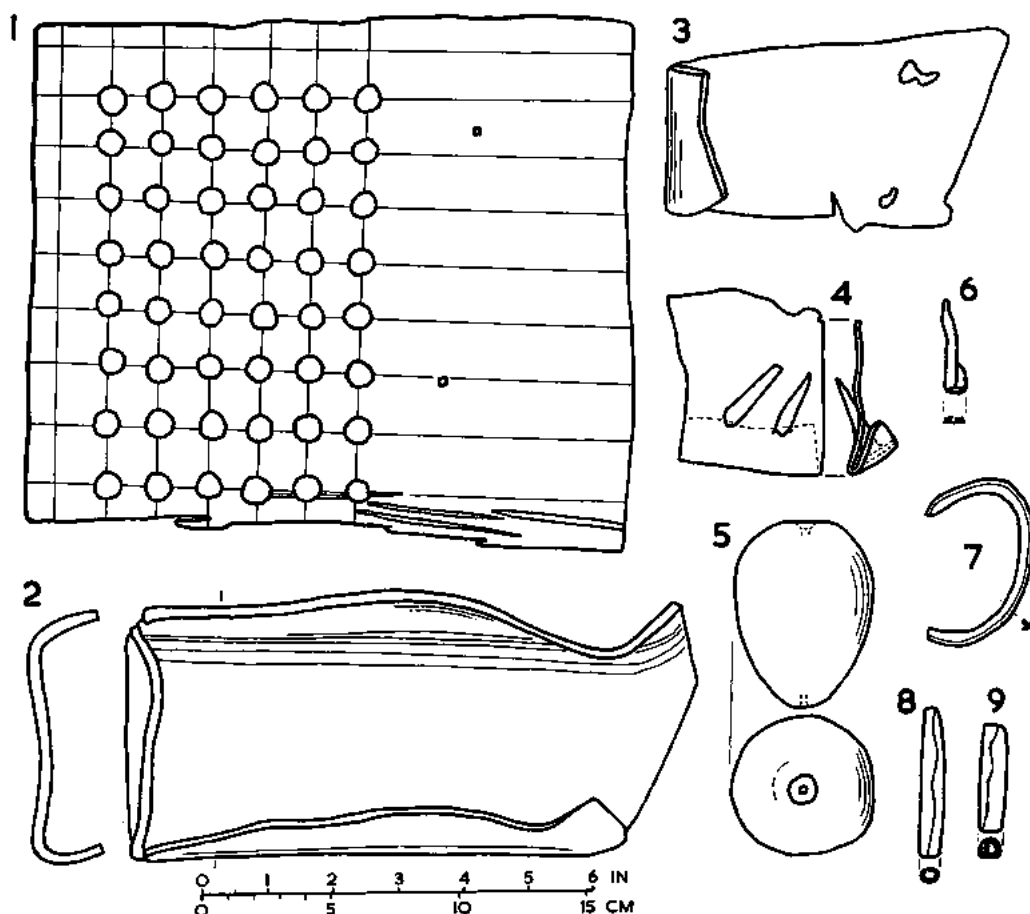


FIG. 30

VERESMEAD AND GRANGE YARD, WALTHAM ABBEY

Lead objects (p. 119).

8. Line sinker, hammered seam. F65, in building I at Dissolution.

9. Line sinker. Found after machine excavation of robber trench F192, building XII.

Not illustrated: (a) 20 thin knife-cut lead strips, up to 80 mm. long, such as might have been trimmed off a leaded window during assembly. Pit F17, building I; (b) 160 mm.-long fused lump of cane debris. F16, building I.

## APPENDIX 12: IRON OBJECTS

Many of the iron objects were topsoil and stray finds. Stratified objects and a selection of typologically significant material is discussed below.

### LOCK AND KEYS (FIG. 31)

The keys are discussed with reference to the London Museum Medieval Catalogue (LMMC) where 9 types of door and chest keys are distinguished.

1. Lock with plate 10 cm. wide with 2 corner holes, rod 5.5 cm. long slides in slots formed by U-shaped members rivetted underneath, a cantilever-type spring bears on the slider, remainder not determinate. Topsoil F65 over building I.
2. Door key, 15 cm. long, with solid stem projecting to a well-defined point, the stem narrowing just below the head of the bit, evidence of 4 probably plain wards perpendicular to the stem. LMMC Type VIIA key with symmetrical bit for use from either side of the door, circular bow suggests *c.* 1250-1400. Sewer trench spoil in Redholm.
3. Similar to no. 2 but only three of the four wards remain with cross cut in centre. Like LMMC Plate XXXI no. 47 from London Wall. Sewer trench spoil in Redholm.
4. Door key, 15 cm., with solid stem projecting to a point, two symmetrical wards surround a central opening. LMMC Type VIIB, kidney-shaped bow typical of 15th century. Stray find in Veresmead.
5. Chest or cupboard key, 14.2 cm. long, with hollow stem to operate lock with a central projecting pin, wards non-symmetrical formed out of sheet and welded together. LMMC Type III, if bow once circular *c.* 1250-1400. Stray find in Veresmead.
6. Door key with solid stem, details of wards not clear, kidney-shaped bow suggests 15th century. Topsoil F258 over building XIII.
7. Small key with solid shank, oval bow. Probably LMMC Type IV, wards similar to Plate XXX, no. 20. Topsoil F65 over building I.

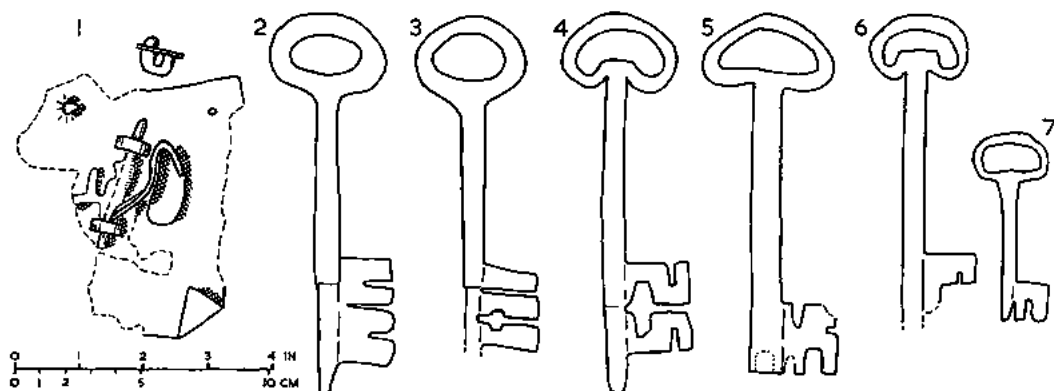


FIG. 31

REDHOLM, VERESMEAD AND GRANGE YARD, WALTHAM ABBEY

Iron lock and keys (p. 120).



## HORSE AND OX SHOES (FIG. 32)

Forty-five horse and ox shoes, or fragments thereof, have been found during the work here reported. They are discussed with reference to two papers by Ward,<sup>90</sup> two papers by Murray<sup>91</sup> and the London Museum Medieval Catalogue (LMMC). Horse shoes can be divided into four main groups:

*Group 1: Nail holes punched in two operations (up to Norman period)*

The separate punching of countersinking and nail hole resulted in the sinuous outline typical of all early shoes, the T-shaped nail heads fitted into the countersunk depression but would have projected beyond the surface of the shoe; the nails are typically set 3-3. Ward recognized *Sub-type A* in which circular holes are set 4-4 and *Sub-type B* in which the holes are rectangular; Murray designates this latter sub-type as Norman by which time the sinuous outline seems to have been eliminated by hammering on a beaked anvil or by other means. None of the Waltham horse shoes are put in this category; although some have rectangular countersinking it is not thought this was achieved in a separate punching operation.

*Group 2: Medieval (12th-16th centuries)*

This group is characterized by the lack of the special features distinguishing Groups 1, 3 and 4. Ward describes the nails as having mallet-shaped shouldered heads usually set 3-3 or 3-4. Ward distinguishes *Sub-type A*, or Dove type<sup>92</sup> (FIG. 32/6 and 7) in which one side of the shoe has a turned-down calkin<sup>93</sup> while the other is brought almost to a point, and *Sub-type B*, a larger shoe<sup>94</sup> with holes set 4-4.

*Group 3: Nails set in fullered groove (15th-18th centuries)<sup>95</sup>*

In this group a fullered groove is first used and a key-hole shape is adopted by the 17th century. Ward describes the nails as tapered to the head, they are often set 4-4, 4-5 or even 5-5. These shoes have become very large and the road surface is often convex. Calkins are unusual. Ward lists *Sub-type A*, being the true key-hole shape (FIG. 32/10); *Sub-type B*, with a tongue-shaped opening; *Sub-type C*, a smaller shoe with uniform breadth of metal (FIG. 32/11) and *Sub-type D*, with the slenderness of the modern shoe (FIG. 32/13 and 14).

*Group 4: Modern (c. 1800-)*

This type is characterized by the introduction of clips, usually at the toe, bent up to locate on the hoof.

Ox shoes, to fit the cloven hoof, are made in two pieces. They have received scant attention in the literature. Ward illustrates<sup>96</sup> four English ox shoes, three of which have a bulbous end like FIG. 32/15, 17 and 18. Seven of the Waltham specimens, nos. 15 to 21 are included as ox shoes, but one or two could be broken halves of horseshoes.

<sup>90</sup> Ward, 1938, 140-75, and Ward, 1939, 38-43.

<sup>91</sup> Murray, 1936, 14-33, and Murray, 1937, 133-44.

<sup>92</sup> Ward, 1939, 40, reports that such riding-horse shoes, lost in 1322, were recovered from the River Dove.

<sup>93</sup> The calkin is a thickened or bent down heel end so that, on a flat surface, the horse would have stood on it and the projecting nail heads.

<sup>94</sup> Ward, 1939, 40-2, quotes dates of 1565 and 1585 for such shoes.

<sup>95</sup> Ward, 1939, 42, quotes dates of 1643, 1708 and 1735 for examples of Group 3 shoes.

<sup>96</sup> Ward, 1938, Fig. 24, lists these as 'unusual Kent ox shoe', 'old Sussex ox shoes' and 'Sussex ox shoe used up to 1914'.

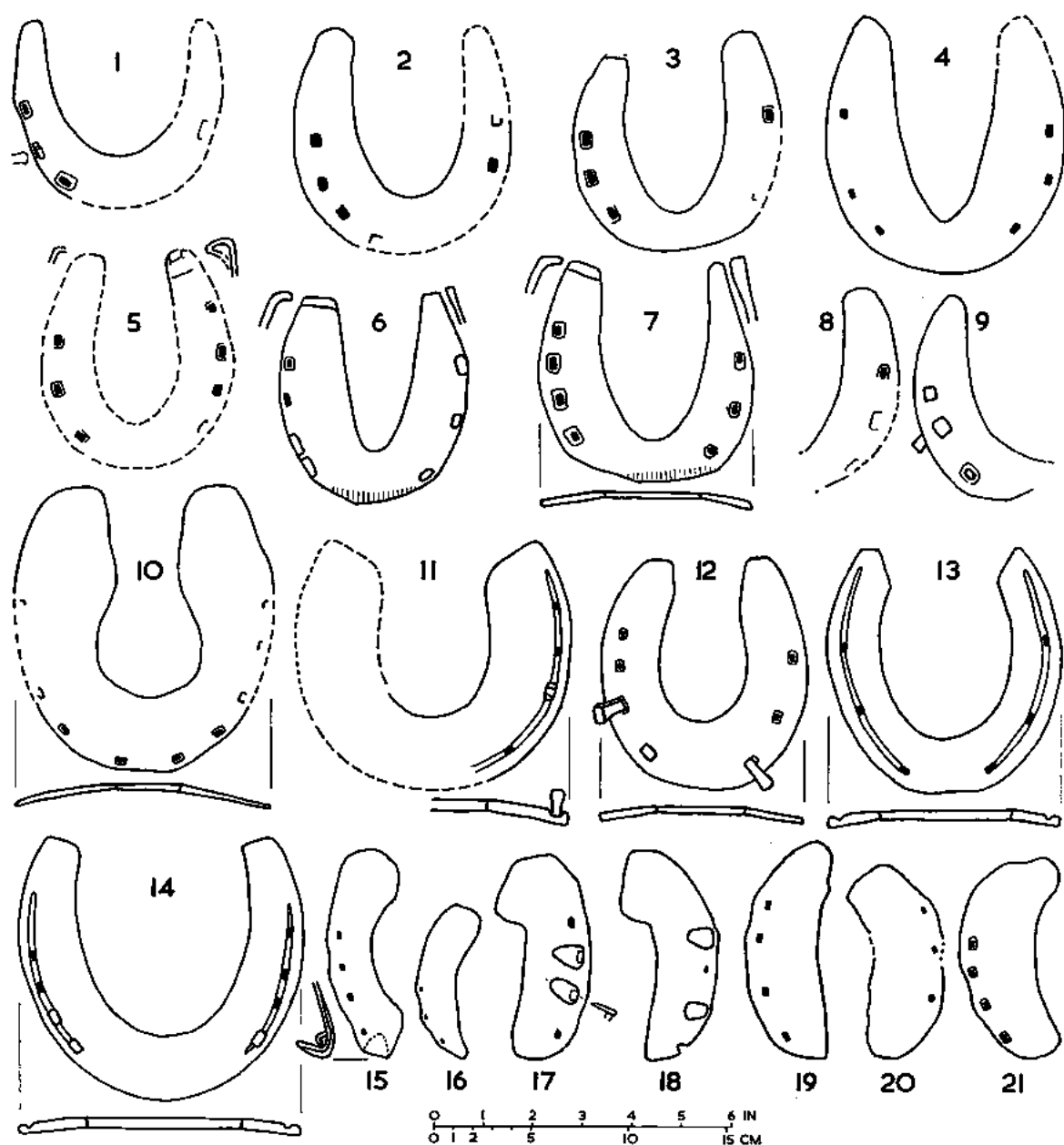


FIG. 32

REDHOLM, VERESMEAD AND GRANGE YARD, WALTHAM ABBEY  
Horse and ox shoes (p. 121).

1. Highly corroded Group 2 horseshoe, 50 grams remaining, estimated size 9.5 × 10.8 cm. wide, rectangular countersunk<sup>97</sup> holes for nails with tapered necks, nails c. 2 × 6 mm. probably set 3-3. Stray find in Grange Yard near building X.
2. Corroded, flat, Group 2 shoe, 70 grams remaining, estimated size 11.5 × 11.2 cm. wide, rectangular holes c. 5 × 7 mm. probably set 4-4, no countersinking, heel end slightly thickened. Holes are set well in from the edge like LMMC FIG. 36/12 from Visby, dated 14th century. F192, building XII.
3. Flat Group 2 shoe, 85 grams remaining, 11.0 × 10.6 cm. wide, countersunk holes rectangular c. 4 × 6 mm. probably set 3-3, heel end slightly thickened. F149, building X.
4. Probably flat Group 2 shoe, 225 grams remaining, 12.9 × 12.0 cm. wide, rectangular holes c. 3 × 6 mm. set 3-3, very slight countersinking, no calkins. F182, building XI.
5. Flat, highly corroded Group 2 shoe, 50 grams remaining, rectangular countersunk holes c. 4 × 6 mm. set 3-4 or 4-4, calkins formed by bending heel ends down and over. F241, building XII.
6. Flat Group 2A Dove-type shoe, 120 grams, 10.5 × 9.6 cm. wide, rectangular countersunk holes c. 3 × 6 mm. set 4-3, indeterminate nail heads remaining very close to edge, bent down calkin on wide heel, pointed heel slightly thickened. Sewer trench spoil in Redholm.
7. Convex, Group 2A Dove-type shoe, 170 grams, 11.4 × 11.0 cm. wide, rectangular countersunk holes c. 4 × 6 mm. set 4-3, toe worn, calkins as no. 6. F149A, building X.
8. Half of very corroded, flat, Group 2 shoe, 20 grams remain, evidence of 3 rectangular countersunk holes c. 4 × 6 mm., no calkin. F192, building XII.
9. Half of flat Group 2 shoe, 80 grams remaining, three rectangular countersunk holes for c. 3 × 7 mm. nails, heads c. 9 × 11 mm. project c. 2 mm., heel end slightly thickened, toe worn. F274, building XVI, dated 1575-1625.
10. Heavily corroded, convex Group 3A key-hole shoe,<sup>98</sup> 320 grams, 14.4 × 13.2 cm. wide, rectangular countersunk holes c. 2 × 5 mm. set 5-5, slight evidence of fullered groove, slight thickening of heel ends. Stray find near building XX.
11. Half of convex Group 3C shoe, 160 grams remain; 12.6 × 14.0 cm. wide, rectangular nails c. 3 × 7 mm. with tapered neck probably set 4-4 in fullered groove, worn toe, no calkin. Stray find near building X.
12. Convex Group 3 shoe but no fullering groove remains, 200 grams, 11.8 × 10.5 cm. wide, rectangular countersunk holes, nails c. 3 × 6 mm. with tapering necks set 4-3, slightly thickened heel ends. Topsoil by building I.
13. Convex Group 3D shoe, 250 grams, 12.3 × 12.0 cm. wide, rectangular holes c. 3 × 6 mm. set in fullered groove, with slight countersinking, heel ends thickened a little. F65, building I.
14. Slightly convex Group 3D, shoe 430 grams, 13.3 × 14.5 cm. wide, rectangular holes c. 3 × 6 mm. set 4-4 in fullered groove, shapeless nail heads project, slight thickening of heel ends. Sewer trench spoil in Redholm.
15. Sinuous outline ox (?) shoe, 35 grams, 11.0 cm. long, four rectangular holes c. 3 × 5 mm. possibly countersunk, toe end bent up like the modern clip to locate on the hoof. F65, building I.
16. Small, sinuous outline ox (?) shoe, 20 grams, 7.8 cm. long, three sub-rectangular countersunk holes c. 1½ × 3 mm. Stray find near building I.

<sup>97</sup> In Group 1 shoes the countersinking is taken to be the first of two punching operations. In some of the Waltham shoes where countersinking is evident, it and the hole could have been made in one operation by the use of a shouldered punch. L.M.M.C., p. 115 states that countersinking is not found after the 14th century.

<sup>98</sup> The central keyhole opening is considered typical of the latter half of the 17th century but continues into the 18th century; Curnow, 1970, Fig. 11, no. 10 and p. 70.

17. Ox (?) shoe with slight sinuosity, 40 grams, 10.5 cm. long, four sub-rectangular holes  $c. 4 \times 6$  mm., nails with spade-shaped heads  $13 \times 18$  mm. Debris F291 of building XVIII, demolished early 17th century.
18. Very similar to no. 17, 50 grams, 10.7 cm. long, nail ends clenched over. Stray find near building X.
19. Ox (?) shoe, 40 grams, 10.9 cm. long, four rectangular countersunk holes  $c. 3 \times 6$  mm. F224, building XII.
20. Ox (?) shoe, 30 grams, corroded but evidence of three probably rectangular holes possibly countersunk. F182, building XI.
21. Ox (?) shoe, trace of sinuosity, 50 grams, 10.0 cm. long, four probably rectangular countersunk holes  $c. 2 \times 4$  mm. Debris F291 of building XVIII, demolished early 17th century.

Not illustrated. Ten fragments of medieval horse shoes from topsoil and spoil. Thirteen modern horse shoes, one had a side clip as well as a toe clip; one had a flat plate on the hoof side, over the whole of the shoe.

#### OTHER IRON OBJECTS (not illustrated)

Iron objects other than the lock and keys, the ox and horse shoes and the bone-handled awl (FIG. 28/2) are listed under this heading. Comparisons are made with material illustrated in the London Museum Medieval Catalogue (LMMC) and with published material from the Essex sites of Writtle<sup>99</sup> and Pleshey.<sup>100</sup>

Two intersecting double links, 24 cm. overall length when stretched out, compare with one link from Writtle FIG. 48/78 of a harness (?) and there dated 13th century; possible candle holder, 7 cm. long, remains of actual holder like LMMC FIG. 56/2 with bar and bent down end possibly to fit a wall socket; carpenter's dog, 8 cm. across; staple, 10 cm. long  $\times 6.4$  cm.; ring 4 cm. diameter  $\times 1.2$  cm. wide with scarfed joint; thin wire ring, 4.6 diameter; oval ring,  $4.7 \times 3.2$  cm., possibly a buckle; pair of tongs or pliers, 13.5 cm. long, the grips recessed  $1.2 \times 0.8$  cm., in use could have formed a pellet of plastic material the above size  $\times 0.5$  cm. thick; clenched nail with curved plate as washer, to pass through a shaft 5.8 cm. diameter; square sectioned awl, 11 cm. long, with flattened tang; circular sectioned awl, 10 cm. long, with flattened tang; part of rectangular buckle with pin for 2 cm. wide belt, perhaps  $5 \times 3$  cm. overall; carpenter's spoon bit, 9.2 cm. long, as Writtle FIG. 48/79, there 13th century, or Pleshey FIG. 14/8, there late 15th/16th century; pointed-tang circular section awl, 9.4 cm. long; knife, 12.7 cm. long, 6 cm. blade, suggestion of bolster, tang and copper alloy end plate; fragmentary tanged knife, 9.5 cm. overall, 4.5 cm. blade remaining; blade of knife, 14.5 cm. remaining (*all the above in lower topsoil or debris F63-F65 of building I*). Knife blade, 14.5 cm. long (*Phase 4 floor F56 of building I*). Scissor or shear blade, fragment 6 cm. long; fragment of strap, 3 cm. wide, with evidence of three nail holes, could be part of band for barrel. (*Phase 4 ash F89 of building I*). Fragment of strap, 2.5 cm. wide, evidence of two holes, could be part of band for barrel; part (?) of heavy cleaver blade, 16 cm. long by 5 cm. wide. (*Phase 3 ash F97 of building I*). Tanged handle and part of blade of sickle as Writtle FIG. 41/81-2; two square buckles, pin missing, to take belt 2 cm. wide; square buckle with pin to take 1.7 cm. wide belt; rectangular buckle with pin to take 1.5 cm. wide belt; oval swivel ring,  $5 \times 4$  cm.; elongated-D shaped buckle with central bar, pin missing, to take 1.2 cm. wide belt; double hook, 29 cm. long; obtuse-angled stay 29 cm. long; socketed gouge, 19 cm. long; heavy tanged knife, 19 cm. long, 11 cm. long blade heavily hammered on back (*topsoil F149 over building X which lasted to c. 1840*). Rectangular single loop harness buckle with pin and roller, 5 cm. long to take 2.5 cm. wide belt; wall nail 20 cm. long with curved up head end; spike 31 cm. long (*debris and topsoil F182 over building XI*). D-shaped buckle with pin, for belt up to 3 cm.

<sup>99</sup> Rahtz, 1969, Figs. 47 and 48.

<sup>100</sup> Rahtz, 1960, Fig. 14.

wide (*debris F224 over building XII*). Wall nails with plain vertical hooks, 4, 5 and 16 cm. long; wall nail with two holes for fixing shelf (?), remains 16 cm. long; fragment, 9 cm. long of tanged knife (*robber trench debris F192A of building XII*). Strip 1.5 cm. wide with widened end bent over as flattened S. to form a loop, 10.5 cm. long (*debris F259 over Building XIII*). 'Fiddle key', 7.5 cm. long; fragment of hinge 4 cm. wide with end rolled to accommodate pin; wall nail with hooked end, 6 cm. long (*debris F282 over building XV*). Sickle with tanged handle, 35 cm. overall, like LMMC Plate XXIII/1 but blade well worn; shears, one blade missing, c. 17 cm. long, most like LMMC FIG. 47/1B (*casual finds in Grange Yard*). Four bars, 2.1 x 0.5 cm., set vertically at top of drain F271 to prevent rodents entering building (?) as well as preventing clogging of drain (*building XVI, early 17th century*). Tanged knife, 15.5 cm. long; fragment of knife, 8.5 cm. long possibly intended to have applied scales (*topsoil F300 over building XXI*).

Nails were found in quantity in buildings I and X. The majority were c. 4-7 cm. long as would have been suitable for fixing roof tiles; one nail was found in a hip tile. The building I nails, found in the top levels, were of two types: (a) 390 nails with square shanks, max. 6 x 6 mm.; with flat, forged, square to circular heads; varying in length from 3 to 9.5 cm., and (b) 31 nails with square shanks but with the shank split and bent outwards to form a two lobed head; this type measured 3 to 6 cm. long. From the barn X were recovered 110 nails of type (a) above, supplemented by (c) 31 heavier nails, with clumsily forged heads, varying in length from 3 to 15 cm. and with shanks often rectangular with a largest dimension of 12 mm.; type (c) may represent post-medieval alterations to the building.

#### APPENDIX 13: CLAY PIPES

Seven pipe bowls<sup>101</sup> only were found. Two were in stratified positions, one dating brick robbing of building XII (F192A) and one taken to date the dismantling of the wharf (F312). Three were in upper levels over building X (F149B and C) and help in the dating of the later phases of that building. The others (F182 and F65) are of no such use.

#### APPENDIX 14: COUNTERS AND COINS<sup>102</sup>

1. French reckoning counter, 15th century. F65, building I.
2. Reckoning counter, 15th century, details unknown. F96, building I.
3. Reckoning counter, Nuremberg, 17th century. F192A, building XII, dug out by machine.
4. Reckoning counter, Nuremberg, 16th century. F259, building XIII.
5. James I, farthing, Type 2, Harrington, 1613-25, F291, building XVIII.
6. William III, farthing, 1697. Machine dug spoil heap, north of building XII.
7. George II, farthing, 1733. F149B, by side of N. wall, building X.
8. George II, halfpenny, 1740-54. F149B by side of N. wall, building X.
9. George III, halfpenny, 1806. Machine dug spoil heap, building XII.
10. Victoria, sixpence, 1851. F258, building XIII.

#### APPENDIX 15: ANIMAL, FOWL AND FISH BONES

##### ANIMAL BONES

The excavations on the farm, where ox, horse, sheep and pig are known to have been kept, have not produced a great quantity of animal bones. The bones found have come mainly from the top levels F63-5 of building I (6 kg., representing a minimum of 1 ox, 3 sheep, 1 horse, 1 pig, 1 dog) from the robber trench F192 at the S. end of building XII

<sup>101</sup> In the feature lists they have been classified and dated, e.g. A and O 20, 1680-1710, according to Atkinson and Oswald, 1969, 171-227.

<sup>102</sup> Counters 1 to 4 were so described by the British Museum.

(3½ kg.; 2 ox, 1 sheep, 1 dog) and from rubbish F274-5 behind building XVI (1½ kg.; 1 ox, 1 pig) and in each case they indicate domestic occupation.

The only other significant deposit was in pit F49 under the fifth hearth of building I; this included 30 ox horn cores with attached pieces of skull, a few ox longbones, 2 fragments of sheep skull with horn cores and part of the skull of a horse. No fragments of horn remained and it cannot be stated whether this material was basically waste from a horning industry or perhaps represents a seasonal culling of stock. Two longbones and horn cores representing a minimum of 4 oxen were found in cleaning up the section of the ditch to the north-east of the dovecote VII and could be waste from a similar source.

Bones elsewhere in building I were: Phase 1, fragments of 1 ox, 1 sheep; Phase 2, fragments 1 ox, 1 pig; Phase 3, 1 kg.; 1 ox, 1 sheep; Phase 4, ½ kg.; 1 ox, 1 sheep.

#### FOWL AND FISH BONES

Bones of fowl and fish were found in building I but have not been analysed in detail. The numbers of bones are as follows: Phase 1 deposits, 11 fowl; Phase 2, 8 fowl, 1 fish; Phase 3, 26 fowl including 2 waders, 2 fish; Phase 4, 5 fowl, 1 fish; destruction levels, 11 fowl, 1 fish; topsoil, 17 fowl, 2 fish (1 rodent).

#### APPENDIX 16: SHELLS

Significant numbers of shells were associated with the bones in the domestic rubbish discussed in Appendix 15; building I, top levels F63, F64, F65 (145 oysters, 18 common mussel, 2 freshwater mussel, 14 cockle, 14 garden snails, 14 brown-lipped snails<sup>103</sup> or similar); building XII, debris in robber trench F192 (9 oysters); building XVI, rubbish F274/5 (28 oysters, 2 cockles). Shells were also found in the pre-building levels F114-6 of building VIII (50 oysters, 67 garden snails, 2 cockles). Other shells in building I were: Phase 1 (2 oysters, 7 freshwater mussels); Phase 2 (2 oysters); Phase 3 (10 oysters, 5 common mussel, 1 cockle); Phase 4 (16 oysters, 4 common mussels, 3 garden snails, 2 brown-lipped snails). It is assumed that all the above shells, including possibly the snails, represent food debris; the common snails were all large specimens. Shells by a building I stylobate F3 were 3 *helix nemoralis* and 5 *planorbis corneus*.

Samples of silt containing shells from the sewer trenches across Redholm and Veresmead and from the dock excavation have been kept but have not been analysed.<sup>104</sup>

#### APPENDIX 17: FABRIC

A fragment of fabric, 3 × 2 cm., was found in ash F94, a building I Phase 3 deposit of the 15th century. The weave is plain, the count being 12 and 14 threads per centimetre. The fabric, by comparison with modern material, is probably silk. Smaller fragments, probably of a similar product, were found in F33, also a building I Phase 3 ash deposit.

#### APPENDIX 18: NEOLITHIC AXE

A polished stone axe, with the cutting edge and the butt end damaged, was recovered as a stray find from sewer-trench spoil in Redholm. It is estimated to have been 9 cm. long and was 5 cm. wide and 2.4 cm. thick with a fairly pointed butt end.

The axe, petrology number E44, is assigned to Group VI, Great Langdale area, by Dr. W. A. Cummins of the Department of Geology, University of Nottingham.

#### ACKNOWLEDGEMENTS

The excavations, directed by P. J. Huggins, were carried out by the Waltham Abbey Historical Society with the assistance of members of the West Essex Archaeo-

<sup>103</sup> *Ostrea edulis*, *mytilus edulis*, *unio* sp., *cerastoderma edule*, *helix aspera*, *helix nemoralis* respectively.

<sup>104</sup> Eight species have been identified previously at Waltham; E. A. Clifford in Huggins, 1970, 146.

PLATE I

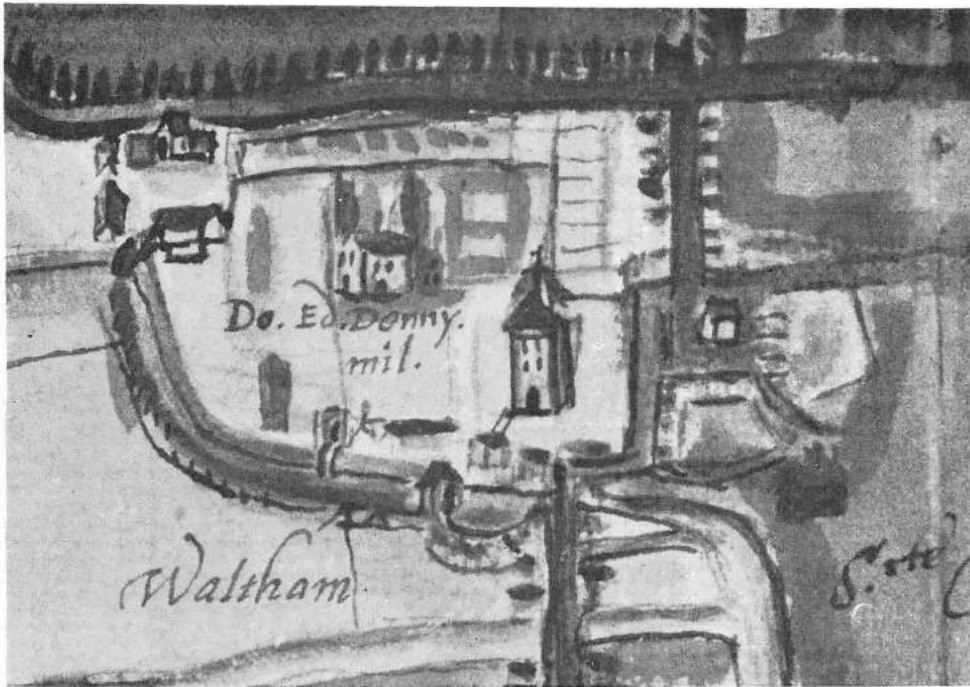


Photo: B. King

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A. ENLARGED PART OF MAP OF WALTHAM ABBEY, c. 1600 (east at top)  
Showing buildings X, XVII-XIX and possibly XII, all painted with red roofs; compare with FIG 2.  
See note 23.



Copyright: Hertfordshire Mercury

B. VERESMEAD, WALTHAM ABBEY

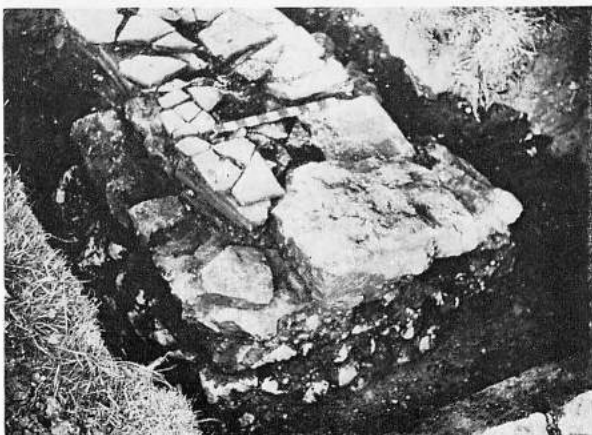
Building I from the south-west showing ground walls, oven F30 (at top left), hearths F41, F45, F46 (at top centre).



A



B



C



D

*Photos A-D: P. J. Huggins*

A. VERESMEAD, WALTHAM ABBEY  
Building I, brick stylobate F1 of 2-bay aisled hall. Scale in inches.  
B-D. GRANGE YARD, WALTHAM ABBEY

Building X, 12-bay aisled barn. B: Phase 1 brick stylobate F121/1N on foundation F120 and (on right) Phase 3 brick post-plate ground wall F136. C: Phase 2 stone stylobate F122/9N and Phase 3 roof-tile post-plate ground wall F137. D: Phase 1 ground wall F123 in bay 4 showing original mortared flints with roof-tile and brick repairs. Scales in feet and inches.



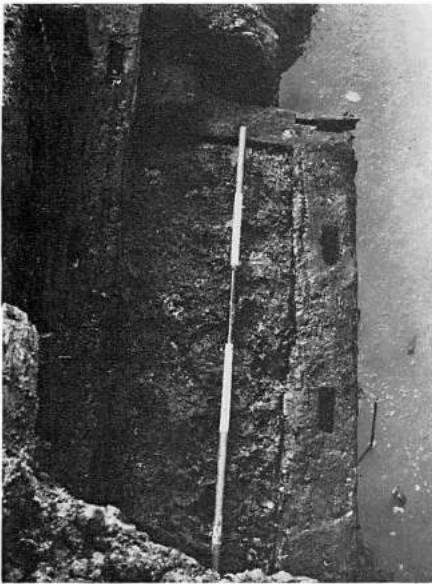
PLATE III



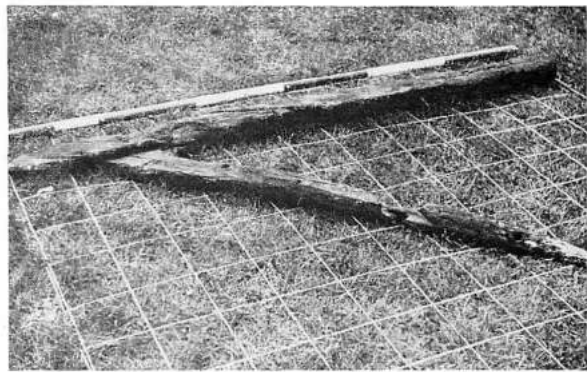
A



B



C



D

*Photos A-D: P. J. Huggins*

- A-B. Building XII. A: remains of brick wall F191 on foundation F190, and buttress F193/3E. To the south (at top) foundation is completely robbed. B: oven complex from the north; compare with FIG. 14. Scales in feet and inches.
- C. Dock and wharf. Sole plate T1 of dock (on right). Wharf side beam T11 (on left), small scale stands on floor boards T17 by fence boards T16. Scale in feet and inches.
- D. Oak plough. Stilt and share beam shown upside down to reveal mortise holes in beam and step down from beam to stilt; compare with FIG. 27. Scale in feet, grid in 6-inch squares.

logical Group and the Enfield Archaeological Society; their help is gratefully acknowledged. At the beginning of the Veresmead excavation Sir Hereward Wake, Bart., owned the freehold and Mrs. I. D. Chapman was tenant; thanks are due to them for permission to start work before the road works began. Subsequently Essex County Council (Mr. R. Lennark and staff) and the contractors, W. & C. French & Co. (Mr. L. White and staff) and the Midland Construction Co., allowed the investigations to continue; thanks are offered to all concerned. In the final stages excavation was undertaken by permission of the Lee Valley Regional Park Authority.

The work was undertaken with the help of grants from the Department of the Environment; the advice and interest of J. G. Hurst, P. E. Curnow and Miss I. Drayton of the Department is much appreciated. Rhona Huggins reported on the pottery and tiles, Dr. K. N. Bascombe undertook the secretarial work and the documentary study, R. C. Gray acted as treasurer; all were of great help throughout the investigation. The above and other members of W.A.H.S. kept an eye on the road works as they progressed and turned out at short notice when required.

Thanks are offered to: J. G. Hurst for advice on the pottery; the staff of the British Museum Coin Department for identification of the counters; F. G. Dimes for further help with identification of stone; the staff of the Castle Museum, Norwich, for organizing the study of the neolithic axe and Dr. W. A. Cummins for the identification, the axe was found by Terry Turner; J. Littlefair for printing photographs.

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# Changes in the population of Essex 1066-86

By R. WELLDON FINN

IT must be realized that for all the wealth of statistical information about population which Domesday Book provides we cannot by its means produce precise figures. To argue from the silence of Domesday has long been appreciated to be a dangerous practice, and there is much about which it is unfortunately silent. It tells us who, or how many men, owned land or parcels of land in the time of King Edward, but all too infrequently it informs us whether they, or their relatives, were there in 1086 also.

Some certainly were not. There were those who died at Stamford Bridge or Hastings or during the disturbances following the advent of the foreigner, or those who sought safety and employment overseas. Some were outlawed; some lost their land because they were adjudged guilty of some offence and could not pay the fine imposed, like Godwine at Chadwell (98), or forfeited it because they committed theft (Rainham, 66b).

But we are informed about a considerable number of landholders who survived the Conquest. A few still held the land they or their fathers had held in 1066, and some held direct from the king, such as those mentioned at the close of fol. 102. Others held of a newcomer or a pro-Norman native. An Englishwoman held Sutton (45b) of Sweyn the former sheriff, while Leofric had his 30 acres at Chignal (58b) under Geoffrey de Manneville and Godric his half-hide at Purleigh (69) under Ralf Bainard.

Yet we cannot say how many, or what proportion, of the thegns and free men and sokemen of 1066, or their heirs, had survived. We can if we like say that Domesday Book tells us of over 400 free men and about 600 sokemen present in 1066. This is indeed no small figure, but that the text includes all those it might have done is open to serious doubt. Many passages suggest this. Of 24 entries on fols. 38b-40 for Richard fitzGilbert's fief, four say that the holdings 'always' (*semper*) contained the same number of sokemen, and in nine more the quantity present in 1086 is given. It seems reasonable, then, to suppose that in the eleven for which we are given 1066 figures only, some or all of the 28 sokemen mentioned were still there. No sokemen are mentioned for Ralf Bainard's half-hide and 35 acres which had belonged to the royal manor of Lawford (6), but we meet this half-hide and 35 acres again under Bainard's fief, where they go by the name of Michaelstow (70b), and here two sokemen are recorded. The instances of detached portions of manors for which no inhabitants are mentioned are numerous; few furnish parallel entries elsewhere in the text, but the implication is that some must have been in the hands, as tenants, of free men or sokemen. It is then

impossible to say that where such are mentioned for 1066, but not for 1086, all had necessarily gone, or had suffered a loss of status.

But some undoubtedly had. At Benfleet (1b) a free man had been made one of the villeins, while at *Ulwinescherham* (4b) there had been four free men; 'now they are not there'. The free man who had held a mere 15 acres at Abberton (46b) may be the bordar who alone was there in 1086. But we must not assume that all those recorded for 1066 had gone or had been depressed by 1086. There had been 13 free men at Hatfield Peverel (72), whose land had become that of five of Ralf Peverel's *milites*. It does not look as if they had been converted to the status of villeins or bordars, for the quantities of these did not change. Similar entries yield about 100 sokemen and 200 free men, and it is improbable that all these were no longer available in some capacity. Moreover, this takes no account of the numerous free men who had held manors in 1066. We are told of the survival of a few, but were none of the rest still there?

The text furnishes another suggestion of large-scale survival. We must not think of a considerable group of sokemen as necessarily holding an estate in common, or merely a share of the common lands of the village. The very odd figures of the assessments given suggest that these represent the sum of the ratings of individual farms. Eight free men connected with the royal manor of Witham (1b) had held 82½ acres, seven at Bradfield (89) 71½ acres, two sokemen and a free man at Finchingfield (35) 38½ acres. If the authorities had left us the dissection of the holdings of such groups, we should surely have read, as we do elsewhere, of sokemen with 13 acres (Great Birch, fol. 30), or 8 acres (Creshall, 33), or free men with 3½ acres (Steeple Bumpstead, 28b) or 3 acres (Pebmarsh, 102). In 1066 such men were probably attached to no manor, but paid their geld direct; most of the relevant entries say that since the Conquest they had been added to some manor, in the interests of more efficient economic working and of addition to the labour force. Some had been manors, e.g. Almar's 75 acres at Putsey (45b), held in 1066 by a sokeman. But this may not have been the invariable background. At Burnham (70) two free men had held 8 hides and 28 acres, a substantial estate. In 1086 Ralf Bainard held the land in demesne, and eight bordars had become sixteen, some of whom may have been the former sokemen. But in the next entry, for Little Baddow, we read of five free men in 1066 where in 1086 there were Germund, Ralf's adherent, and four *franci*. The latter are not necessarily 'Frenchmen'; the term may stand for 'free men'. A *francus homo* at Munden (48b) had been outlawed, and it is likely that early in the reign (for his land had been seized by Lisois de Moustières, prominent early in the Conquest) an Englishman, not a Frenchman, would be so punished.

We must not attempt to differentiate too sharply between sokeman and free man. Indeed those styled sokemen at Fobbing (26) are described as free men in the same passage. At Hassingbroke (23) there had been 16 free men; in 1086 there were 20 sokemen. Some of them may have been the same persons. We have seen a sokeman holding a manor. Some free men possessed sokeright over their dependants (Canewdon, 44b; Purleigh, 53), but the sokeright of some lay in the manor (Stapleford Abbots, 20; Prittlewell, 44), even though they might sell

their land. Nor must we assume that the free man was necessarily wealthier than the sokeman. The calibre of their estates varied enormously. An Althamstone free man had a holding rated at a single acre (102), and a 5-acre holding is far from uncommon. Yet a Beaumont sokeman (77b) had only half a virgate less than two hides, and two at Waltham Abbey (15b) five hides between them.

It looks then as if the number of sokemen had not declined greatly since the Conquest; certainly where we are given figures for both 1066 and 1086 there is rarely a wide difference between them. This may also be true of the free men, but here we are handicapped by knowing little of the fate of those who held manors at the earlier date. But the labour services of these classes may have been made more onerous.

#### *Villeins, bordars, and slaves*

For these we are frequently told how many there had been *tunc* (i.e. 1066), *post* or *quando recepit*, which probably indicate varying dates not greatly distant from the Conquest, and *modo*, at the Inquest of 1086. But in 40 per cent of the statements it is said that there have 'always', *semper*, been the number of persons mentioned, and in view of the considerable alterations in the other quantities it may seem that accuracy is here often unlikely. It is indeed probable that on many occasions those responsible for providing the statistics did not know, or did not trouble themselves to determine, how many persons had been available twenty years earlier. Unfortunately the proportion of persons represented by the entries using *semper* is high, almost exactly one-third.

It is impossible to say to what extent changes in the number or character of the population might have occurred within a few years of the Conquest. We have most information about the bordars, but even here in only 83 entries. The combined figures show a fall of only  $3\frac{1}{2}$  per cent, which would reduce to 1 per cent if the *semper* entries were included. All that can be said is that major fluctuations do not seem to have occurred early. Yet there must have been some reduction in economic standards. No demesne livestock were there to be taken over by the new owner at, e.g. Eynesworth (38) or Maplestead (84).

We can with safety confine our attentions to the two main categories of the lesser peasantry, the villeins and the bordars, and to the slaves. Miscellaneous classes, e.g. the unidentifiable *homines*, are so few (less than a hundred even if priests are included), as to be negligible.

Unfortunately statements appear in the text which cannot be used. We are told that there were and had been villeins at Earls Colne (77), but not how many. For a Finchingfield manor (35) 50 bordars are recorded, a quantity which seems most improbable where there were in addition but three villeins and five slaves. Equally an increase in the number of bordars at Halstead (101b) from three to 40, though three slaves had become none, is highly unlikely. Nor can we employ figures which furnish no comparison with alternative periods; e.g. for Nazing (80) we are given those for 1086 only. There are other statements, too, which seem unlikely to be correct. At Mistley (83b) a solitary bordar is reported, but there were two full teams of plough-oxen, and though at Ardleigh on the same folio

only 13 persons are recorded for 1066, they had shared as many as nine teams. One slave is all the population noted for Bowers Gifford (86), yet the demesne livestock total 71, of four different categories. He could not have managed all these and the plough-team. Thus the figures derived from Domesday Book can be no more than approximations.

	1066	1086	Difference	1086 no comparison	TOTAL: 1086
Villeins	4,338	3,901	— 437	153	4,054
Bordars	3,864	6,303	+ 2,439	678	6,981
Slaves	2,495	1,725	— 770	77	1,802
	10,697	11,929	+ 1,232	908	12,837

These figures differ slightly from those of *The Domesday Geography of England*, since those of the latter are based on the modern, not the Domesday county, and some statements have probably been interpreted differently.

The decline in the number of villeins is inconsiderable, and no more than we should expect to find when one effect of the Norman advent would inevitably be to reduce the economic standards of the peasantry. The fall in the quantity of slaves is perhaps explicable. The slave, when he became unfit for work through age or sickness, ceased to be an asset. If estates were to be exploited more efficiently, it was sound economy to furnish him with a small amount of land and so far as was possible make him self-supporting. Thus many slaves may have been transferred to the bordar class.

Some entries certainly suggest the promotion of slaves to the status of bordar, and the reduction in importance of some villeins. At Little Thurrock (11b) six slaves had become a single slave, and a solitary bordar six bordars. The difference between the number of slaves and bordars in 1066 and 1086 at Good Easter (20b) is in each case five. At Beckney (23b) there was at the Inquest a bordar where earlier there had been a slave. Such changes are, however, by no means everywhere to be found. None of the previous 12 slaves at Elmdon (33b) was reported for 1086, but the quantities of villeins and bordars had not altered. At Kenningtons (37b) the number of villeins had increased from one to seven, but otherwise three slaves had become one plus a single bordar. At Baythorne (81) six villeins and two slaves became seven bordars and three slaves. The St. Paul's manor of the Sokens (13b) had lost both villeins and bordars, 126 becoming 113; close by a Frinton manor (32b) had less of all three categories, 13 inhabitants becoming only five.

Though the fall in the number of slaves had been considerable, there were plenty of manors on which the quantity had increased. Some manors had a spectacularly high proportion of slaves, e.g. Baddow (70), where it was 64 per cent, or Totham (56) and Shellow Bowells (61), on each of which more than half the

recorded inhabitants were slaves. There are holdings for which the only persons mentioned are slaves, e.g. Fyfield (31); on the same folio Laver is credited with a single slave and no other inhabitants. No consistency of decline is manifested. It is low on the royal estates,  $8\frac{1}{2}$  per cent, but these would be able to afford, and would require, much slave-labour. The only ecclesiastical fief which displays a major fall is that of Waltham Abbey, 54 per cent. The heaviest falls come on the fiefs of the largest lay landowners, e.g. Count Eustace, Richard fitzGilbert, Sweyn the former sheriff, Hugh de Montfort, Robert Gernon, and Ralf Peverel. It is perhaps suggestive that considerable decline in numbers is apparent in the districts bordering the coast and the Thames estuary, and here too any rise in manorial values was below average. These were the areas in which demesne sheep seem to have been most numerous, though not necessarily those in which they increased most. Still, this may reflect a change in the emphasis from arable to pastoral farming. Slaves did most of the demesne ploughing, and if the arable decreased, the need for slaves would be less. But the number of holdings where there were demesne plough-oxen but no slaves is not small.

Now that net increase of over a thousand recorded persons, and of more than two thousand bordars, may seem excessive, though it is only about 11 per cent of the 1066 figure, but it may yet be intelligible. It averages only 1.36 persons per entry, and even on an enormous fief such as that of Count Eustace of Boulogne it amounts to only 37 on a pre-Conquest population of 636. But there are fiefs, notably those of Robert Gernon and Ralf Peverel, where it is more than 25 per cent.

Several suggestions for the increase have been advanced. It is too great to be accounted for simply by the freeing of slaves and the degradation of free men and sokemen in status, together with the exaction of additional labour services from villeins which placed them on a level with bordars. One might, indeed, have expected one of the effects of the Conquest to be a diminution in the number of the peasantry from death in local conflict or mortality resulting from lowered economic standards. The frequent decline in the number of plough-teams displayed by the text might suggest that there would be less food to supply an apparently increasing population. Twice we read of losses of plough-oxen 'from the death of the beasts' (Witham, 1b; Hatfield Broad Oak, 2). On such evidence as we have, large-scale shift from an agricultural to a pastoral economy seems unlikely.

There are, however, several additional possibilities, and in addition, Domesday might be deceptive.

(i) The increase on some manors is staggering. That at Barking (17b) is from 160 to 236, at Clavering (46b) from 34 to 66, at Woodham Ferrers (57) from 38 to 59, at West Thurrock (63) from 44 to 70, at Wimbush (69b) from 51 to 81, at Walthamstow (92) from 30 to 65. Possibly, in some such instances, we are considering a manor which had been enlarged since 1066, and if so, no true comparison is possible. Some holdings may well have gone out of existence, and their inhabitants been transferred to a neighbouring manor of the owner. In each case we do not know how many people we ought to add for 1066. The population of Barking may have been deliberately swollen by the transference of persons from elsewhere, perhaps from London. The abbey vill had been the Conqueror's

residence shortly after his coronation, and here he had summoned a gathering of native magnates who made their formal surrender to him. To cope with the king's entourage much additional labour would be necessary. Clavering, the former sheriff's manor, may have had a crude fortification after the Conquest, and possibly even before it. In 1052, after the return from exile of the House of Godwine, some of the Normans then resident in England 'fled northwards to Robert's castle'. 'Robert' may have been Robert fitzWymarc, sheriff of Essex. Clavering's increased importance in Norman times may have necessitated strengthening its population.

(ii) Very frequently we read of estates added to a manor. Many of these had been the small properties of free men and sokemen, and the latter rarely had villeins, but only bordars and, very occasionally, slaves. As such bordars did not belong to the manor in 1066, probably they would not be counted in its figures, but in 1086 they would be.

(iii) An increase in the birth-rate, or a static or decreasing death-rate, may seem unlikely. Yet war and rumour of war seems to encourage the former, and conceptions in 1065-6 would display the results twenty years later, by when the males would be adult.

In view of the general apparent increase in population, it is perhaps surprising that on 176 holdings it should have fallen. Many of these, it is true, were small ones, and it is comparatively rare for the decline to exceed one-quarter of the pre-Conquest inhabitants. What is suggestive is that such a high proportion of the falls should be in the Tendring Hundred, in the mid-Stour valley, and close to the coast and the Thames estuary. The decay of estates in these areas could have been caused by piratical raids, or be the result of King William's order to devastate a potential landing area for the threatened Danish invasion of 1085, and so deny it supplies. But with economic insecurity so general it is not surprising that no part of the shire is free from occasional diminution of population.



# The Plague in Colchester—1579-1666

By I. G. DOOLITTLE

THE importance of the plague in the history of Colchester in the 16th and 17th centuries has often been stressed. Morant recorded outbreaks in 1579, 1604, 1631 and 1665-6 and listed the plague deaths in 1665-6.<sup>1</sup> Two historians of the plague, Creighton and Shrewsbury<sup>2</sup> have also dealt at some length with epidemics in Colchester, in particular the final catastrophic plague of 1665-6. The present survey attempts to establish the extent of plague mortality in Colchester, to examine how the local administration tried to cope with the ensuing problems and to estimate the part played by the plague in the economic and social life of Colchester during this time.

On the basis of an analysis of the parish registers of St. Leonards, St. Marys and St. Peters<sup>3</sup> and borough records, mortality of epidemic proportions seems to have occurred in the following years: 1579, 1586, 1597, 1603, 1626, 1631, 1644, and 1665-6. There are, however, important qualifications to be made at this stage. The term 'plague' was then used generically; it was invariably synonymous with 'epidemic'. Although the local authorities refer to the 'plague' of 1579 its seasonal incidence (December 1578 to August 1579, according to Morant<sup>4</sup>) suggests that it was in fact smallpox.<sup>5</sup> Very few causes of death (apart from unusual deaths by misadventure) are noted in the parish registers. The four deaths by smallpox in 1652 recorded in the register of St. Peters are an exception. Moreover, during a very severe outbreak parochial registration broke down. Thus, paradoxically, a high number of burials in a particular year, whilst it undoubtedly shows the presence of an epidemic of some kind, suggests that the outbreak was not of a catastrophic nature. For the yearly totals see Table I.

There is, in fact, no parochial evidence for the visitation of 1579. Registers for St. Marys are extant for this year but no peak is apparent in annual mortality totals. However, there are three documents in Morant's collection which show that an epidemic did occur. Two concern the selection of persons to view the corpses to establish whether the plague had been the cause of death and these are dated December 1578. The third, dated August 1579, refers to a bill of mortality for St. Leonards and lists four persons who were still stricken with the disease.<sup>6</sup> These manuscripts are clearly the basis for Morant's assertion that the plague lasted from December 1578 to August 1579. Although this suggests that it was smallpox rather than plague (which is virulent during the late summer months) it is impossible to confirm this. Moreover, this study is concerned with the incidence

<sup>1</sup> P. Morant, *History of Colchester* (1748), Vol. I, pp. 50, 52, 70, and British Museum, Stowe MSS., 840, ff. 44-5.

<sup>2</sup> C. Creighton, *A History of Epidemics in Britain*, Vol. I (1891), pp. 348, 498, 525-6, 688 *et seq.*, and J. F. D. Shrewsbury, *A History of the Bubonic Plague in the British Isles* (1970), pp. 233, 234, 269, 348, 404, 407, 499-502.

<sup>3</sup> E.R.O. D/P 245/1/1 (St. Leonards) and D/P 178/1/1 (St. Peters). The St. Mary's registers are to be found at the parish church.

<sup>4</sup> Morant, *op. cit.*, p. 50.

<sup>5</sup> Shrewsbury, *op. cit.*, p. 233.

<sup>6</sup> E.R.O. D/Y 2, Vol. XLII, pp. 23-5.

TABLE I

*Burial totals for three Colchester parishes, 1560-1670*  
(Note: only complete years have been included)

	St. Mary's	St. Leonard's	St. Peter's		St. Mary's	St. Leonard's	St. Peter's
1560	18	19		1606	15	20	
1	10	13		7	12	7	
2		18		8	9	14	
3	10	16		9	13	5	
4	13	8		10	9	26	
5	8	10		1	22	32	
6	10	10		2	32	25	20
7	9	9		3	22	20	8
8	22	11		4	15	17	13
9	19	8		5	13	24	17
10	17	15		6	9	19	15
11	18	11		7	12	33	11
12				8	12		13
13				9	19	7	17
14	9			10	19		17
15	19			11	10		17
16	11			12	16		18
17	7			13	17		6
18	14			14	23		40
19	20			15	38		19
20	19	11		16	32		79
21	19	4		17	7		17
22	27	5		18	16	21	19
23	9			19		15	
24		26		20		20	
25		10		21	26	37	
26	43	15		22	13	10	
27		21		23	22	20	20
28	25	13		24	18	7	
29		14		25	13	22	17
30	8	15		26	8	19	23
31	21	22		27	11	25	
32	14	24		28	9	47	14
33	21	14		29	7	43	26
34	20	17		30	20	26	35
35	16	15		31	23		12
36	15	9		32	22		
37	34	35		33			
38	12	20		34		24	
39	14	15		35			
1600	16	17		36		11	
1	8	14		37		12	
2	21	18		38			
3	26	70		39			25
4	48	19		1655			
5	31	14		1667		31	

of heavy mortality and its effects on Colchester rather than with the precise nature of the epidemic.

There may also have been visitations of plague in 1586 and 1597. There were some 43 burials (more than twice the yearly average) in St. Marys in 1586, mainly during July and the following months. In addition, there was a grain shortage in September 1586<sup>7</sup> and this may be an indication of some kind of

<sup>7</sup> P.R.O. SP 12/193/10.

demographic crisis at this time.<sup>8</sup> The only evidence that remains for 1597 is the coincidence of two high totals of burials in St. Marys and St. Leonards when the deaths occurred mainly during the latter half of the year.

There is more substantial evidence for an outbreak in the autumn of 1603. The 70 burials registered at St. Leonards is approximately three times the usual annual figure and the Assembly Book contains a memorandum of November 1603,<sup>9</sup> concerning the relief of those afflicted with the disease. But the large number of burials at St. Marys to which Morant refers<sup>10</sup> mainly occurred in fact during the months of December 1604 and January 1605 and this suggests that it was not plague. On this point a marginal note in an apparently contemporary hand is not helpful. It reads:

'pestis hoc anno saevissima grassata est unde clades haec sepulturæ solito numerosiores'

(a particularly savage pestilence raged this year and the larger than usual numbers of burials are to be ascribed to this slaughter).

A pedantic or scholarly later clergyman (possibly Morant) corrected 'grassavit' in the original to 'grassata est'.

According to the clerk of St. Peters the first person to die of the 1626 plague in that parish was buried on 14 June and in all 79 deaths were registered that year; 19 and 17 are the totals for 1625 and 1627 respectively. There is a good deal of other documentary evidence for the outbreak. The Privy Council ordered the transfer of the County Gaol from Colchester to Stratford and told the Justices to restrict the movement of people from Colchester during the plague. Colchester for its part petitioned the Privy Council, putting forward the plague as a reason for its inability to fit out a ship for the King's fleet.<sup>11</sup>

Although the 37 burials registered at St. Leonards in 1631 is not a startlingly high figure the clerk stated that the plague arrived in the July of that year and that by November the parish was 'cleare'. Moreover, a tell-tale grain shortage was reported in February 1631.<sup>12</sup> Morant also drew attention to the evidence of the St. Marys register.<sup>13</sup> The July burials are significantly numerous and another marginal comment confirms that the victims died of the plague:

'hi omnes peste correpti obierunt in aedibus illis iuxta caemiterium ad orientem sitis'

(all these who were killed by the pestilence died in those houses situated in the east next to the cemetery).

One such house belonged to the Cooks. No fewer than five members of the family died during the month of July.

By contrast Josselin's assertion that Colchester was visited with the plague in 1644<sup>14</sup> is not substantiated by the St. Leonards register where figures remain for this year and, in fact, Shrewsbury had misgivings about Josselin's evidence.<sup>15</sup>

<sup>8</sup> E. A. Wrigley, *Population and History* (1969), p. 66.

<sup>9</sup> Borough Records (B.R.), Assembly Book 1600-20, f. 38.

<sup>10</sup> Morant, *op. cit.*, p. 52.

<sup>11</sup> Acts of the Privy Council (A.P.C.), June-December 1626, pp. 316-17, 267, 103-4.

<sup>12</sup> P.R.O. SP 16/184/30.

<sup>13</sup> Morant, *op. cit.*, p. 53.

<sup>14</sup> *The Diary of the Rev. Ralph Josselin, 1616-83*, ed. E. Hockliffe (1908), p. 16.

<sup>15</sup> Shrewsbury, *op. cit.*, p. 407.

The documentary evidence for the plague of 1665-6 is almost daunting in its extent. Original bills of mortality have survived for the final weeks of the outbreak<sup>16</sup> and there are very comprehensive lists of deaths in the Gray MSS.,<sup>17</sup> Stowe MSS.,<sup>18</sup> and in Ralph Josselin's diary.<sup>19</sup> The list made by Morant which is to be found in the Stowe MSS. giving weekly totals of deaths has been transcribed by Creighton and a condensed version was printed by Morant in his *History of Colchester*.<sup>20</sup> In addition, the Quarter sessions and Borough Records contain many entries concerning the organization of relief and these will be examined below.

It is virtually impossible to assess statistically the extent of plague mortality before 1665-6. On the basis of parochial evidence the plague of 1626 seems to have been particularly severe. A very high total of burials at St. Peters, together with the administrative activity which has been referred to already, gives an indication of the virulence of this epidemic. Indeed, in the Privy Council's reply dated 20 July 1626 to Colchester's petition of 1626, it was stated that more than 20 houses were already infected.<sup>21</sup> This seems a large number at such an early stage of the outbreak. The plague was so widespread that the Archdeaconry Court which was usually held at St. Peters Church moved to Lexden in September and did not return to Colchester itself until the beginning of February.<sup>22</sup>

The 70 burials at St. Leonards in 1603 and the entry in the Assembly Book in November of that year suggests that this too was a severe outbreak and although there is no confirmatory parochial evidence, the epidemic (smallpox or not) of 1579 was probably equally serious in view of the provisions for examining the dead made at that time.

The other probable plagues of 1586, 1597, 1631 and 1644 were less severe although this assertion is based simply on a lack of evidence and the outbreak of 1631 in particular may prove to have been an equally serious epidemic.

By contrast, the exact number of plague deaths in the years 1665-6 may be estimated with some accuracy. Morant speaks of a total of 5,259 deaths between 14 August 1665 and 14 December 1666, comprising 4,731 plague and 528 non-plague deaths. The validity of these figures may be checked against three bills of mortality to be found in the State Papers.<sup>23</sup> The totals compare in this way:

	Bills of Mortality		Morant	
	Plague	Non-plague	Plague	Non-plague
7-14 September 1666	22	2	22	2
14-21 September	15	3	16	2
28 September to 5 October	8	1	7	2

<sup>16</sup> P.R.O. SP 29/185/159-61.

<sup>17</sup> E.R.O. D/DRg 1/226, pp. 132-5.

<sup>18</sup> B.M., Stowe MSS., 840, ff. 44-5.

<sup>19</sup> Josselin, *op. cit.*, pp. 148-56.

<sup>20</sup> Creighton, *op. cit.*, p. 690, and Morant, *op. cit.*, p. 70.

<sup>21</sup> A.P.C., June-December 1626, pp. 103-4.

<sup>22</sup> E.R.O. D/ACA 45.

<sup>23</sup> See notes 18 and 16.

Thus, although the ratios of plague to non-plague deaths show some discrepancies the overall totals are identical. In addition, the figures for three weeks (2-9 February, 2-9 March and 19-26 October 1666) given by Morant are exactly the same as those recorded by Henry Muddiman writing from London at that time as he followed the course of the plague in various parts of the country.<sup>24</sup> Thus Morant's figures seem particularly trustworthy.

Certainly they agree for the most part with the three other totals of plague deaths which have survived. An entry in the All Saints Parish Register<sup>25</sup> states that 4,526 people died from the plague between 8 September 1665 and 21 December 1666. Five hundred and eight deaths from other causes were also noted, making up a total of 5,034. A very comprehensive, parish by parish, list of monthly deaths is to be found in the Gray MSS.<sup>26</sup> The deaths are recorded from 29 September 1665 to the beginning of December 1666. The figure here is slightly lower—a total of 4,559 made up of 4,145 plague and 414 non-plague deaths. Finally, Ralph Josselin listed in his diary the grim weekly totals of deaths in Colchester.<sup>27</sup> Not surprisingly, there is little attempt at statistical accuracy and, although the figures agree in general terms with the other sources, it is not always clear whether the totals refer to deaths from plague or simply, all deaths. Some 4,743 deaths are noted between 12 September 1665 and 2 December 1666, of which 21 are explicitly stated to be non-plague deaths. In addition, Josselin gives no figures for six separate weeks.

Despite the various qualifications which must necessarily be made the various sources seem to agree that the plague claimed about 4,500 victims during the two black summers of 1665 and 1666 and that a total of some 5,000 Colchester town-folk died in the short space of sixteen months.

It may be of interest at this point to briefly glance at the evidence parish registers yield as to the impact of a plague outbreak by considering the epidemics of 1603 and 1626. Seventy burials are recorded in St. Leonards for the year 1603. Exactly half were described as 'children of . . .' and there were 28 males and 42 females afflicted with the disease. This is in marked contrast to the findings of the Hollingsworths who have recently studied the 1603 Plague in a London parish.<sup>28</sup> But although demographers concentrate upon the age and sex-ratios of plague victims (this is possible only by the time-consuming method of family reconstitution) local historians are more concerned with less abstract aspects of the plague. For example, although 66 deaths occurred after 14 June 1626 (when the plague is stated in the register to have come to St. Peters) only 35 families were afflicted. Some households were truly ravaged by the epidemic. John Storman and six of his children died during the outbreak and six members of the Prior family (John, his wife and four children) all died between 26 June and 10 July. Sometimes facts speak for themselves.

<sup>24</sup> P.R.O. SP 29/148/38, 29/151/23, 29/177/6.

<sup>25</sup> The registers are kept at St. James' church.

<sup>26</sup> See note 17.

<sup>27</sup> See note 19.

<sup>28</sup> Mary Hollingsworth and T. H. Hollingsworth, 'Plague Mortality Rates by Age and Size in the Parish of St. Botolphs Without, Bishopsgate, London 1603', *Population Studies*, 25, 1 (1971), pp. 131-46.

Apart from the problem of the exact extent of plague mortality, it is of equal importance to examine how the authorities attempted to deal with these crises. Only fragmentary evidence of administrative activity survives for the plagues before 1665. On 20 December 1578 the Justices of the Peace directed the Bailiffs of Colchester to organize the selection of reliable persons to ascertain the causes of deaths during the epidemics. On the 25th the Bailiffs wrote to the Sargeant of the East Ward giving the same instructions for the selection of these men and calling a meeting of all concerned on the 29th of the same month. Thus an apparently efficient response was made by the town's officials to the initial directions from the J.P.s. The system which was thus instigated may be seen in a note, to which reference has been already, for St. Leonards dated 15 August 1579, which states that no one had died in that parish since the bill of mortality was last completed but that four were still sick.<sup>29</sup>

The first mention of organized relief is to be found in an entry in the Assembly Book dated 28 November 1603.<sup>30</sup> It reads:

At this assembly it is ordered that the double collection for relief of the infected sick people shall be from henceforth continued until Christmas Day next. And if that double collection will not extend to the satisfaction of the charges of the said infected that then the money of the towns paid in by Robert Baker of Bromley received by Mr. Alderman Wade shall be disbursed to the answering of the said charge.

(Spelling modernized as in all further transcriptions of original MSS.)

Although it is of interest to have details of the organization of such relief the memorandum poses some problems. What is the 'double collection' to which it refers? It may be some form of church collection made on fast days as took place during the 1665-6 plague but it is impossible to substantiate this. Again, the 'money of the towns' is by no means explicit. It is possible that this was similar to the levy that was made in 1665 on villages within a five-mile radius of Colchester. Thus the entry gives only a perplexing if tantalizing glimpse into the system employed in mitigating the effects of the plague.

Even before the advent of the plague in 1626 the town was taking stringent precautions against any possible infection. This is evident from a letter to the bailiffs from John Norman, a Norwich trader, dated 25 August 1625.<sup>31</sup> He assured them that his house was not infected by the plague which was then prevalent at Norwich and asked that his embargoed goods sent by him to Colchester might be released. His letter ends in the following way:

And this much I assure your worships, that if my house had been infected, I would not for the gain of any goods whatsoever in the world, sent any commodities whereby I might endanger others. The Lord knoweth my heart, I make a conscience of my ways. And further there is such a course taken by Mr. Mayor, his worship, that those houses that are infected, their doors are shut up and a watch continually kept that they go not out. Thus making bold to write the truth herein I commit your worships to God's protection.

<sup>29</sup> For these three documents see note 6.

<sup>30</sup> See note 9.

<sup>31</sup> E.R.O. Morant MSS., D/Y 2, Vol. XLVII, p. 365.

It is difficult to say whether the humble tone of the letter is evidence of a merchant's avarice or of the prevailing heart-felt concern over the threat of the plague. Norman also referred to a certificate signed by the Mayor of Norwich which stated that his house was clear of the plague. This, too, has survived;<sup>32</sup> the fact that such a certificate was deemed necessary may be taken as an indication of how seriously town officials dealt with anything to do with the plague, or again it may simply be further proof of the desire to ensure that nothing stood in the way of trade.

Despite these and, no doubt, other similar precautions, the plague reached Colchester in the following summer. Some form of relief for those afflicted was organized as it had been in 1603. This is apparent from a Privy Council order concerning Colchester's obligation to fit out a ship of 200 tons for the royal fleet.<sup>33</sup> The town had put forward 'the decay of trade and the charge of relieving their poor by reason of the plague' as reasons for its inability to obey the Council's instructions (the town was in fact relieved of half the charge, the rest being levied on the county). The Privy Council for its part attempted to contain the disease at Colchester by instructing J.P.s to ensure that only townspeople with certificates were allowed to go to fairs or markets, in particular the Braintree fair.<sup>34</sup> In addition, they stopped further prisoners being taken to Colchester Gaol where 'sundry of the prisoners there are lately dead of that contagious disease' (i.e. plague).<sup>35</sup> Thus there is clear evidence that both the central and the provincial authorities were fully aware of the practical problems posed by the outbreak and they acted in a seemingly efficient way to try to curb the virulence of the epidemic.

Unfortunately, very few of the documents shed any light on the plight of the townspeople themselves. The letter<sup>36</sup> which follows shows how the arrival of a family from plague-ridden Colchester affected the villagers of Polstead in Suffolk; it seems to deserve a full transcription:

To the right worshipful the Bailiffs of the town  
of Colchester his Majesty's Lieutenants there.

We the inhabitants of the parish of Polstead do earnestly crave your favour in the behalf of John Jernais a poor man of our town whom John Bennet of your town of Colchester hath most unjustly and maliciously cast into prison the case standing thus between them. In the time of God's heavy visitation the last summer upon your town John Bennet a wretched fellow not having the fear of God before his eyes and being maliciously bent against our town did purposely send one William Hare with his wife and children to a little base cottage of his which stood empty in our parish next to the King's highway, this William Hare dwelling in the most dangerous street in your town where the infection was round about him nay within the very roof under which he dwelt, and himself having the infection upon him for within six days after his coming he died of it. Whereby it pleased God that the infection did spread itself so dangerously in the street next adjoining, that within a very short time there died ten of the plague. Now in regard the cottage whither these persons infected came was a very unwholesome

<sup>32</sup> *Ibid.*, Vol. XLIV, p. 71.

<sup>33</sup> A.P.C., June-December 1626, pp. 103-4.

<sup>34</sup> *Ibid.*, p. 267.

<sup>35</sup> *Ibid.*, pp. 316-17.

<sup>36</sup> E.R.O. Morant MSS., D/Y 2, Vol. XLVI, p. 97.

room being unrepaired and uninhabited long before and standing just upon the King's highway dangerously for passengers, we the inhabitants of the town did direct the wife of the said Hare and likewise the wife of this John Jernais whom we did send into these persons infected to be a helper and a keeper of them in the time of sickness, we directed these women for their own safety and for the better clearing of the room with fresh air to pull down all the windows and to thrust off some of the tiles off the roof of the chamber which was made very noisome by the sickness of Hare. Now because the wife of John Jernais being then the keeper of these persons infected did this by our appointment, this lewd fellow John Bennet hath arrested this poor man merely out of a malicious mind to the great hindrance of the said Jernais. We therefore whose names are underwritten do earnestly entreat you to commiserate the case of this your prisoner and show him what favour may be and so commit your worships to the blessing of God in Christ and rest always.

Polstead

Your worships' assured loving friends

This 22nd of October 1626

James Bromell

Minister

(The other names are apparently lost.)

The plague of 1665-6 posed altogether bewildering problems for the town's officials. It is possible that no other provincial town faced such a virulent outbreak in proportion to its size. They were taking active steps to cope with the epidemic by August 1665 when according to an entry in the Oath Book dated 16 August the Bearers were paid 10s. a week with an additional 2s. for every corpse buried.<sup>37</sup> The rigid precautionary measures in force at this time are reflected in the Bearers' and Searchers' Oaths which are also to be found in the Oath Book.<sup>38</sup> The men were isolated entirely from the community even from their own families and they were to carry a white wand as a means of identification. The Bearers also swore to carry the corpses 'to the ground' which has been traditionally identified with the 'Mount' close to the Mersea Road which appears on a number of maps of Colchester, including Monson's of 1848. The pesthouses pose a problem. It is clear from the Chamberlain's Accounts of 1665<sup>39</sup> that there were at least two of them, one in St. Marys parish, the other at Mile End. But at the foot of the parish lists of plague deaths recorded in the Gray MSS. the deaths at only one pesthouse are recorded. Whether this means that only one pesthouse was used (which seems improbable) or that the deaths at both houses were included together is not clear.

The Assembly Book at this time is almost entirely devoted to the receipt and distribution of relief.<sup>40</sup> It is possible to establish a chronological pattern of how relief was organized.

1. The first relief seems to have come from collections in Colchester churches on fast days authorized by the Bishop of London. Between 9 October and 13 December 1665, this source realized over £71.

2. When it was obvious that church collections would be insufficient the J.P.s levied a tax on villages within five miles of Colchester. Lists showing the

<sup>37</sup> *The Oath Book of Colchester* (transcribed by W. Gurney Benham), p. 258.

<sup>38</sup> *Ibid.*, p. 257.

<sup>39</sup> B.R., Chamberlain's Accounts, 1664-5.

<sup>40</sup> B.R., Assembly Book, 1646-66, ff. 315-46.



assessment of villages in the Lexden, Tendring and Winstree Hundreds have survived.<sup>41</sup> The villages were rated at £108 a month for November and December 1665 and a total of £217 4s. was raised.

3. This too proved inadequate and early in 1666 the J.P.s ordered that £250 a month for the three months be levied on the Hundreds of Lexden, Dunmow and Hinckford.<sup>42</sup> In addition £121 was received from the Hundreds of Clavering, Uttlesford, Ongar and Witham in July 1666.

4. Then in May 1666 weekly collections were made in London churches by order of the King and these amassed £1,307 10s.

5. Throughout the outbreak donations had been received from private individuals, from other towns and from dioceses and these amounted to some £270.

In this way Colchester received the huge sum of over £2,700. The very fact that it is possible to estimate the exact sum of relief money which Colchester received is perhaps testimony to the diligence with which the corporation attempted to alleviate the suffering. Parish lists were regularly compiled for the distribution of even the smallest sums received and persons were named to organize relief in the parishes. Individuals who were to receive relief were also recorded together with disbursements for the various tasks which had to be performed. In May 1666, Halloway of St. Giles was paid for making the crosses on the doors of infected houses and payments were made at the same time for bedding.

Further evidence of the day-to-day administration is afforded by the Chamberlain's Accounts for Christmas 1665. Apart from disbursements for the payment of Searchers and Bearers substantial payments are recorded to masons and carpenters and glaziers for the building of new pesthouses in St. Marys parish and at Mile End. Beds and blankets were bought for the pesthouses and a Samuel Younger was employed to kill dogs and cats to prevent the spread of infection. It also appears from the payment of 12s. 6d. to the Mayor for four proclamations and the searching of corpses that the townsfolk were kept informed of plague regulations by public proclamation.

The County records give an indication of how conscientiously the J.P.s administered the relief of Colchester. After ordering the levy of £250 a month they ensured that the tax was stringently applied and they summoned before them those who refused to contribute.<sup>43</sup> They also had to make alternative arrangements for prisoners who would normally have gone to the Castle Gaol at Colchester—they sent one Pebmarsh labourer back to Chelmsford Gaol—and they were petitioned by a woman anxious about the safety of her husband kept at Colchester Gaol awaiting trial.<sup>44</sup> Their vigilance did not cease with the departure of the

<sup>41</sup> E.R.O. Q/SR 407/66-7.

<sup>42</sup> E.R.O. Q/SBa 105. Here it is stated that the money was to be raised in all the Hundreds but this is contradicted by the Assembly Book which lists the following contributions to be made:

Lexden	£92
Dunmow	£80
Hinckford	£78

£250 per month

<sup>43</sup> E.R.O. Q/SR 410/22, 412/47, 415/59.

<sup>44</sup> E.R.O. Q/SR 409/61, Q/SBa 2/104.

plague. They were not satisfied with the distribution of the relief money 'there being a surplusage left undisposed of, which ought to be repaid to the county'.<sup>45</sup> But this is a strange charge in view of the efficiency which seems to permeate the orderly accounts recorded in the Assembly Book<sup>46</sup>. In fact an entry under 30 April 1667 specifically states that there was only £81 of the relief money left in the hands of the officials. What the outcome was of this mystifying complaint is not apparent.

Any consideration of the economic effects of the final plague of 1665-6 must concentrate upon the dominant industry of Colchester at this time—the bay and say trade. In the opinion of K. H. Burley the 'English Fines' collected at the Dutch Bay Hall in December each year provide an approximate index of production.<sup>47</sup> The following figures are the amounts (to the nearest pound) collected before and after the plague:

1660	£83
1661	£86
1662	£77
1663	£94
1664	£97
1665	£92
1666	£31
1667	£61
1668	£101
1669	£115
1670	£121

Thus there was not only an immediate recovery of production after the plague but a subsequent expansion too. It may be fruitful at this stage to glance briefly at the other great crisis which Colchester's economy faced some seventeen years earlier—the siege of 1648. These are the relevant totals of 'English Fines', again to the nearest pound.<sup>48</sup>

1645	£53
1646	£42
1647	£38
1648	£36
1649	£67
1650	£72

Once more a rapid recovery and expansion is evident. How was Colchester able to overcome both these crises with such apparent vigour? Papers in the Stowe MSS. collection show just how concerned the corporation was to help those who had suffered hardship during the siege.<sup>49</sup> The £2,000 remitted by Fairfax was carefully distributed. As in the plague some years later, long lists of individuals who were to receive relief were compiled. The interests of the cloth industry were always

<sup>45</sup> E.R.O. Q/CP 3, p. 402.

<sup>46</sup> B.R., Assembly Book, 1646-66, f. 356.

<sup>47</sup> K. H. Burley, *Economic Development of Essex in the later 17th and early 18th Centuries*, thesis (1957), at E.R.O., pp. 148-9.

<sup>48</sup> My own figures taken from the Assembly Book.

<sup>49</sup> B.M., Stowe MSS., 842, ff. 39 *et seq.*

to the fore in the distribution of relief. £2 6s. was paid 'for a loom by Mr. Mayor's order burnt at Mile End' and a Mr. Reade was paid £1 'for a loom for a poor man'. The parallels are strikingly obvious. The remarkable recoveries made after the siege and the plague may be at least partly ascribed to the vigilance of an active and economically-minded corporation.

The recovery from the plague appears even more remarkable when it is considered that it would be the crowded industrialized areas which suffered the heaviest mortality. The wealthier townspeople such as Nicholas Corsellis<sup>50</sup> were, by contrast, able to leave Colchester. Unfortunately, no accurate pre-plague population figures exist for Colchester parishes with which to discover which parishes suffered proportionally more deaths than others. Apart from mentioning that the four outlying parishes—Berechurch, Greenstead, Lexden and Mile End—not surprisingly received little or no relief according to the parish lists in the Assembly Book and that the industrial parishes of St. Giles, St. Peters and St. Botolphs always figured prominently in the relief disbursements, little more can be deduced.

The effect the plague had upon the town's administration has been touched upon already. Despite the charge that not all the relief money was distributed, the officials seem to have coped remarkably well. It even proved possible to organize a parish by parish collection for the poor of London in October 1666 which raised £103 8s. 9d.<sup>51</sup>

What part did the plague play in the demographic growth of Colchester? Certainly there can be little danger of over-exaggerating the immediate effects. The figures for the Hearth Tax (given in Table II with plague-death totals) show large numbers of empty houses and of those exempt from payment even before the second outbreak of the epidemic during the summer. It is true that some of the empty houses may have belonged to those who left the town but many households were undoubtedly ravaged by the disease. The 935 households recorded suggests a population of just over 4,000 if a multiplier of 4.4 is employed.<sup>52</sup> Since the figures do not take into account the recrudescence of the plague (involving at least half the 4,500 plague deaths) a total of 4,000 inhabitants is too low to be credible in view of a probable pre-plague population of at least 9,000. But it would have been remarkable indeed if a comprehensive assessment could have been made at such a time. Whatever the exact population of Colchester may have been at the end of 1666 it remains evident that a rapid recovery took place in the following years for the population was probably as high as 9,000 in the early 1670s. E. A. Wrigley has suggested that the natural growth of a community will increase rapidly in response to the sudden impact of an epidemic.<sup>53</sup> (Whether this occurred in Colchester can only be ascertained by a painstaking study of the parish registers.) In addition, it is probable that a large-scale immigration into Colchester took

<sup>50</sup> L. C. Sier, 'Experiences in the Great Fire of London, 1666', *Essex Review*, Vol. LI (1942), p. 134.

<sup>51</sup> B.R., Assembly Book, 1646-66, f. 356.

<sup>52</sup> For this and other points in this paragraph see my 'Population Growth and Movement in Colchester and the Tendring Hundred, 1500-1800', *Essex Journal*, Vol. 7, pp. 31-6.

<sup>53</sup> E. A. Wrigley, *op. cit.*, p. 115.

TABLE II

	Hearth Tax, March 1666 <sup>1</sup>			Gray MSS. plague deaths <sup>2</sup>	
	Taxed	Exempt	Empty houses	Plague	Non-plague
All Saints .. ..	26	32	14	76	8
St. Botolphs .. ..	57	50	32	502	47
St. Giles .. ..	32	68	20	581	47
Holy Trinity .. ..	16	17	9	124	19
St. James .. ..	45	42	17	493	37
St. Leonards .. ..	32	46	27	265	17
St. Martins .. ..	25	15	8	300	19
St. Marys .. ..	34	54	27	364	49
Mary Magdalen .. ..	7	5	5	183	24
St. Nicholas .. ..	38	28	19	264	45
St. Peters .. ..	66	67	49	691	81
St. Runwalds .. ..	17	20	19	64	5
Berechurch .. ..	5	7	4	1	0
Greenstead .. ..	8	15	7	85	5
Lexden .. ..	11	28	16	82	8
Mile End .. ..	3	19	6	47	3
Pest House .. ..				23	0
	422	513	279	4,145	414
	935 households			4,559 deaths	

<sup>1</sup> P.R.O. E.179/246/20.<sup>2</sup> E.R.O. D/DRg 1/226, pp. 132-5.

place which was part cause and part result of the continued growth of the cloth trade until the end of the century.

The plague therefore played an important and recurring role in the history of Tudor and Stuart Colchester. The effect that it had on the everyday life of the town was profound; the generalizations of the historian cannot and should not hide the harsh realities of death and suffering. At least half the town's population died during the two tragic years of 1665 and 1666. Yet, in the long term, the vigilance of the local officials and the resilience of the cloth industry ensured that the plague did not prevent Colchester from continuing to grow in numbers and in economic strength until the end of the 17th century.

# Archaeological Notes

*nemus de Eduluesnasa* in 1127

By PETER B. BOYDEN

THOSE who wish to study the history of the St. Paul's Manor of Eadwulfesness will find that a great bulk of the material they will wish to work on has been collected together and published by the Camden Society in three volumes<sup>1</sup> of documents from the Chapter Library of St. Paul's Cathedral. In most of the documents reproduced in the earlier two volumes it is possible readily to distinguish between the three parishes of the manor, Walton, Kirby and Thorpe as we now know them. In some cases, though, as for example in the Exchequer Domesday of 1086,<sup>2</sup> we simply get one entry under *Aeduluesnasa* with no distinction made between parishes.<sup>3</sup>

It is unfortunate that the only document relating to Eadwulfesness in the 1939 collection<sup>4</sup> is like the Exchequer Domesday in that it simply speaks of *Eduluesnasa* in the document itself, though it has been endorsed at the same time as the document was written *parke kirkby*. It was subsequently endorsed again in the 13th century with *de medietate parce de Claknton* and in the succeeding century with *Edulusnasa*. The seal is missing. The editor has headed the document thus: 'Richard I, bishop of London, restores to the Canons of St. Paul's their wood at Walton-le-Soken (Essex) which he had enclosed in his park at Clacton (Essex)'.

It is quite reasonable to equate *Edulusnasa* with Walton, since it is reasonably certain that the name of the Soke was derived from the promontory we now call the Naze, and with the three references to Eadwulfesness in the *Anglo-Saxon Chronicle*,<sup>5</sup> as I have argued elsewhere,<sup>6</sup> it is reasonably certain that Walton is referred to in both instances, and it has become the practice to equate Eadwulfesness

<sup>1</sup> Hale, Wm., ed., *The Domesday of St. Paul's* (1858); Simpson, Sparrow, ed., *Visitation of Churches belonging to St. Paul's Cathedral in 1297 and 1458* (1895); Gibbs, Marion, ed., *Early Charters of the Cathedral Church of St. Paul, London* (1939).

<sup>2</sup> II Folio, 13b; Round's translation, *Essex V.C.H.*, 1 (1903), 443.

<sup>3</sup> We have an entry for a manor and 27 hides, belonging both in 1066 and 1086 to St. Paul's, plus an entry for Birch Hall (32b) of one manor and 3 hides, held by Robert of Colne Engaine for Eustace of Boulogne in 1086. This must have originally been a part of the Soke, though when it passed finally from St. Paul's is unknown. The so-called Charter of Athelstan of 939 (Birch, ed., *Cartularium Saxonicum*, II (1887), 451, No. 737), which has recently been shown to be a forgery or a later concoction by St. Paul's to explain their possession of certain lands (Sawyer, P. H., *Anglo-Saxon Charters, an Annotated list and Bibliography* (1968), 180, No. 453 and Whitelock, D., ed., *English Historical Documents*, 1 (1968, 339), contains a reference to the manor of *Tidwoldutine* (Heybridge), which did not pass to St. Paul's until 1002 (Whitelock, D., ed., *Anglo-Saxon Wills* (1930), 143), lists 30 hides for Eadwulfesness, so the separation of Birch Hall must have come about at some time between 1002 and 1066, when it was held by Ingelric of St. Paul's as a piece of private property. Some time between 1066 and 1086 it passed from St. Paul's altogether to Eustace.

<sup>4</sup> No. 60, p. 43. MSS. A41/1488 Original; Liber A, fo. 5b (55); A73/1906.

<sup>5</sup> MS. C-1049 and MS. D-1050 (*sic*)—recording a Danish attack, and MS. E-1052—flight of Bishop Ulf.

<sup>6</sup> *History of Walton*, Part I (1972), ix.



and variants of this spelling with Walton without more ado. Miss Gibbs has followed this tradition, but the contemporary endorsement shows beyond shadow of doubt that Kirby is in this case being referred to.

Even if there had not been this helpful endorsement, it is clear from the map of the manors recorded in 1086—a position that would have changed little, if at all by 1127—that unless the parish of Walton was much bigger than it is now, Walton can hardly be that part of Eadwulfesness that included the *nemus*, a part of which was incorporated into the bishop's *percio de Clackentona*. As the map shows, the manor of *Holanda* is between the Walton section of Eadwulfesness and Clacton, and so the *nemus* must either have been in Kirby or Thorpe, and the endorsements tell us that in fact it was Kirby.<sup>7</sup>

<sup>7</sup> The idea of writing this note came from H. R. Loyn, M.A., D.Litt., F.R.Hist.S., F.S.A., Professor of Medieval History, University College Cardiff, and I would like to thank him, and the late R. Welldon Finn, M.A., for their assistance in compiling it.

## OUR CONTRIBUTORS

I. G. Doolittle is a Scholar reading Modern History at Lincoln College, Oxford, and living at Great Bentley. The author of 'Population Growth and Movement in Colchester and the Tendring Hundred' in the *Essex Journal*, Spring 1972.

R. Welldon Finn, M.A. Educational Publisher and subsequently on the Research Staff at University College, London 1955-58 and 1962-66. Author of 'The Domesday Inquest and the Making of the Domesday Book', *Domesday Studies: Liber Exoniensis* and 'The Eastern Counties' and 'The Norman Conquest and its effects on the Economy, 1066-86', etc. He died in 1971.

P. J. Drury, A.R.I.C.S., is a Chartered Surveyor, who has, since 1970, been directing rescue excavations on various sites in Essex for the Chelmsford Excavation Committee, and the Essex Archaeological Society in conjunction with the Department of the Environment.

P. J. Huggins, B.Sc.(Eng.), C.Eng., M.I.Mech.E., is Senior Lecturer in Mechanical Engineering, Middlesex Polytechnic. Member of Council of Essex Archaeological Society and Vice-Chairman of Waltham Abbey Historical Society. Author of articles in *Medieval Archaeology*, *Post-Medieval Archaeology*, *London Archaeologist*.

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